Curtin University

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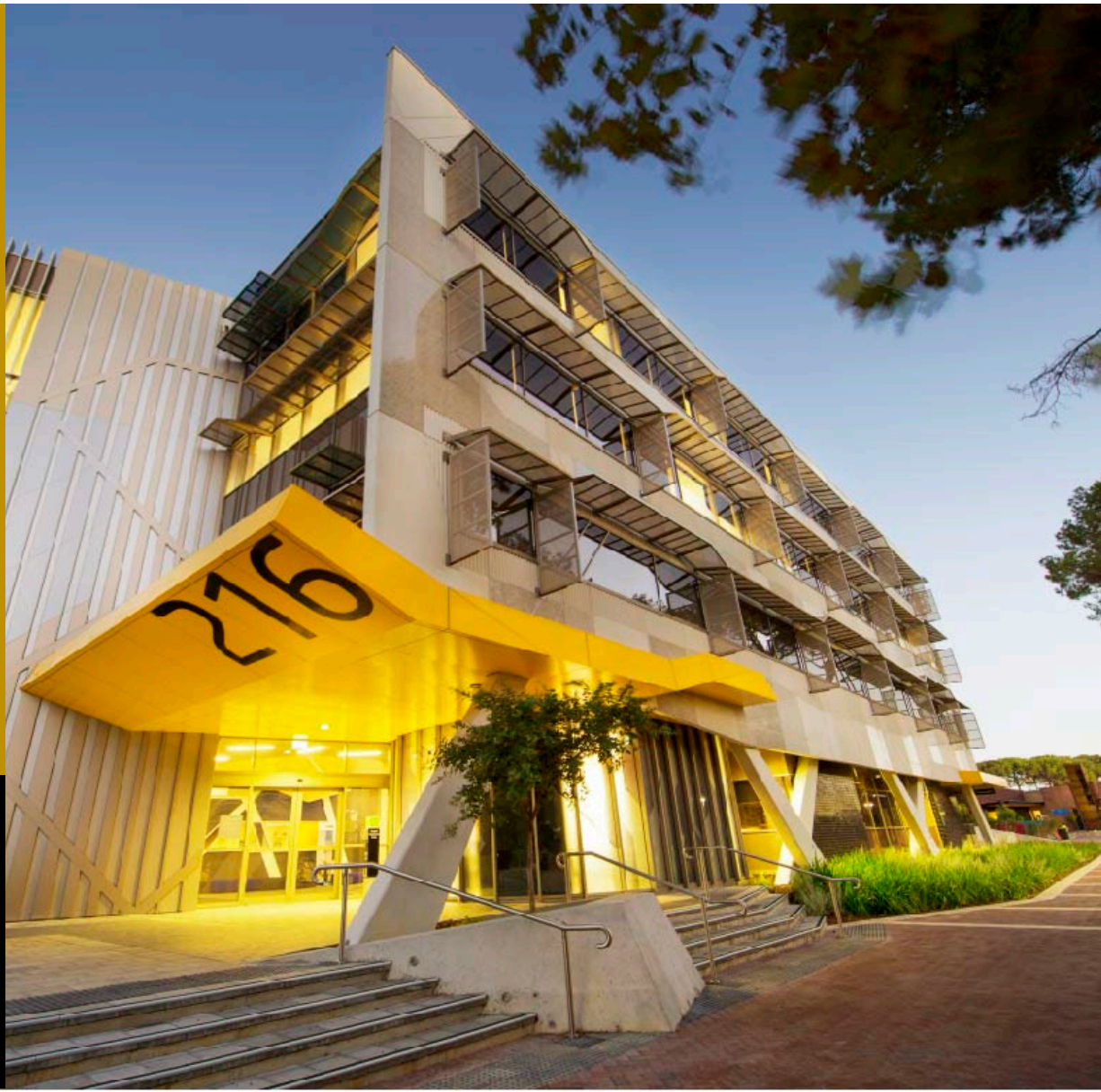
PF&D FACILITIES & ASSETS

CONDITION & FUNCTIONALITY ASSESSMENT FRAMEWORKS



Acknowledgements

The provision of documented information used during the compilation of this guide is acknowledged. Curtin University's aim has been to utilise the most up-to-date practical experience being demonstrated by users across Australia.

This guide draws on concepts contained in the TEFMA Facility Audit Guideline and the International Infrastructure Management Manual (IIMM),

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Revision History

Ver	Approved /Amended /Rescinded	Date	Committee /Board /Executive Manager	Approval /Resolution Number	Key Changes and Notes
1.0	Amended	18/05/2017	Committee	-	First draft
1.1	Amended	01/06/2017	Committee	-	First draft amended
1.2	Amended	16/06/2017	Committee	-	First draft amended
2.0	Amended	02/08/2017	Committee	-	Second draft
2.1	Amended	29/08/2017	Committee	-	Final version
3.0	Amended	02/11/2017	Committee	-	Practical condition assessment completed to validate framework
3.1	Amended	14/11/2017	Committee	-	realigned assessment detail and terminology with SAMP
3.2	Amended	07/12/2017	Committee	-	Revised figures and terminology
3.3	Amended	06/02/2018	-	-	Edits resulting from a final CU review
3.4	Amended	18/10/2018	-	-	Edits resulting from a final CU review

Contents

Executive Summary

Curtin University has a vision of being a recognised global leader in research, education and engagement. To achieve that vision, Curtin University has identified the need to develop and implement strategic asset planning for University property and facilities. The intention of this is to support delivery of quality facilities that meet current and emerging needs.

Curtin University engaged WSP (previously Opus International Consultants) to develop assessment frameworks, including data requirements, for condition and functionality for its facilities.

The asset condition assessment provides the process for gauging the level of deterioration, performance, timing for capital works, risk of deferring works, scope of works, and identification and notification of urgent maintenance issues. The functionality assessment measures the degree to which the facilities support the needs of the people who use the facilities and the programs delivered in the facilities.

The condition assessment has two main considerations:

Effectiveness – which is a measure or rating of how the facility or asset it is meeting the service performance for which it was intended. Assets deteriorate due to a number of factors such as age, use, materials of construction, environmental influences, etc. This deterioration is measured on a rating scale between new and unfit for use. The rating scale can be used to equate the current state of the facility or asset with intervention criteria set by the University and also provide an indication of its remaining useful life, As the facility or asset approaches the intervention criteria the University has time to consider what the intervention may involve. This may be a renewal to restore it to a higher rating, a repurposing to change its use, an upgrade to increase its capacity or a disposal or demolition because it no longer meets the needs – or a replacement because the same service is required but the existing asset or facility cannot be economically renewed.

Appearance – assets or facilities can be in good working order, but their appearance does not meet image that the University wishes to project. A degraded appearance is a valid reason to intervene to restore the asset or facility. Appearance can be represented on a rating scale from new to poor.

Another consideration is Risk. In this case the risk rating relates to whether or not the intervention can be deferred and provides a broad indication of consequences of a deferral. If a deferral will result in say increased costs or increased safety concerns then the deferral risk will rate higher than if there are no obvious impacts.

Both frameworks, condition and functionality, are specifically designed to generate rich data, from a current facility status perspective, that will assist in the strategic asset planning of facilities and assets in the future. The Strategic Asset Management Plan (SAMP) describes how the condition and functionality data will be used as planning considerations for determining the ‘best’ outcome for Curtin University to meet its business objectives.

Terminology and Formatting

Terminology

Acquisition	Acquiring a new asset or facility through direct purchase or through a process of design and construction.
Asset	An asset is an item, thing or entity that has potential or actual value to an organisation. The value will vary between different organizations and their stakeholders, and can be tangible or intangible, financial or non-financial.
Asset Amenity	A desirable or useful feature or facility or a building or place. May also be pleasantness or attractiveness. Amenity is generally a subjective appreciation by users and is assessed as part of determining the level of service that the building, facility or place provides.
Asset Appearance	The appearance can be a consideration for renewing or replacing an asset. Whist it might not affect the effectiveness or performance of an asset an unsightly appearance might detract from an organisation's public image which in turn may have economic consequences.
Asset Appreciation	A subjective measure of the user's perspective on whether they appreciate a facility in terms of whether they actually value its existence and use it. If there is a low appreciation of a facility, then its existence may be questioned.
Asset Class/Type/Group	A grouping of assets having common characteristics that distinguish those assets as a group or class.
Asset Effectiveness	Effectiveness is a condition assessment of whether the asset is performing the duty or providing the desired level of service for which it was intended. Generally, assets deteriorate with age and use, often referred to as "being consumed". A rating system is generally used to define the current level of effectiveness compared to its effectiveness when new.
Asset Hierarchy	An asset hierarchy is a framework for segmenting an asset base into appropriate classifications. The asset hierarchy can be based on asset function; asset type or group or class; or a combination of them. The hierarchy is generally a parent-child relationship. A building may be recognised as an asset (or facility) but it has many subordinate or child assets, including its main structural components such as floors, walls and roof, mechanical, electrical and hydraulic systems and equipment. A motor on a chilled water pump in the air-conditioning system may be the lowest level in the hierarchy of assets in the building. Costs and work effort on the motor asset may be recorded at that level and rolled up to inform ownership costs at the building asset level or facility level or at campus level.
Asset Management	Co-ordinated activity of an organisation to realise value from assets.
Asset Management Plan	An AMP is documented information that specifies the activities, resources and timescales required for an individual asset or grouping of assets, to achieve the organisation's asset management objectives.

Asset Management System	An integrated business management system for managing assets – not a software system. The function is to establish the asset management policy and asset management objectives.
Asset Register	A list or database of the assets owned by a business. It contains pertinent details about each asset to track their value and physical location. The register shows the quantity and value of things like office equipment, buildings, vehicles, furniture, computers, communications systems and equipment.
Asset Life	The period from asset creation to asset end-of-life. Assets generally have a design life which is the theoretical period that designers anticipate that the asset will perform its designated service. For a variety of reasons, some related to the actual application or the working environment, some related to obsolescence, or some related to higher usage than anticipated, the actual Useful Life of an asset may differ from its design life. The Remaining Useful Life is generally ascertained from assessing the condition and performance of the assets and extrapolating its rate of consumption or deterioration.
Backlog Access Works	All works that are necessary to meet current access codes or standards.
Backlog Maintenance	Defined as essential maintenance work that has not been carried out and is deemed necessary to bring the condition of a maintainable asset up to a standard or acceptable level of risk that will enable the required service delivery functions of the asset to continue.
Backlog Refurbishment	Refurbishment that is necessary to bring a room, building or service up to a new standard.
Backlog Statutory Refurbishment	Refurbishment that is necessary due to changes in legislation.
Backlog Other	Backlog activities not included in the other backlog categories.
Building Service System	A connected utility service such as HVAC, fire protection, and communications that generally serve the facilities where they are installed.
Capital Plan	A Capital Plan is a schedule of identified future asset centric infrastructure projects that are considered necessary for the future growth and sustainability of the University. Projects can include replacement, refurbishment, renovate /repurpose /upgrade or new assets. Potential projects are justified and sorted, but not approved for implementation.
Capital Program	A Capital Program is an approved commitment of future infrastructure projects that are essential for the assets to meet organisational imperatives and asset preservation requirements. Work activities can include replacement, refurbishment, renovate/repurpose/upgrade or new assets. These projects have originated from Capital Plan and been subject to prioritisation, justification, and affordability processes.
Design Life	The assessed length of time the asset or element is expected to operate and function prior to failure. Generally, assumes a standard of care or maintenance.

Disposal	A work activity that decommissions an asset and removes it from the asset register. This activity is triggered when the asset is not required by the organisation. Disposal covers sale, abandonment, demolition, and gifting the asset to another organisation/party.
Facility	A facility refers to a larger asset entity such as an individual building, sporting arena, or a particular geographic part of a pipe or cable network. Individual assets are generally part of a facility and costs and works to those assets can be accumulated at facility level.
Facilities Plan	A plan which ranks the relative importance of a facility to the University.
Facility Portfolio	The portfolio of all facilities of the same type. e.g. all buildings.
Facility Portfolio – Buildings	All single or multi-storey structures that generally have a floor, walls, roof, doors and windows. Includes houses, units, research and learning buildings, stadia, toilet blocks, garages, workshops, stores and equipment sheds. Including the sub-systems to support occupation and usage such as electrical installations, hydraulic services, vertical transportation, air-conditioning, etc.
Facility Portfolio – Public Places	A broad classification that Includes linear assets such as publicly accessible paths, roads, retaining walls; fixed seating, signage, carparks, gardens and plants open spaces, sporting fields, lighting, gazebos, drainage areas, etc. Generally defined as any land that is managed for the purposes of public recreation, conservation, amenity or landscape enhancement. Garden and fields irrigation systems (bores, pumps, timers, pipework, sprinklers) are included in this asset classification.
Facility Portfolio – Inground Infrastructure	A broad classification that includes cables, pipes. Some assets directly related to the inground infrastructure are often above ground e.g. pumps and transformers. From the property boundary or take-off point up to a building entry point including electricity, water, fire, wastewater, underground drainage, fuel reticulation, communications cables gas reticulation and district hot/chilled water system. The major components of the District Energy Plant are covered within this asset group. Generally, the main meters, recording incoming services, are owned by the service providers, with the University owning the sub-meters which are used for monitoring serviced areas or for loss or leakage management.
Level of Service	Parameters or combination of parameters, which reflect social, political, environmental and economic outcomes that the organisation delivers.
Life Cycle Cost	The combined cost of asset ownership over a lifetime, being the sum of the acquisition cost, maintenance and operations costs and disposal costs
Maintenance	A work activity that responds to defects, breakdowns, replacement of consumable items, and failure of minor components.

Natural Assets	Assets of the natural environment. These consist of biological assets (produced or wild), land and water areas with their ecosystems, subsoil assets and air.
New	A work activity that creates an asset that did not previously exist. Work activities may include new construction, acquisition by purchase or inheriting an asset.
Operations	Work activities required to manage facilities and maintenance' and includes management personnel, labour, maintenance management systems and related technologies, administration, and insurance management.
Portfolio	An asset portfolio represents the grouping of like assets across a defined geography. This level of grouping is typically used to summarise individual facilities and assets.
Property Facilities	Facilities managed by the PF&D Department.
Preventive Maintenance	Periodic maintenance activities that prevent failure to the building components to ensure reliable operation and general good maintenance practice to preserve assets in a condition appropriate for service delivery. Activities also include operational servicing and replenishment.
Reactive Maintenance	Reactive work undertaken due to breakdowns and failure of building components and services.
Refurbishment	A work activity that restores the service potential of the asset, also referred to as renewal or renovate. Refurbishment can defer the capital cost of replacing an asset.
Renewal	Works to either refurbish, or replace existing assets as determined by condition-based intervention criteria that determine the end of useful asset life. Renewal works are generally a result of deteriorated asset condition identified through condition and effectiveness assessments.
Renovate	Works that refresh the asset appearance cosmetically with little impact on asset integrity.
Repurpose	A work activity that represents upgrading or repurposing an asset to change its service potential to meet another need. Repurposing generally applies to facilities or building spaces that require reconfiguration to better meet the expectations of stakeholders.
Room	An enclosed space within a building that has a unique location reference. Rooms can include offices, teaching theatres, laboratories, studios, ancillary rooms, libraries, cupboards, store areas, covered spaces, and general facilities.
Statutory Maintenance	A subcategory of preventative maintenance that includes activities associated with undertaking maintenance to meet mandatory requirements of various regulations such as the servicing of fire protection systems.

Strategic Asset Management Plan	A SAMP is documented information that specifies how organisation objectives are to be converted into asset management objectives, the approach for developing asset management plans and the role of the asset management system in supporting achievement of the asset management objectives.

Acronyms

AM	Asset Management
AMP	Asset Management Plan
AMS	Asset Management System
SAMP	Strategic Asset Management Plan

Referenced Documents

Curtin University Planning Procedures, https://policies.curtin.edu.au/local/docs/policy/Planning_Procedures.pdf

Curtin University Strategic Plan 2017-2020, Curtin University (2016).

Institute of Public Works Engineering Australasia (2015). International Infrastructure Management Manual (IIMM), 5th Edition. IPWEA.

Institute of Public Works Engineering Australasia (2009). Buildings Condition & Performance Assessment Guidelines, Practice Note 3 – Buildings, Sydney, IPWEA.

Institute of Public Works Engineering Australasia (2017). Parks Management: Inventories, Condition & Performance Grading, Practice Note 10.1 – Parks, Sydney, IPWEA.

ISO (2014) ISO 55001:2014(E). Asset management – Management systems: Requirements, First Edition. Switzerland, ISO.

Document Formatting

A consistent colour scheme has been used in this SAMP and associated documents. This is described below:

ORGANISATION LEVEL (Corporate Strategic)

STRATEGIC LEVEL (PF&D Strategic)

TACTICAL LEVEL (Operational)

ENABLING FUNCTIONS

1 Overview

1.1 Purpose

Curtin University has a vision to make its campuses a greater place for all. Given the future growth aspiration, the Properties, Facilities and Development (PF&D) Department is committed to constructing a strategic approach to asset planning and asset management to maximise the benefit and value of the assets to the university. In this context, a structured approach that translates the business needs of the university into its asset needs and provides the basis for delivering appropriate, highly valued, highly utilised, and cost-effective assets into the future.

This initiative supports the broader sustainability imperative of the university, which includes governance and innovation, design excellence, environmental sustainability, economic prosperity and liveability.

This asset assessment framework has been developed specifically in response to the strategic asset planning needs of the university. Accordingly, this framework is linked to the asset planning process to inform evidence-based decision making for assets. The key outputs in terms of the asset assessment framework are to ensure the collected data is:

- Meaningful and relevant to a strategic asset planning approach;
- Accurate, reliable, and representative;
- Repeatable; and
- Consistent in terms of location referencing, data representation, data format, content and integrity.

The key purpose for this assessment framework is to provide Curtin University documented and structured guidance, in context with its strategic asset planning process, to ensure a planned and aligned approach for the collection of asset data.

1.2 Value of Data

The intent and value resulting from the data collected to a strategic asset planning approach is shown in Table 1:

Table 1: Value of Data for Strategic Asset Planning

Assessment Type	Measure	Strategic Asset Planning Value
Condition	Effectiveness	Measure the current effectiveness of assets relative to the desired appropriateness and reliability for the identification of candidate capital works (replace or refurbish).
	Appearance	Measure the current visual appearance relative to the desired visual appearance for the identification of candidate capital works (replace or refurbish).
	Remaining useful life	Assess the remaining useful life of assets to determine if capital works are required within the next five years. This triggers the need for an asset risk assessment and associated scope of work.

	Risk assessment	A risk assessment that determines whether capital works can be deferred, within an acceptable level of risk, to a later time period. This assessment also quantifies the risk allowing acceptable trade-off between performance, risk and cost.
	Capital works scope	A description of the proposed capital works to provide increased confidence in estimating the capital works out-turn cost.
Functionality	Asset comfort	Identification of a facility or space improvement opportunity relating to user comfort.
	Asset amenity	Identification of a facility or space improvement opportunity relating to user amenity.
	Asset appreciation	Identification of a facility or space improvement opportunity relating to user appreciation.

2 Framework Descriptions

This guide presents two separate asset assessment frameworks:

2.1 Asset Condition Framework

Condition, comprising both effectiveness and appearance, is a key property performance indicator for triggering renewal works. Under-investment in facilities maintenance often leads to significant deterioration of the assets to the point where they can no longer meet the needs of the business. The asset condition assessment provides the process for gauging the level of deterioration, performance, and identification of urgent maintenance.

The objectives of the condition framework and associated methodology are to produce:

- An assessment method that is accurate, reliable, and representative;
- An assessment method that is repeatable;
- A process that is affordable but scalable; and
- A process that produces meaningful data for strategic asset planning purposes, particularly regarding capital works.

The condition assessment also incorporates an asset renewal deferral risk assessment that considers fundamental risks to the university, should the recommended renewal works be deferred for any reason. This risk assessment provides information for the strategic asset planning process, allowing works to be deferred to accommodate other higher priority works. Risks include cost increases, user safety impacts, and university operational impact.

2.2 Asset Functionality Framework

The Functionality Assessment measures the degree to which the facilities support the needs of the users of the facilities. That is, it acts as a measure of the extent to which an institution's facilities meet current and to inform future teaching and research needs.

A standard assessment methodology for functionality is required to gain a more valuable insight into this aspect of facility performance.

The objectives of the functionality framework and associated methodology are to produce:

- An assessment method that is credible and robust;
- An assessment method that is easily understood and repeatable;
- A process that is affordable but scalable; and
- A process that produces meaningful data for strategic asset planning purposes, particularly refurbishment, repurposing and new buildings/spaces.

3 Strategic Asset Planning Context

3.1 Strategic Intent

Assets, and value realised from assets, are the basis for any organisation delivering what it aims to do. Whether public or private sector, and whether the assets are physical, financial, human or 'intangible', it is good asset management that maximises value-for-money and satisfaction of stakeholders' expectations. It involves the coordinated and optimised planning, asset selection, acquisition/development, utilisation, care (maintenance) and ultimate disposal or renewal of the appropriate assets and asset systems.

3.2 Strategic Approach

Strategic asset planning at Curtin University is specifically designed to collaboratively develop a Capital Plan that provides the best 'value' to the organisation. Value, in this context, is measured across multiple organisational level imperatives, which have been translated into asset management objectives for asset planning purposes.

The planning approach is driven from a 'top – down' and 'bottom – up' process. This combines the broader asset decisions of the university with the current asset performance to develop a final capital works program (Figure 1).

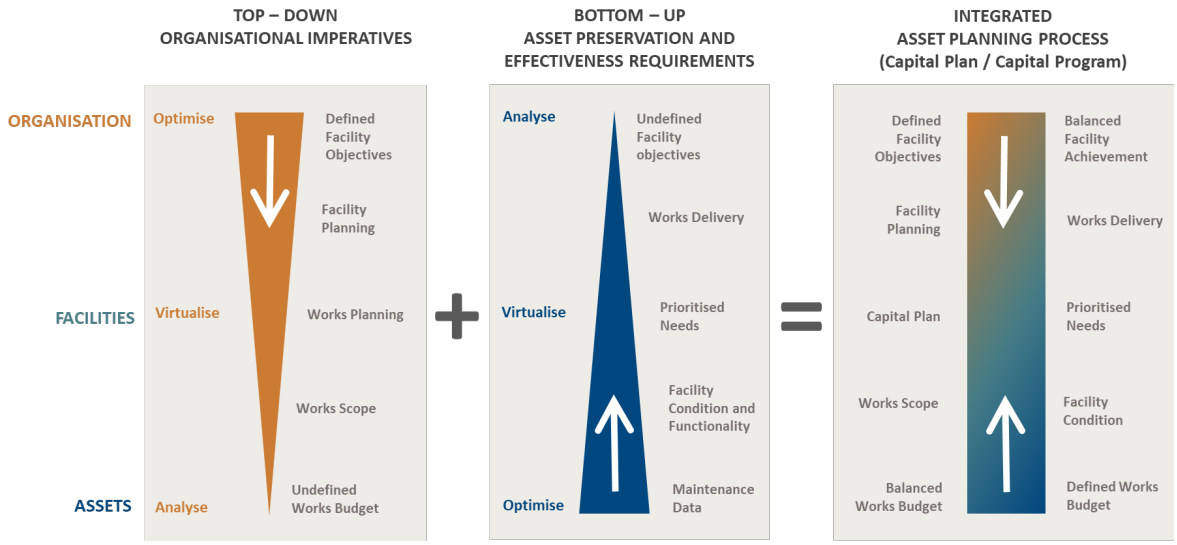

Figure 1: Integrated Strategic Planning Process

This approach ensures that the current maintenance and operational practices are considered in the broader context of asset planning. The asset condition and functionality assessments are fundamental to the 'bottom-up' planning process to provide rich data that informs the prioritisation of asset preservation and effectiveness improvement works for investment consideration.

3.3 PF&D Capital Plan

The relationship of the condition and functionality to the integrated development of the PF&D Capital Plan is shown in Figure 2 as highlighted in the red box. Asset compliance is managed separately outside of PF&D.

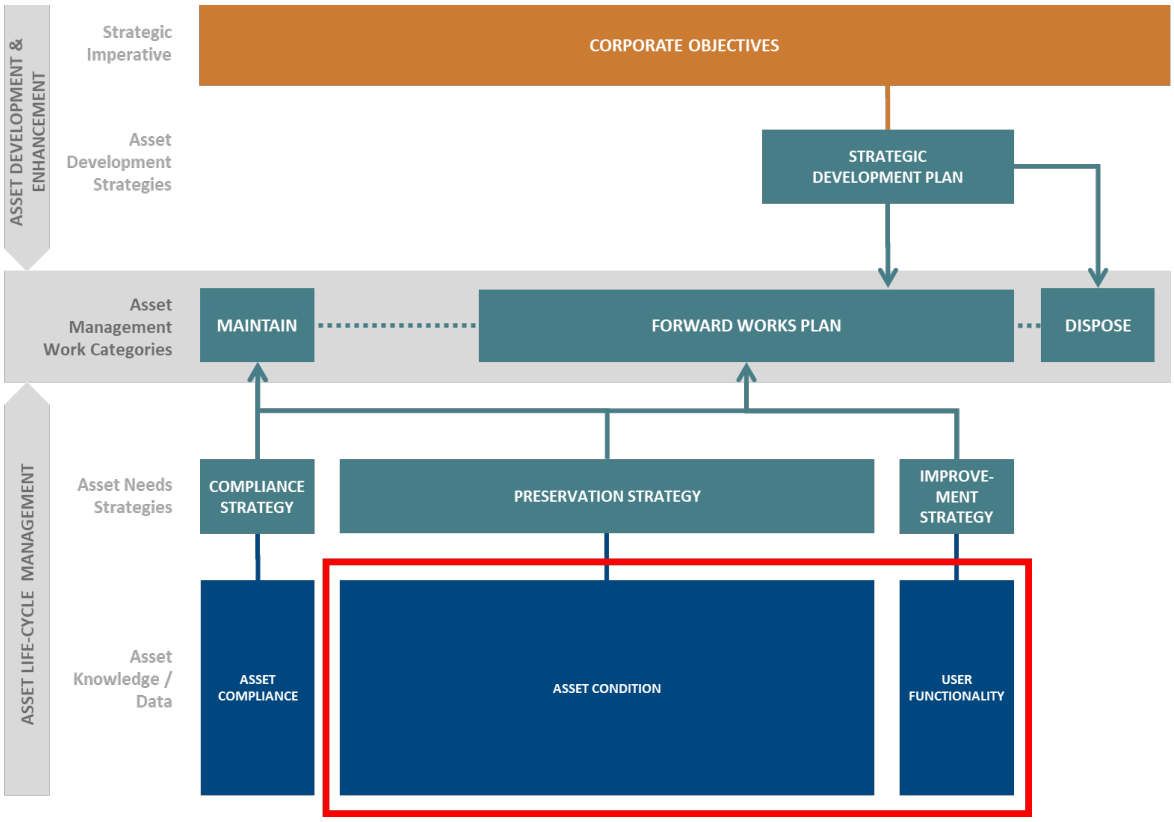

Figure 2: Capital Plan Development Process

Asset data provides the evidential basis for understanding asset performance over time. Accordingly, the data informs effective asset life-cycle management strategies and activities that are described in the Asset Management Plan (AMP).

This process draws on data from a bottom up approach to develop an asset based works program that feeds into the portfolio capital works planning process. The planning draws on the following:

Asset Knowledge	Personnel within the maintenance teams of PF&D will have inherent knowledge on the asset they are responsible for. Typically, this knowledge includes known issues with assets that would not be identifiable through a condition assessment process. They will also understand asset types and brands which exceed their expected useful life and those which do not perform well. In addition, stakeholders using the assets can add significant value in identifying well performing spaces and those where improvements could be made.
Asset Data	Condition assessment data is a key input into understanding asset performance. As part of the collection of this data, the impact of deferring the works needs to be understood to inform the planning process of impact of deferrals. Determining the level of functionality will also inform the planning process of where changes need to be made to enhance the stakeholder experience and where efficiencies can be gained from the assets.
Asset Needs Analysis	The analysis of the condition and functionality data will identify and determine when works need to be undertaken to both improve the performance and function of the assets. This analysis will also provide scenarios over the first five years based on the deferral risk analysis. The output from this exercise

	will be a calendarised and costed plan of potential asset improvement projects.
Asset Strategies	There are separate strategies for asset preservation and asset improvement. The asset preservation strategy provides the 'best' treatment option to address the conditional and performance issues identified from a condition assessment. This strategy guides the renewal activities. Where the works are deferred, this will have an impact on the maintenance program, as maintenance expenditure on these assets is likely to continue and potentially increase over the works deferral period. The asset improvement strategy will determine potential projects that are required to address functional improvement opportunities. These work activities are primarily related to refurbishment, repurpose/upgrade and new assets. These work activities form the basis for initiating and promoting projects into the capital panning process.

4 Asset Condition Assessment Framework

The asset condition assessment framework is shown in Figure 3.

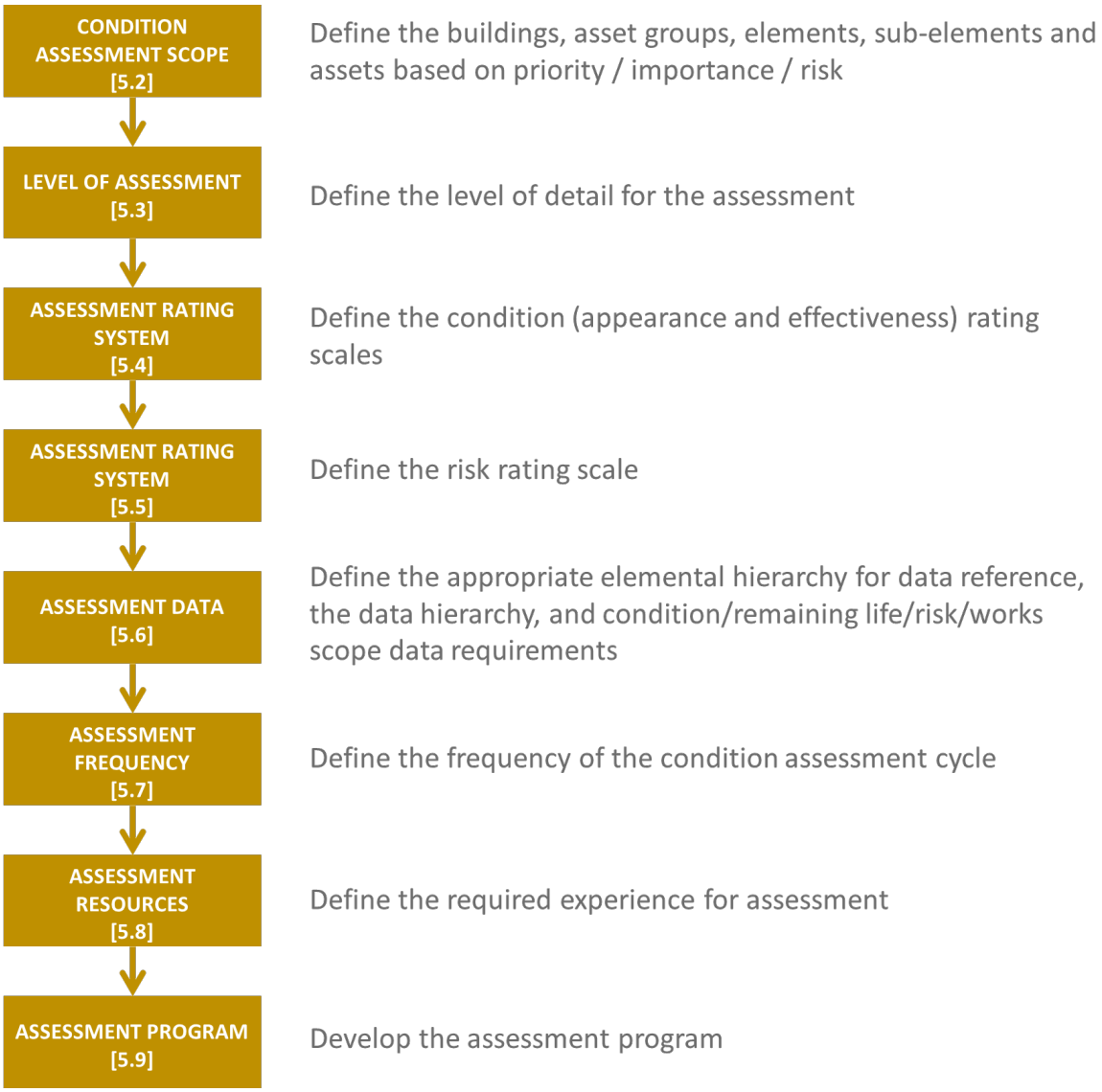

Figure 3: Asset Condition Assessment Framework

4.1 Assessment Purpose

The condition assessment will provide a condition based data set that will enable (in priority order):

- Condition based renewal planning (timing and scope);
- Identify any urgent building and safety compliance issues; and
- Identify urgent maintenance works.

In addition to the above data uses, the full data set will also inform the following asset management activities:

- Strategic management and planning;
- Capital projects;

- Operations and maintenance;
- Condition based building valuations;
- Condition based reporting; and
- Monitoring asset and service performance.

4.2 Assessment Scope

What assets?

Undertaking large scale condition assessments is typically expensive and generates large quantities of data against a broad range of assets. A critical step in developing the condition assessment scope is to determine which assets are included in each of the assessments. This could include:

- All buildings across the Bentley Campus;
- Strategically important buildings only;
- All buildings within a precinct;
- Selected buildings across the campus;
- All public places;
- All Inground Infrastructure;
- Certain Inground Infrastructure; or
- A combination of the above.

If all assets are not subject to a condition assessment, then it is recommended that critical facilities and assets (as determined by risk) are undertaken in Year 1 and in subsequent years are undertaken on a precinct level / geographic zone. Ensure that within five years all facilities and assets, that require a condition assessment, are completed.

Any assets that are marked for demolition or removal, within a five-year timeframe, should be reviewed to determine the benefit of a condition assessment.

What is the asset sub-group scope?

This assessment includes a defined scope of assets at and work activities presented in Table 2.

Table 2: Detailed Scope

Scope Category	Included	Specifically Excluded
Buildings	• Sub-structure • Super-structure • External fabric and finishes • Internal fabric • Internal finishes • Fittings • Hydraulics • HVAC • Fire protection • Electrical • Communications • Transport	• Hidden Services • Loose furniture • Small electrical items • Loose equipment

Scope Category	Included	Specifically Excluded
Public Places	• Roads & carparks • Pathways • Public systems • Public places	• Natural assets
Inground Infrastructure	• Common services reticulation	

What building elements and assets?

The building elements have been defined in terms of the Australian Cost Management Manual (ACMM) Volume 1. A summary of the building assets, the level of assessment (as discussed in section 5.3), the data set to collect, the type of rating, and condition reporting level (as discussed in section 5.4), the link to the condition reference level (as discussed in section 5.5) is presented in Table 3.

Table 3: Building Assets and Condition Reporting Specification

Element	Sub-Element	Asset	Example Sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/ Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
Structure	Sub-structure	Sub-structure		1 or 2	E	S	Asset	Building
Superstructure	Super-structure	Columns		1 or 2	E	S	Asset	Floor
		Floors		1 or 2	E	S	Asset	Floor
		Staircases		2	E&A	S	Asset	System
		Roof		2	E&A	P	Asset	Building
	External Fabric & Finishes	External Walls		2	E&A	P	Asset	Building
		Windows		2	E	P	Asset	Room
		External Doors		2	E&A	S	Asset	Building
		Covered Veranda		2	E&A	P	Asset	Building
Interiors	Internal Fabric	Internal Walls		2	E	S	Asset	Room
		Internal Ceilings		2	E	S	Asset	Room
		Internal Doors		2	E&A	S	Asset	Room
	Internal Finishes	Wall Finishes	Painted, wallpaper, tile	2	E&A	S	Asset	Room
		Floor Finishes	Carpet, vinyl, tile	2	E&A	S	Asset	Room
		Ceiling Finishes	Suspended, painted, acoustic tile	2	E&A	S	Asset	Room
	Fittings	Fitments	Cupboards, kitchen cabinets	2	E&A	S	Asset	Room
		Special Equipment		2	E&A	S	Asset	Room
Services	Hydraulics	Sanitary Fixtures	Toilet, showers, bath, taps	3	E	S	Asset	Room
		Sanitary Plumbing	Valves, reticulation	3	E	S	Asset	Room

Element	Sub-Element	Asset	Example Sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/ Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
		Water Supply	Bubbler, hot water unit, reticulation, valves	3	E	S	Asset	Room
		Gas Services	Fittings, valves, reticulation	3	E	S	Asset	Room
	HVAC	Space Heating	Duct, space	3	E	S	Asset	System
		Ventilation	Fume cupboard, exhaust fans	3	E	S	Asset	Room
		Evaporative Cooling	Evaporative cooling	3	E	S	Asset	System
		Air Conditioning (ducted)	VSDs, AHU's, chilled water beams	3	E	S	Asset	System
		Air Conditioning (package)	Package units, spilt units	3	E	S	Asset	Room
	Fire Protection	Fire Protection	Sprinklers, EWIS, detectors, hose reels, hydrants, systems	3	E	S	Asset	System
	Electrical	Light and Power	Switchboards, lighting, wiring	2	E	S	Asset	Room
		Security System	Cameras, controller, PIR				Asset	System
	Communications	Communications	Cabling, outlets, racks	2	E	S	Asset	System
	Transport	Transport Systems	Passenger and goods	2	E&A	P	Asset	System
	Other	Special Services	Gantry cranes	3	E&A	P	Asset	Room

E = Effectiveness, A = Appearance

Other assets have been defined in terms of the Institute of Public Works Engineering Australasia (IPWEA) Practice Notes: Parks; Stormwater Drainage; Footpaths & Cycleways, Water Supply & Sewerage, and Road Pavements. A summary of the public places and inground infrastructure asset groups is presented in Table 4 and Table 5.

Table 4: Public Places Assets and Condition Reporting Specification

Element	Sub-Element	Asset	Example sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
Roads & Carparks	Surfacing	Surface	Asphalt, spray-seal, unsurfaced	2	E&A	P	Asset	Road Section
	Pavement	Pavement	Granular, concrete	2	E	S	Asset	Road Section
	Bridge (vehicle)	Deck		2	E&A	S	Sub-Element	Bridge
		Beams		2	E&A	S	Sub-Element	Bridge
		Piers		2	E&A	S	Sub-Element	Bridge
		Abutments	Headwalls, retaining wall, natural embankment	2	E&A	S	Sub-Element	Bridge
	Line marking	Line marking	Continuous lines, symbols, words, parking	2	E&A	S	Asset	Road Section
	Barrier	Crash Barrier		2	E&A	P	Asset	Road Section
	Kerb, channel & pits	Kerb		2	E&A	S	Asset	Road Section
		Kerb & Channel	Crossings, mountable, non-mountable	2	E&A	S	Asset	Road Section
		Pits	Single, double	2	E&A	S	Asset	Road Section
	Signs (Regulatory)	Pole	Steel, timber	2	E&A	S	Sub-Element	Road Section
		Sign		2	E&A	S	Sub-Element	Road Section
Public Systems	Lighting	Pole / mount		2	E&A	S	Sub-Element	Zone

Element	Sub-Element	Asset	Example sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
		Luminary	Assembly, globe	2	E	S	Sub-Element	Zone
	Signs (Advisory)	Pole	Steel, timber	2	E&A	S	Sub-Element	Zone
		Sign		2	E&A	S	Sub-Element	Zone
	Security	Security Systems		2	E	S	Sub-Element	Zone
Pathways	Paths	Path	Asphalt, interlock, concrete, granular	2	E&A	S	Asset	Path
	Stairways	Stairway		2	E&A	S	Asset	Path
Ground Assets	Structures	Shade	Attached, free-standing	2	E&A	S	Asset	Structure
		Retaining Wall	Block, rendered plaster, timber, interlock, crib	2	E&A	S	Asset	Structure
		Pedestrian Bridge	Timber, steel, concrete	2	E&A	S	Asset	Structure
	Furniture	Tables & seating		2	E&A	S	Asset	Unit
		Water bubblers		2	E&A	S	Asset	Unit
		Flag Pole		2	E&A	S	Asset	Unit
	Public art	Public art	Statue, sculpture, wall art	2	E&A	S	Asset	Unit
	Water features	Water feature	Pond, fountain	2	E&A	S	Asset	Unit
	Fixed sports equipment	Fixed sports equipment	Goal posts, ball hoops, fixed fitness equipment	2	E&A	S	Asset	Unit
	Synthetic Turf	Sports Field		2	E&A	S	Asset	Unit
	Irrigation	Controller		2	E&A	S	Asset	Unit
		Meter		2	E	S	Asset	Unit

Element	Sub-Element	Asset	Example sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
		Reticulation	Pipes, valves	2	E	S	Asset	Unit
		Sprinklers		2	E	S	Asset	Unit
	Fences	Bollards		2	E&A	S	Asset	Unit
		Security	Boundary, internal	2	E&A	S	Asset	Unit
		Fence	Chain link, timber, post & rail	2	E&A	S	Asset	Unit
		Walls	Block, timber, plaster	2	E&A	S	Asset	Unit

E = Effectiveness, A = Appearance

Table 5: Inground Infrastructure Assets and Condition Reporting Specification

Element	Sub-Element	Asset	Asset Code	Example Sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
Inground Infrastructure	Electrical	Cable	BEC		2	E	S	Asset	System
		Pit	BEP		2	E&A	S	Asset	System
	Potable Water	Pipe	BPP	Pipe, connectors, junction	2	E	P	Asset	System
		Valve	BPV	Valve, hydrant point	2	E&A	P	Asset	System
	Fire Fighting Main	Pipe	BFI	Pipe, connectors, junction	2	E	P	Asset	System
		Valve	BFA	Valve, hydrant point	2	E&A	P	Asset	System
	Chilled Water	Pipe	BCP	Pipe, connectors, junction	2	E	P	Asset	System
		Valve	BCV	Valve	2	E&A	P	Asset	System
	Stormwater	Pipe	BSP		2	E&A	P	Asset	System
		Manhole	BSM		2	E&A	S	Asset	System
		Detention Basin	BSD		2	E&A	S	Asset	System
	Wastewater	Pipe	BWP		2	E&A	P	Asset	System
		Grease Trap	BWG		2	E&A	S	Asset	System
		Manhole	BWM		2	E&A	S	Asset	System
	Gas	Pipe	BGP		2	E	P	Asset	System
		Valve	BGV		2	E&A	P	Asset	System
		Meter	BGM		2	E&A	P	Asset	System
	Fuel	Pipe	BFP		2	E	P	Asset	System
		Valve	BFV		2	E&A	P	Asset	System

Element	Sub-Element	Asset	Asset Code	Example Sub-Assets	Level of Assessment (Section 5.3)	Data Set (Section 5.4)	Summary/Profile Rating (Section 5.4)	Reporting Level (Section 5.4)	Reference Level (Section 5.5)
		Meter	BFM		2	E&A	S	Asset	System
	ICT	Cable	BIC	Conduit	2	E	S	Asset	System
		Pit	BIP	Connections	2	E	S	Asset	System

E = Effectiveness, A = Appearance

4.3 Level of Assessment

Typically, a condition assessment can be undertaken at any of three levels. An assessment will be undertaken at an element level to determine which level of inspection would provide the best value for the University. A description of each is provided below:

1 – Desktop	This level of inspection is typically undertaken on long-life assets, that are not generally included in a renewal forecasting over a time frame of up to 20 years. When these assets approach the end of their useful life they typically trigger a complete renewal of the building as they relate to the building structure. The desktop assessment includes reviewing existing data that is available in any form for data mining. A key part of this level of assessment is combining it with discussion with the maintenance personnel to obtain information on any known issues that exist with the substructure or superstructure elements.
2 – Walk through	This level of inspection is typically for assets that are relatively low-cost items to replace. These are generally all elements which are not part of the building services. This assessment is a visual inspection of a representative sample of elements within a building, along with a review of existing data. As part of this level of assessment, maintenance personnel will be interviewed to obtain information any known issues that exist with the elements under consideration.
3 – Detailed	This level of inspection is typically undertaken on all building services, as these assets are typically higher cost and higher risk assets. This assessment goes down to a sub-element level and includes interviews with maintenance personnel to obtain information on any known issues.

4.4 Rating System

The building elements deemed critical to assessing the future financial liability over the renewal period under consideration, must be assessed at level 2 or level 3 as outlined above. This assessment includes assigning condition (effectiveness and appearance) ratings as outlined below:

Condition (Effectiveness)

The purpose of an effectiveness assessment, on assets, is to inform the renewal planning process in terms of whether the asset is performing appropriate to its purpose, regardless of its visual appearance.

The rating scale used as the basis for the effectiveness assessment is shown in Table 6, based upon IPWEA Practice Note 3, Building Condition & Performance Guidelines and Practice Note 5, Drainage.

Table 6: Effectiveness Rating Scale

Rating	Descriptor	Description	Life Remaining
CE5	Very Good	Asset is appropriate for its purpose	>55%
CE4	Good	Asset is functioning well for its intended purpose	35 - 55%
CE3	Fair	Asset is generally functional for its intended purpose	20 – 35%
CE2	Poor	Asset is marginally appropriate for its intended purpose	10 – 20%
CE1	Very Poor	Asset is not meeting expectations for its intended purpose	< 10%

Condition (Appearance)

The purpose of the condition assessment is to inform the renewal forecast in terms of life cycle status based on the visual appearance and defects evident of the element or sub-element.

The rating scale used as the basis for the condition assessment is shown in Table 7 and Table 8, based on IPWEA Practice Note 3, Building Condition & Performance Guidelines and Practice Note 5, Drainage. This rating scale is also consistent with the TEFMA Guideline for condition assessments.

Table 7: Condition Rating Scale (Buildings and Public Places Assets)

Rating	Descriptor	Description
CA5	Very Good	Asset has no defects; condition and appearance are as new
CA4	Good	Asset exhibits superficial wear and tear, minor defects, minor signs of deterioration to surface finishes; but does not require major maintenance; no major defects exist
CA3	Fair	Asset is in average condition; deteriorated surfaces require attention; services are functional, but require attention; backlog maintenance work exists
CA2	Poor	Asset has deteriorated badly; serious structural problems; general appearance is poor with eroded protective coatings; elements are defective, services are frequently failing; and a considerable number of major defects exist
CA1	Very Poor	Asset has failed; is not operational and is unfit for occupancy or normal use

Table 8: Condition Rating Scale (Inground Infrastructure)

Rating	Descriptor	Description
CA5	Very Good	Asset has no defects; condition and appearance are as new
CA4	Good	Asset exhibits superficial wear and tear, minor defects, minor signs of deterioration to surface finishes; but does not require major maintenance; no major defects exist
CA3	Fair	Asset is in average condition; deteriorated surfaces require attention; services are functional, but require attention; backlog maintenance work exists
CA2	Poor	Asset has deteriorated badly; serious structural problems; general appearance is poor with eroded protective coatings; elements are defective, services are frequently failing; and a significant number of major defects exist
CA1	Very Poor	Asset has failed; is not operational and is unfit for occupancy or normal use

Note: some assets in this portfolio are buried and therefore may require some investigatory effort to assess condition, such as CCTV, excavation, or feedback from maintenance activities.

Condition Rating Type

Condition ratings can be assigned as a single number, or as a profile as described below:

Summary Rating — A single rating is generally applied to an asset to allow the remaining life to be assessed. The single rating is used where complete replacement of the asset would be typically undertaken.

Profile Rating — Where it is possible to replace part of a high cost asset, profile rating can be used. This rating method allows percentages to be assigned to different condition scores, for example CE4: 90% and CE2: 10%. An example is a roof, where if CE2 is assigned 10%, then the renewal of this portion can be undertaken, rather than replacing the whole roof.

Asset Renewal Deferral Risk Assessment

A risk assessment is only required where works are assessed to be required within the next five years.

The condition assessment will identify when the works need to be undertaken, however it is possible that these works can be deferred. The impacts of deferring the works can involve increased maintenance expenditure during the deferral period, increased user safety risk, and impacts on the University's operations. An understanding of these risks will allow the determination of potential renewal deferral periods. The best time to assess these risks is during the on-site asset condition assessment.

There is a single risk rating scale that allows the Assessor to determine an appropriate risk score based upon the following areas of risk:

Impact on Cost — Cost in this context includes any increase in the original cost estimate to complete the renewal works (capital project) and any maintenance costs that are likely to be incurred during the period of deferral.

Impact on User Safety — University users in this context includes any stakeholder who interfaces with the asset. This includes maintenance staff, students, researchers, contractors, visitors, etc.

Impact on Operations / Reputation — University operations and reputation, in this context, includes any issues resulting from the deferral of renewal activities that directly affects the ability for the University to operate normally or create negative impressions on the University.

The risk rating criteria that determines the most appropriate deferral period is presented in Table 9.

Table 9: Deferral Risk (DR)

DR Rating	Impact	General Description	Potential Deferral Period
DR5	Insignificant	The deferred works do not expose the asset, surrounding assets, occupants or users to any serious risks, or will have minimal detrimental impact on the cost of remediation, or will not affect university operations / reputation.	Within 5 years
DR4	Minor	The deferred works could possibly have a limited detrimental impact on the asset and/or surrounding assets, with limited potential exposure to health and safety risks, or potential for incurring unnecessary costs, or the potential to have some impact on university operations / reputation.	Within 3 years
DR3	Moderate	The deferred works will have a substantial detrimental impact on the asset and/or surrounding assets, with potential exposure to health and safety risks, or failure of some parts of the asset resulting in high costs, or create the potential for impacting university business.	Within 1 year
DR2	Major	The consequential event could result in the failure of the asset with potential health, safety, and harm risk, or failure of some critical parts of the asset resulting in high costs, or create the potential for impacting core university business.	Within 6 months
DR1	Critical	The postponement of works could result in the loss of life, or catastrophic asset failure and incurring significant cost, or significant impact on the core university business.	Immediate

Agreeing the final deferral period will involve the consideration of:

- The University's risk policy; and
- An acceptable level of moderation between the three risk categories.

Reporting Level

The typical condition reporting level system is shown below:

Element → Sub-Element → Asset

In a strategic planning context, the level of detail required for planning the renewal of assets is typically at a summarised level, rather than the detail needed for an asset register or maintenance planning. For example, within a toilet, individual sanitary fixtures do not need to be rated, as if one fitting needs replacement then this would be undertaken as maintenance. In terms of renewal

planning the overall condition of the sanitary fixtures is needed to enable the remaining life to be calculated.

PF&D Condition Assessment Guides

Description

To ensure consistency between assessments, guideline for how Curtin University requires the asset condition ratings to be assigned, will be made available to Assessors. These guides address three separate facility types being:

- Buildings;
- Inground Infrastructure; and
- Public Places.

The guides provide a detailed description of the criteria for a condition rating 1 to 5.

Relevant Standards and References

The following industry guides have been referenced:

- TEFMA Facilities Audit Guideline
- International Infrastructure Management Manual
- IPWEA Practice Notes

Benefit and Value to Curtin University

This property condition assessment guide provides a documented record of the rating criteria relevant to the University's assets and its future strategic asset planning activities. The ongoing benefits, of the assessment guide, to Curtin University will ensure:

- Consistency and repeatability in the condition rating assessments, across the asset portfolio and in all future assessments. This consistency will provide a sound basis for asset portfolio planning, where the condition ratings are relative and comparable;
- Reasonableness and confidence in using the condition data for asset planning purposes, particularly for condition based asset renewal planning (where condition is used to assess the remaining life of the asset) and asset portfolio condition profiling (where condition is an indicator of level of service);
- Financial investment in assets is based on an informed asset planning process, which uses condition as an asset preservation measure;
- Increased accuracy in assessing long term financial liabilities with respect to preserving assets over a defined future planning horizon; and
- A sound basis for condition based depreciated asset valuation reporting.

4.5 Assessment Data

Data Reference Level

Buildings

The typical building data referencing system is shown below:

Campus → Building/System → Floor → Room

Historically data has been collected to sub-element level for all asset elements. The value of collecting data to this level in terms of costs and value of the data is marginal. An assessment will be undertaken at an element level considering the renewal strategy to determine where the best value can be achieved. For example, with the sub-structure element the visual condition is best assessed at the building level, and with services such as the HVAC element it is important to understand the visual condition and effectiveness at a space level.

Public Places and Inground Infrastructure

Public Places assets and Inground Infrastructure are typically referenced, for data capture purposes, primarily by Asset ID. Some sectioning of the asset, by Asset ID, may be required to identify differences in asset performance.

Data Categories

To allow a costed renewal program to be developed a minimum number of data fields need to be captured while in the field, as identified below. In developing the specification for the data collection, the number of fields and the data structures need to be specified to ensure there is compatibility with the data management system. The data categories and example data items are shown in Table 10:

Table 10: Data Items

	Data Items		
Data Category	**Buildings**	**Public Places**	**Inground Infrastructure**
Assessment date	Date Time	Date Time	Date Time
Assessor	Assessor Name Organisation	Assessor Name Organisation	Assessor Name Organisation
Location reference	Campus Building Floor Room	Campus Zone Asset ID	Campus Zone Asset ID
Asset	Element Sub-Element Asset	Element Sub-Element Asset	Element Sub-Element Asset
Condition and function ratings	C1 Percent CA1 Rating CE1 Rating … C5 Percent CA5 Rating CE5 Rating	C1 Percent CA1 Rating CE1 Rating … C5 Percent CA5 Rating CE5 Rating	C1 Percent CA1 Rating CE1 Rating … C5 Percent CA5 Rating CE5 Rating
Assessments	Remaining Life Risk Work Scope Quantum	Remaining Life Risk Work Scope Quantum	Remaining Life Risk Work Scope Quantum

4.6 Assessment Frequency

The condition assessment frequency is driven by several factors. The key driver is to understand how the data is used within decision making process including development of the renewal program, or monitoring the asset performance. Where there are assets critical in the delivery of the University's outcomes an inspection frequency of up to three years is recommended to ensure there is a good understanding of the asset performance over time, to enable robust renewal planning of the critical assets. Inspection frequencies for public places and inground infrastructure is typically 5 yearly. Table 11 presents the element inspection frequencies for non-critical and critical buildings.

Table 11: Typical Building Assessment Frequencies

Element	Sub-Element	Non-Critical Buildings	Critical Buildings
Sub-structure	Sub-structure	5 yearly	5 yearly
Super Structure	Super Structure	5 yearly	5 yearly
	External Fabric & Finishes	5 yearly	5 yearly
Interior	Internal Fabric	5 yearly	5 yearly
	Internal Finishes	5 yearly	5 yearly
	Fittings	5 yearly	3 yearly
Services	Hydraulics	5 yearly	5 yearly
	HVAC	5 yearly	3 yearly
	Fire Protection	As specified under statutory requirements	As specified under statutory requirements
	Electrical	5 yearly	5 yearly
	Communications	5 yearly	3 yearly
	Transport	As specified under statutory requirements	As specified under statutory requirements
	Other	5 yearly	3 yearly

4.7 Assessment Resources

It is the role of the assessor to ensure complete, reliable, and accurate data is captured from the on-site assessments. Confidence in the data quality depends on the knowledge and experience of the assessor. Table 11 provides a confidence level indicator, in relation to the data collected by each type of Assessor, across a range of data related fields.

Table 12: Assessment Resources and Confidence in Data

Assessor	Cost Data	Remaining Life Data	Quantity Data	Condition Data
Student	D	C/D	B/C	C/D
Tradespeople	B	B	B	B/C
Experienced Practitioner	A	A/B	A/B	A/B
Specialist Engineer	A	A	A	A

Confidence in Data: A - high B - medium C - low D - very low

Experience shows that while the field collection is more expensive, post processing of data is greatly reduced if it is collected by an experienced practitioner.

4.8 Assessment Program

The condition assessment program will form the basis of the specification for the condition assessment. It will cover:

- The scope of the building assets included in the program;
- How the data is to be collected in terms of data fields and data structures

- What data is to be collected in terms of the data hierarchy and asset hierarchy in terms of condition and function, and the capture of urgent safety, compliance and maintenance issues;
- Who should collect the data in terms of external or internal resources and the level of competence of the personnel; and
- A requirement that all assessment personnel be familiar with the Curtin University site induction procedures including awareness of health and safety policies and risk registers. This requirement is supported by the health and safety policy, health and safety management standards, occupational safety and health act, and the occupational safety and health regulations in Western Australia.

In addition to the program for the first round of inspections, a full inspection program needs to be developed at a portfolio level to ensure all buildings are included in the inspection cycles.

Program Development Approach

This framework provides a range of program options that could be developed in terms of the condition assessment program development. A draft program is outlined below:

Pilot Program	Prior to undertaking a large-scale condition and functionality assessment of the asset classes within this framework a pilot assessment should be undertaken. The key drivers for this include: • Confirming the framework will provide the required inputs into the capital works program development process; • Confirm that data transfer of the data into the CMMS can be undertaken efficiently (as included in the data specification); and • Allow the University to determine an indicative cost when scoping condition and functionality assessments.
Baseline Inspection	The base line inspection undertaken on a per campus basis, will provide a base data set for a comprehensive capital works program. Alternatively, this inspection could be undertaken on a zone, precinct or building age basis.
Risk Based Inspections	Indicative timings for the inspections are contained within this framework. It is envisaged that on-going inspection frequencies will initially be based on these, however overtime an evidenced based program can be developed based on the change of condition over time.

It is recognised that this approach can be impacted by a range of other influences, which are outside of this framework including budget constraints, known asset disposal works, known major plant upgrades.

5 Asset Functionality Assessment Framework

The facility functionality assessment framework is shown in Figure 4.

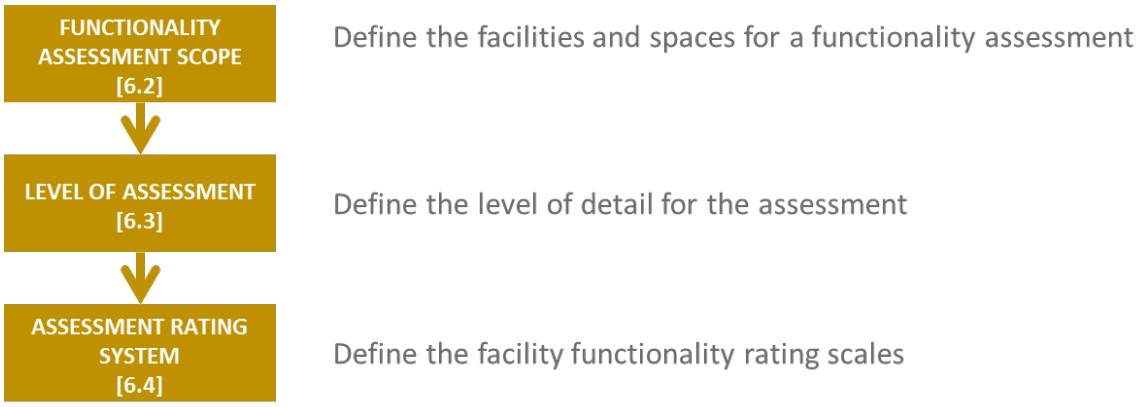

Figure 4: User Functionality Assessment Framework

5.1 Assessment Purpose

The assessment will provide an indication of the effectiveness of the facility to the university from a user perspective. This data will assist in the identification of future improvement opportunities that will enhance user experience. These opportunities can be considered in the mix of other potential capital projects for prioritisation, approval and implementation.

5.2 Assessment Scope

What aspects of functionality are important?

From a user perspective, a list of typical measures for functionality are shown in Table 13.

Table 13: Functionality Objective Categories

Functionality Outcome	Topic	Code	Functionality Objective	Strategic Asset Planning Consideration	Reporting Level
Environmental Comfort	Heating in Winter	TH	Asset Comfort	Y	Floor/Zone
	Cooling in Summer	TC	Asset Comfort	Y	Floor/Zone
	Ventilation	TV	Asset Comfort	Y	Floor/Zone
	Air Quality	TQ	Asset Comfort	Y	Floor/Zone
	Acoustics	TA	Asset Comfort	Y	Floor/Zone
	Lighting	TL	Asset Comfort	Y	Floor/Zone
Provision/Amenity	Safety & Security	PS	Asset Amenity	Y	Floor/Zone
	Power	PP	Asset Amenity	Y	Floor/Zone
	Data	PD	Asset Amenity	Y	Floor/Zone
	Appliances	PA	Asset Amenity	Y	Floor/Zone
	Furniture & Fitout	PF	Asset Amenity	Y	Floor/Zone
	Other	PO	Asset Amenity	Y	Floor/Zone

Appreciation	Character and Innovation	AC	Asset Appreciation	Y	Floor/Zone
	Form & Materials	AF	Asset Appreciation	Y	Floor/Zone
	Internal Environment	AI	Asset Appreciation	Y	Floor/Zone
	Urban & Social Integration	AU	Asset Appreciation	Y	Floor/Zone

These have been determined in terms of their value for strategic planning purposes and rationalised into the broad asset management categories.

What are the priority spaces?

The university has identified that learning and research spaces are of highest priority to its business growth followed by functional support spaces and other spaces. These spaces and their respective priorities are shown in Table 16.

Table 14: Functionality Priorities

Functionality Objective	Functionality Code	Learning Spaces	Research Spaces	Functional Support Spaces	Other
Asset Comfort	FCM	Priority 1	Priority 1	Priority 2	Priority 3
Asset Amenity	FAM	Priority 1	Priority 1	Priority 1	Priority 2
Asset Appreciation	FAP	Priority 1	Priority 2	Priority 3	n/a

Accordingly, any functionality assessment should be planned in this priority order to ensure that the strategic direction of the university is considered in its asset planning process.

5.3 Level of Assessment

For strategic planning purposes, it is the overall facility functionality rating that is important. This metric provides an indication of the assessed 'fitness for purpose' of a building or space type across the campus. Accordingly, the functionality rating shall be assessed for all relevant spaces (by priority) on a floor or zone basis and weighted by the spaces assessed to derive an overall building functionality score. It will be critical to record the basis of the functionality score with the ratings.

The weightings applied depend on the priorities of the university and will be determined in the Strategic Asset Management Plan (SAMP), which optimises the asset portfolio against the organisational objectives.

5.4 Rating System

The rating system for each of the functionality areas follow:

- Asset Comfort (FCM) – Refer Table 15 and Table 16.
- Asset Amenity (FAM) – Refer Table 17 and Table 18.
- Asset Appreciation (FAP) – Refer Table 19 and Table 20.

Asset Comfort (FCM)

Table 15: Functionality (FCM - Asset Comfort - Characteristics)

Topic	Characteristics
Heating in Winter	• Is the temperature in winter comfortable? • Is the temperature in winter stable? • Can room comfort be individually adjusted?
Cooling in Summer	• Is the temperature in summer comfortable? • Is the temperature in summer stable? • Can room comfort be individually adjusted?
Ventilation	• Is the air flow in the room adequate? • Can the rooms be naturally ventilated?
Air Quality	• Does the air in the room feel fresh? • Is the air in the room odourless?
Acoustics	• Is the room adversely impacted by internal noise? • Is the room adversely impacted by external noise?
Lighting	• Is the lighting in the room adequate for purpose?

Reproduced from TEFMA Facilities Audit Guideline

Table 16: Functionality (FCM - Asset Comfort - Ratings)

Rating	Descriptor	Description
FCM5	Excellent	Temperature is always comfortable, air quality is excellent, acoustics is excellent, and lighting is excellent.
FCM4	Good	Temperature is mostly comfortable, air quality is good, acoustics is good, and lighting is good.
FCM3	Average	Temperature is generally acceptable, air quality is average, acoustics is average, and lighting is adequate.
FCM2	Poor	Temperature is variable, air quality is poor, acoustics is poor, and lighting is poor.
FCM1	Failed	The spaces are not comfortable and are avoided by users.

Note: comfort refers to heating in winter, cooling in summer, ventilation, air quality, acoustics, and lighting.

Asset Amenity (FAM)

Table 17: Functionality (FAM - Asset Amenity - Characteristics)

Topic	Characteristics
Safety & Security	• Assesses the appropriateness of access control to the space.
Power	• Measures the adequacy of the power supply.
Data & Voice	• Assesses the adequacy of data connection.
Appliances	• Examines the adequacy of specialist equipment (i.e. fume cabinets in laboratories).
Furniture & Fitout	• Examines the adequacy of furniture and fitout.

Reproduced from TEFMA Facilities Audit Guideline

Table 18: Functionality (FAM - Asset Amenity - Ratings)

Rating	Descriptor	Description
FCM5	Excellent	All required amenities are provided and in excellent working condition.
FCM4	Good	At least 75% of the required amenities are provided and in good working condition.
FCM3	Average	At least 50% of the required amenities are provided, however in average working condition.
FCM2	Poor	At least 25% of the required amenities are provided, however in poor working condition.
FCM1	Failed	The necessary amenities are not provided and hence the space(s) are avoided by users.

Note: amenity refers to safety & security, power, data & voice, appliances, and furniture & fitout.

Asset Appreciation (FAP)

Table 19: Functionality (FAP - Asset Appreciation - Characteristics)

Topic	Characteristics
Character and Innovation	• Are there clear ideas behind the design of the building? • Is the building interesting to look at and move around in? • Does the building appropriately express the university values? • Is the building likely to influence future designs?
Form and Materials	• Does the building have a human scale and feel welcoming? • Does the design take advantage of natural light and shelter from prevailing winds? • Are the entrances obvious and logically positioned? • Do the external materials and detailing appear to be of a high quality? • Are the external colours & textures appropriate and attractive?
Internal Environment	• Are there good views from inside the building? • Do staff/students have good access to outdoors? • Is the building clearly understandable? • Is the interior attractive?
Urban & Social Interaction	• Does the height, volume and skyline of the building relate well to the surrounding environment? • Does the building contribute positively to its locality? • Does the hard & soft landscape around the building contribute positively? • Is the building sensitive to its neighbours?

Reproduced from TEFMA Facilities Audit Guideline

Table 20: Functionality (FAP - Asset Appreciation - Ratings)

Rating	Descriptor	Description
FCM5	Excellent	The building is highly attractive and admired by its users. Its environment is pleasing, which attracts staff and students to experience its comfort and visual appeal.
FCM4	Good	The building is attractive its environment is pleasing. Staff and students are happy to experience its comfort and appeal.
FCM3	Average	The building and its environment are acceptable.
FCM2	Poor	The building is unattractive and its environment could be improved. Staff and students will look for alternative buildings before using this building.
FCM1	Failed	The building is highly unattractive and its décor is outdated. Staff and students avoid using this space because of the environment it offers.

Note: asset appreciation (aesthetics) refers to character and innovation, form and materials, internal environment, and urban and social interaction.