

# Benchmarking and performance indicators

Department of Health Guideline

QH-GDL-354-1-3:2017

## 1. Purpose

The intent of this guideline is to provide information regarding the use of benchmarking and performance indicators in the asset management and maintenance of buildings and infrastructure.

This guideline forms part of the *Asset management and maintenance* policy (QH-POL-354:2015) and *Asset management and maintenance* standard (QH-IMP-354-1:2015).

All departments (as defined in Section 8 of the *Financial Accountability Act 2009*) must comply with the requirements of the *Maintenance Management Framework* (MMF) which includes the policy requirements to monitor and review maintenance performance, and maintenance reporting capability.

## 2. Scope

This guideline applies to all employees, contractors and consultants within the Department of Health divisions and commercialised business units (DoH-CBUs).

This guideline does not apply to health technology equipment or information communication technology equipment.

This guideline can be used by Hospital and Health Services either as it is, by re-branding or as a base for a Hospital and Health Service specific guideline.

## 3. Performance benchmarking

### 3.1 Overview

Asset management performance benchmarking is a structured comparison of specified performance indicators that relate to the asset management, maintenance and operation of building and infrastructure assets. Monitoring and reporting on maintenance and the condition of a building portfolio, facilitates effective management of maintenance and drives improvements.

Benchmarks should be:

- achievable by a significant number of DoH-CBU
- applicable to all DoH-CBU
- simple to understand and easy to analyse from readily available information
- dynamic and show change as performance improves
- reflect industry accepted benchmarking metrics.

### 3.2 Key performance indicators and the decision support system

There are six key performance indicators (KPIs) that can be accessed through the Decision Support System (DSS). All data used in the formulation of the KPIs in the DSS is sourced from the Finance and Materials Management Information System (FAMMIS) which includes the Computerised Maintenance Management System (CMMS). These are available to use in reviewing performance and for benchmarking across business units and at a whole of portfolio level. These KPIs should be used by each DoH-CBU for internal monthly reporting purposes to management. These KPIs are used for periodic reporting to Department of Health senior management and are used in the development of Asset Management and Maintenance Plans (AMMP) by DoH-CBUs.

KPIs are summarised below:

- KPI 1 – percentage of condition assessments completed in the current three year condition assessment cycle
- KPI 2 – maintenance expenditure expressed as a percentage of the undepreciated asset replacement value (UARV)
- KPI 3 – maintenance expenditure from CMMS work orders expressed as a ratio of the maintenance expenditure recorded in FAMMIS
- KPI 4 – backlog maintenance recorded in the CMMS expressed as a percentage of the UARV to determine the Facility Condition Index (FCI)
- KPI 5 – expenditure on planned maintenance from CMMS work orders expressed as a percentage of the CMMS total maintenance expenditure
- KPI 6 – maintenance expenditure from CMMS work orders expressed as percentage of the backlog liability.

### **3.3 Undepreciated (building) asset replacement value**

The UARV of the building portfolio is a key metric used in the calculation of KPI 2 and KPI 4. The current UARV for each business unit is stored in the CMMS at the plant level in the functional location master data record as a single figure for each business unit. DoH-CBUs are responsible for providing their updated UARV figures each year. The Assets and Facilities Unit enter the updated UARV into the CMMS at the start of each financial year by overwriting the previous UARV stored in the CMMS. The total UARV should include all building assets and land site improvements.

### **3.4 Key performance indicator 1 – condition assessment**

The MMF requires all Queensland Government buildings to be condition assessed by site inspection at least every three years, depending on the nature of the facility.

KPI 1 provides a ratio of the number of health owned in-service buildings assessed during the current three year assessment period against the total number of health owned in-service buildings. The current assessment period commenced on 1 July 2017 and continues in three-year cycles (e.g. 1 July 2017 to 30 June 2020).

This KPI only uses CMMS condition assessment (type CDN) data for buildings (at level 5 functional location structure) which have a building assessment summary (item code ASBS). Only ASBS for the current condition assessment period will be reflected in this KPI. This KPI compares these ASBS entries, to the total number of health owned in-service buildings in the CMMS.

For further information related to condition assessments refer to the *Condition assessment* guideline.

### **3.5 Key performance indicator 2 – maintenance expenditure**

This KPI is measured at a business unit level, reflecting the total expenditure on maintenance against the UARV, represented as an end of financial year projected percentage. This percentage is calculated using the monthly average of the FAMMIS year-to-date maintenance expenditure and multiplying this average figure by 12 to calculate the end of financial year projected percentage.

The minimum maintenance expenditure target level for health infrastructure maintenance is determined by business units within their annual Asset Management and Maintenance Plans (AMMP). This budget allocation should be supported by appropriate maintenance and risk mitigation analysis and strategies and align with lifecycle planning.

The maintenance budget should be appropriate for the maintenance needs, based on an assessment of maintenance demand, to ensure that it is sufficient to prevent a future backlog

maintenance liability from occurring. It should take into account factors such as building age, operating environment, intensity of usage, location and other variables, to reflect the complexity and nature of the buildings and infrastructure.

Maintenance expenditure in this KPI is identified from a range of general ledger and cost codes extracted from FAMMIS. This information also identifies labour costs for administration, technical and professional support staff. To ensure correct identification of maintenance expenditure the relevant account codes need to be used. DoH-CBUs also need to ensure that maintenance cost-centres are provided to the Assets and Facilities Unit for inclusion in the KPI. These cost centres need to be included to enable labour costs for administration, technical and professional support staff to be reflected within the maintenance expenditure figures.

Maintenance expenditure that has been capitalised will not reflect in this KPI and will need to be tracked separately for capital maintenance reporting purposes.

For further information related to maintenance expenditure refer to the *Asset management and maintenance planning* guideline.

### 3.6 Key performance indicator 3 – CMMS usage

It is essential that the CMMS is used to manage all maintenance activities in order to realise the benefits of the system. To ensure maintenance data integrity, maintenance expenditure should be recorded in the CMMS through the use of work orders for all maintenance activities.

This KPI compares the maintenance expenditure in the CMMS for all planned and unplanned maintenance work orders against the value of the maintenance expenditure reported in the FAMMIS. If the CMMS is effectively used for maintenance management the variance between the CMMS and the FAMMIS maintenance expenditure should be minimal. Table 1 below details all the CMMS maintenance activity codes used for KPI 3. New minor works (NW) and operational activities (OA) are not considered maintenance costs and have been excluded.

**Table 1: CMMS maintenance activity types**

Category	Activity type (code)
Planned maintenance	AD – administration
	AR – asbestos removal
	AS – asbestos ad hoc survey
	CB – condition based assessment
	CF – corrective (follow-up work)
	FS – asbestos five-yearly survey
	LR – lifecycle replacement
	PM – preventative maintenance
	SM – statutory maintenance
	TS – asbestos three-yearly survey
	TT – test and tagging
	WA – warranty pre-expiry checks
	YS – asbestos yearly survey
Unplanned maintenance	CM – corrective maintenance
	IM – incident management
	RC – rush corrective maintenance

### 3.7 Key performance indicator 4 – backlog maintenance value and FCI

KPI 4 provides a breakdown of the funded and unfunded backlog values, total backlog value, the UARV and the FCI.

The backlog breakdown provides the total value for each individual backlog maintenance status:

- BREQ (backlog requested)
- BACK (unfunded)
- BANA (corporately funded)
- BFND (HHS funded)
- BMRP (backlog maintenance remediation program funded).

Although BREQ is not included in the total backlog value within KPI 4, it has been included in the KPI view to allow backlog approvers to identify if any BREQ items are waiting to be assessed as backlog in the CMMS.

The FCI is a measure of maintenance performance that is used at the portfolio level to provide an overview of the relative condition of the building assets. It provides a quantitative measure of the portfolio condition, stated as a percentage (refer to Table 2). The portfolio's FCI is calculated by dividing the existing total cost of deferred (backlog) maintenance recorded in the CMMS by the UARV. A higher FCI percentage reflects a poorer condition of the asset. The target FCI for DoH-CBUs is no greater than 4 per cent at a building portfolio level and this should not include any very high or high backlog maintenance items.

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

**Table 2: MMF FCI Interpretation**

FCI	Condition of building portfolio
0-2%	excellent
2-5%	good
5-10%	fair
10-15%	poor
>15%	very poor

Refer to the *Backlog maintenance management* guideline for information on identifying, recording and managing backlog maintenance items.

### 3.8 Key performance indicator 5 – ratio of planned maintenance to total maintenance

A maintenance strategy should have a balance of planned and unplanned maintenance. Planned maintenance minimises the potential for the occurrence of incident management, unplanned, corrective and reactive maintenance. Planned maintenance is both preventative and responsive to the findings of condition-based maintenance surveys and audits. Such activities are designed to minimise building asset failures, health and safety issues, legislative deficiencies and service delivery disruptions.

A higher ratio of maintenance expenditure on planned maintenance activities usually demonstrates that good practice in maintenance management is being applied to the building asset base. DoH-CBUs are required to achieve a maintenance target ratio of 65 per cent planned maintenance expenditure to total maintenance expenditure to within + or - 5 per cent.

KPI 5 reports at business unit level the ratio of planned maintenance expenditure to total maintenance expenditure. Table 1 details the CMMS maintenance activity types that are used to determine and report the ratio of planned maintenance to total maintenance expenditure.

### 3.9 Key performance indicator 6 – expenditure against backlog

Expenditure against backlog maintenance is used to show that backlog maintenance is being addressed. KPI 6 measures the year-to-date expenditure on CMMS work orders with a backlog maintenance status assigned, against the total backlog maintenance liability that was in the CMMS at the start of the current financial year. KPI 6 also reflects a breakdown of maintenance expenditure for each of the backlog maintenance status codes.

Further information related to these KPIs can be found in the *Content Manual – CMMS DSS Module*.

## 4. Supporting and related documents

### Forms and templates

- *Asset Management and Maintenance Plan* template

### Related references/information

- *Asset management and maintenance planning* guideline
- *Asset management and maintenance* policy (QH-POL-354:2015)
- *Asset management and maintenance* standard (QH-IMP-354-1:2015)
- *Backlog maintenance management* guideline (QH-GDL-354-1-4:2017)
- *Condition assessment* guideline (QH-GDL-354-1-2:2017)
- *Content Manual – CMMS DSS Module*
- *Maintenance Management Framework*

## 5. Definitions

Term	Definition
Asset Management and Maintenance Plan	A structured tool that demonstrates a plan for managing, recording and reporting asset activities including planned expenditure through a program of works, asset management and maintenance strategies, performance, risk management and related actions to assist in budget discussions with finance departments and executive management.
Backlog maintenance	Maintenance that is necessary to prevent the deterioration of an asset or its function but which has not been carried out.
Computerised Maintenance Management System (CMMS)	The CMMS (SAP Plant Maintenance Module) is Queensland Health's corporate asset maintenance system which is used to identify, manage and maintain the buildings and associated infrastructure. It is a module within FAMMIS. The CMMS provides comprehensive reporting on all aspects of maintenance activities and performance.
Decision Support System (DSS)	The Decision Support System (Necto) is Queensland Health's principle business intelligence and reporting tool. Accessed via QHEPS, the system serves as a central repository for corporate and local datasets.
Deferred maintenance	Deferred maintenance is defined in the MMF as maintenance work that is postponed to a future budget cycle, or until funds become available.

Term	Definition
Facility Condition Index	The Facility Condition Index (FCI) is a complementary measure of performance which is a generally accepted method of comparing relative building condition over a period of time. The FCI is calculated by dividing the existing cost of deferred maintenance by the UARV. It provides a quantitative measure of an asset's condition, stated as a percentage.
Finance and Materials Management Information System (FAMMIS)	A computer based integrated business management solution which utilises SAP enterprise resource planning software and contains financial, asset accounting, materials management and maintenance information.
Undepreciated asset replacement value	The UARV for buildings is the best estimate of the current cost of constructing (for its original use) a new facility providing equivalent service potential as the original asset. It does not include the value of the furnishings or other items not permanently part of the facility, nor does it include design and project management costs.

## Version Control

Version	Date	Comments
1.0	19 December 2017	New document