



# Follow-up of Maintenance of public schools

Report 16: 2018–19

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30 April 2019

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The Honourable C Pitt MP  
Speaker of the Legislative Assembly  
Parliament House  
BRISBANE QLD 4000

Dear Speaker

**Report to parliament**

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled Follow-up of Maintenance of public schools (Report 16: 2018–19).

In accordance with s.67 of the Act, would you please arrange for the report to be tabled in the Legislative Assembly.

Yours sincerely



Brendan Worrall  
Auditor-General

# Contents

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<b>Audit objective and scope</b>	<b>1</b>
<b>Key facts</b>	<b>2</b>
<b>Glossary</b>	<b>3</b>
<b>Introduction</b>	<b>4</b>
Background	4
Report 11: 2014–15	5
<b>Summary of audit findings</b>	<b>7</b>
Progress made by the Department of Education	7
Rating the condition of the buildings and structures	8
Developing and delivering a strategic asset maintenance program	11
Next steps	12
<b>Audit conclusions</b>	<b>13</b>
<b>Recommendations</b>	<b>14</b>
<b>1. Rating the condition of the asset portfolio</b>	<b>15</b>
Introduction	15
Setting the standard at which to maintain the buildings	15
Assessing the condition of the buildings	16
<b>2. Developing and delivering a maintenance plan</b>	<b>21</b>
Introduction	21
Developing the maintenance program	23
Delivering the maintenance program	27
<b>Appendices</b>	<b>29</b>
A. Full responses from agencies	30
B. Audit objectives and methods	34
C. The Maintenance Management Framework	36
D. Definition of school maintenance	39
E. Description of condition assessment ratings	40
F. Elements assessed	41
G. Example of condition assessment standard for internal finishes	42



# Audit objective and scope

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In this follow-up audit, we examined whether the Department of Education (DoE) has effectively implemented the recommendations we made in *Maintenance of public schools* (Report 11: 2014–15). We also assessed whether the actions taken have addressed the underlying issues that led to our recommendations in that report.

In the original audit, the Department of Housing and Public Works (DHPW) was responsible for one of our recommendations which is now DoE's responsibility. We engaged with DHPW as part of this audit because of its role in the original audit and because it is the policy owner of the Queensland Government's Maintenance Management Framework.

DoE was formerly the Department of Education, Training and Employment and DHPW was formerly the Department of Public Works. For consistency, throughout this report we refer to their current names.

Appendix B contains more information about our audit objectives and methods.

## Reference to comments

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In accordance with s. 64 of the *Auditor-General Act 2009*, we provided a copy of this report to the Department of Education and the Department of Housing and Public Works. In reaching our conclusions, we considered their views and represented them to the extent we deemed relevant and warranted. Any formal responses from the agencies are at Appendix A.

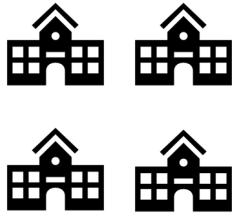


# Key facts

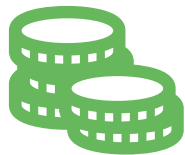
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**Planned maintenance preserves buildings and prolongs their economic life.**



**The Department of Education maintains 1 241 state schools with buildings and structures worth a total of \$19.3 billion.**



**The maintenance budget for state schools in 2018–19 was \$210.4 million.**



**There are 838 heritage school buildings of local and/or state significance.**

Notes: The Department of Education does not directly fund maintenance programs for Public–Private Partnership schools through its maintenance budget.

Source: Queensland Audit Office from the Department of Housing and Public Works Maintenance Management Framework—Policy for the maintenance of Queensland Government buildings, and Department of Education data.

# Glossary

Terms	Definition
Assets	School buildings and structures, including general classrooms, swimming pools, shade structures and water tanks.
Asset Life Cycle Assessment (ALCA)	The asset life cycle assessment is a new process that replaces the former annual condition assessment program, reported through the maintenance assessment report (MAR). The ALCA provides data on the remaining useful life of facilities and identifies the cost of replacing building elements over a 10-year period, including current major defects. It also identifies a recommended year for renewal of buildings.
Asset replacement value (ARV)	The ARV for buildings is the best estimate of the current cost of constructing (for its original use) a new facility providing equivalent service potential as the original asset. It does not include the value of the furnishings or other items not permanently part of the facility, nor does it include design and project management costs.
Building Asset Services (BAS)	Building Asset Services (BAS) is a division of the Department of Housing and Public Works. Schools can choose to use BAS for their maintenance services or go directly to the market.
Budgeted maintenance	We have used figures from the Department of Education maintenance budgets.
Direct-to-market	Schools can choose to go directly to market and use contractors for maintenance activities.
Forecast maintenance	This is the 12-year forecast that the Department of Education contractors produce from the asset life cycle assessment (ALCA) for when each building element will need maintenance work or replacement and the cost.
Maintenance demand	Departments must assess and financially quantify the demand for maintenance as the initial step in the planning and delivery of annual maintenance works programs.
Maintenance assessment report (MAR)	The old annual condition assessment program based on identifying defects and the cost to rectify them, in place at the time of the original audit.
Maintenance Management Framework	The Maintenance Management Framework is the whole-of-government policy for managing building maintenance. By adhering to the policy requirements in the framework, departments have a consistent approach to the management, planning and delivery of building maintenance.

# Introduction

The Department of Education (DoE) is responsible for providing a safe working and learning environment for its staff and students in its schools across Queensland. Most of DoE's assets are land and buildings associated with schools and early childhood facilities. Managing a portfolio of school buildings requires DoE to consider not just maintenance, but also growth and renewal issues.

It must plan for growth by building new classrooms and new schools. The number of full-time equivalent students at Queensland state schools has grown 6.7 per cent since 2014.

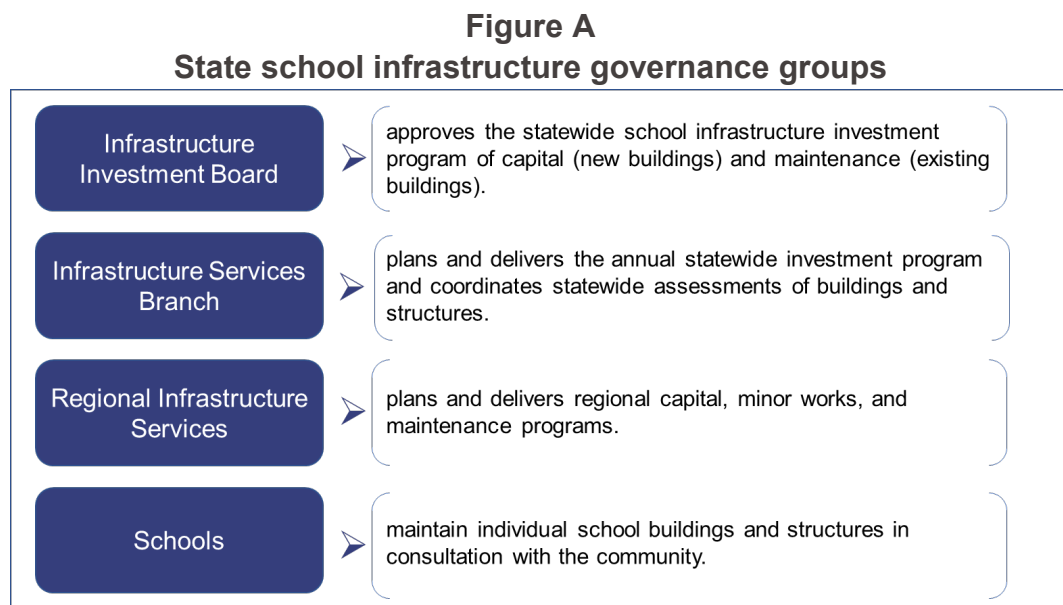
DoE must also renew buildings no longer suited to a modern curriculum and maintain its existing buildings to an appropriate standard. Classrooms built 100 years ago may not be suited to the changing curriculum needs for the future. For example, it is more efficient to renew (reconfigure or rebuild) an old manual-arts building than continue to maintain it, if it is no longer suited to deliver a modern curriculum such as robotics.

All departments must follow the Queensland Government-approved Maintenance Management Framework (MMF), developed by the Department of Housing and Public Works (DHPW). The MMF requires departments to develop maintenance plans, implement maintenance programs, and keep good records of maintenance activities. Appendix C explains the elements of the MMF in detail.

## Background

### The Department of Education

DoE manages its infrastructure at three different levels: centrally, regionally and at the individual schools. Figure A shows the key governance groups for managing state school infrastructure.



Source: Queensland Audit Office.



The **Infrastructure Investment Board** is the governing body for ensuring that the Infrastructure Investment Program meets DoE's strategic and operational requirements. It has oversight of the DoE infrastructure investment program, which includes school maintenance and renewal (for existing buildings), and capital programs (for new buildings).

The **Infrastructure Services branch** of DoE works with schools, regions and other state agencies to plan and deliver the annual investment program. It coordinates the assessment of the condition of school buildings and plans the annual school maintenance and special maintenance programs.

**Regional infrastructure managers** are responsible for regional infrastructure planning and programs. They deliver both planned and unplanned maintenance and capital works within their regions. They also support principals and business services managers to plan, deliver and coordinate school-based infrastructure programs.

**Principals** are responsible for the maintenance of the buildings at their own schools. Schools can choose to use Building Assets Services (BAS) (a division of DHPW), for their maintenance services, or go directly to the market. School-based business services managers support the principal and administration team to ensure the buildings are safe and fit for purpose. School maintenance activities include:

- reviewing the assessment of the school buildings (asset life cycle assessment (ALCA)) to assist with the long-term asset planning alongside the infrastructure requirements
- developing a school strategic infrastructure plan (SSIP)
- identifying infrastructure options for consideration by regional and central office and the possible funding sources to implement these options.

## The Department of Housing and Public Works

DHPW delivers a range of services including government accommodation policy, and advice to other government departments. It is responsible for the MMF framework.

DHPW has formal arrangements in place with DoE for professional services relating to building, construction and maintenance at schools that choose to use BAS. DHPW supports DoE's infrastructure programs and total asset management.

At the time of our original audit, DHPW (through BAS) was providing a condition assessment service to DoE. These assessments determined the maintenance work required at each school. DoE now engages external assessors to conduct the new asset life cycle assessments.

## Report 11: 2014–15

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In *Maintenance of public schools* (Report 11: 2014–15), the audit objective was to examine how well DoE maintained school buildings and facilities.

We examined whether:

- the Advancing our Schools Maintenance and Fixing our Schools programs were well planned and achieved their objectives of reducing the maintenance backlog and improving the conditions of school facilities
- the Advancing our Schools Maintenance and Fixing our Schools procurement practices delivered value for money
- DoE's overall asset management practices were cost-effective.

## We concluded

DoE was not maintaining its schools to its own standards and requirements. This was due to historical underfunding of maintenance. At the time of the original audit, underfunding created backlogs of repairs and other corrective maintenance tasks, which consumed almost all available recurrent funds set aside for maintenance.

The need to address the backlogs locked DoE into a cycle of reactive maintenance and reduced its ability to invest in preventative and predictive maintenance strategies.

Recurrent maintenance budget allocations were below the government's own minimum recommended benchmark and were insufficient to address new maintenance requirements. This meant that the maintenance backlog was likely to compound, and DoE could have ended up with a worse backlog than before the Advancing our School Maintenance program began.

## We found

We found that DoE had cleared 90 per cent of the 2011–12 \$298 million school maintenance backlog and was on track to meet its program deliverable to clear all the 2011–12 backlog by 2014–15. DoE did not have portfolio level information about the condition of its buildings and could not objectively demonstrate that the significant investment in rectifying defects had improved the condition of school buildings.

We also found DoE's maintenance approach was reactive rather than preventative and did not take a whole-of-asset life cycle approach that considered the total cost of ownership. It had not systematically and rigorously analysed its asset portfolio to determine the most cost-effective approaches to prolonging the life of its assets. Instead, DoE generally repaired its assets after they had deteriorated.

## We recommended

We made five recommendations in Report 11: 2014–15—four for the former Department of Education, Training and Employment and one for the Department of Housing and Public Works. DoE agreed to fully implement three of the four recommendations and conditionally agreed to the other. DoE has taken responsibility for the work to implement the recommendation originally made to the Department of Housing and Public Works.

# Summary of audit findings

## Progress made by the Department of Education

In September 2018, we set out to establish whether the Department of Education (DoE) had effectively implemented the recommendations we made in Report 11: 2014–15. We found that DoE has fully implemented four of the recommendations and has partially implemented the other one.

**Figure B**  
**Progress made by DoE to implement the recommendations**

Recommendation	Actions taken	Status
1 Assess the condition of school buildings at a portfolio level so DoE can report objectively how school maintenance programs have affected the condition of school buildings.	<ul style="list-style-type: none"> <li>completed life cycle condition assessments for each school</li> <li>obtained data on the condition of school buildings</li> </ul>	Fully implemented
2 Agree with Building and Asset Services (BAS) on a consistent and accurate approach to report savings from the direct-to-market and BAS procurement methods, and complete a comparative assessment of the benefits, costs and risks of both procurement methods.	<ul style="list-style-type: none"> <li>improved their approach to reporting savings</li> <li>completed a comparative assessment of the two procurement methods</li> </ul>	Fully implemented
3 Ensure a common understanding between DoE, condition assessors and school staff of the condition standards expected for school facilities.	<ul style="list-style-type: none"> <li>developed descriptions for each condition standard rating</li> <li>specified the expected condition standards for school facilities</li> </ul>	Fully implemented
4 Implement a school asset maintenance program that balances preventative and condition-based assessment tasks to prolong the life of its assets and reduce the cost of maintaining them.	<ul style="list-style-type: none"> <li>developed a maintenance policy, strategy and strategic maintenance plan</li> <li>identified forecast maintenance work for the next 12 years</li> </ul>	Partially implemented
5 Improve the consistency of condition assessment results. *	<ul style="list-style-type: none"> <li>used professional assessors</li> <li>used an industry cost guide to estimate maintenance costs</li> </ul>	Fully implemented

Note: \* We originally made recommendation five to the Department of Housing and Public Works but, since 2016, the Department of Education has undertaken this activity.

Source: Queensland Audit Office.

The rest of this chapter summarises our conclusions about the departments in two main categories:

- rating the condition of the buildings and structures
- developing a maintenance program.

## Rating the condition of the buildings and structures

### Setting the standard at which to maintain the buildings and structures

DoE has now clearly set the standard at which it will maintain its buildings and structures. It uses the standards in the Maintenance Management Framework (MMF). The standards range from S1 (worst condition) to S5 (best condition). Appendix E describes the standards. DoE aims to maintain its buildings and structures to a minimum standard of S3. Infrastructure managers in schools, regional offices and central office now have a common definition of what that standard means for each building type. Figure C lists DoE's expected maintenance standard for each building type found in public schools.

**Figure C**  
**Building types, expected standard and description**

Building type	MMF standard expected	DoE specific description of condition standard for the type of building
Classrooms	S3	Able to fully meet operational requirements and provide an environment that will allow for learning
Library	S3	Functional, fully operational and provides an environment that allows for learning
Storage/gardener sheds	S3	Able to be in reasonable condition, fully meeting operational requirements, ensuring workplace health and safety standards are met
Teacher housing	S3	Secure and safe, habitable, fixtures and fittings functional and water and energy efficient
Toilets	S3	Operationally functional, allowing for cleaning to be kept to a sanitary standard and water efficient
Staff rooms	S3	Functional and fully operational
Cyclone shelters	S4	Fully functional to a high standard

Source: Department of Education, Training and Employment, *Strategic Maintenance Plan 2014–2018*.

## Assessing the condition of the buildings and structures

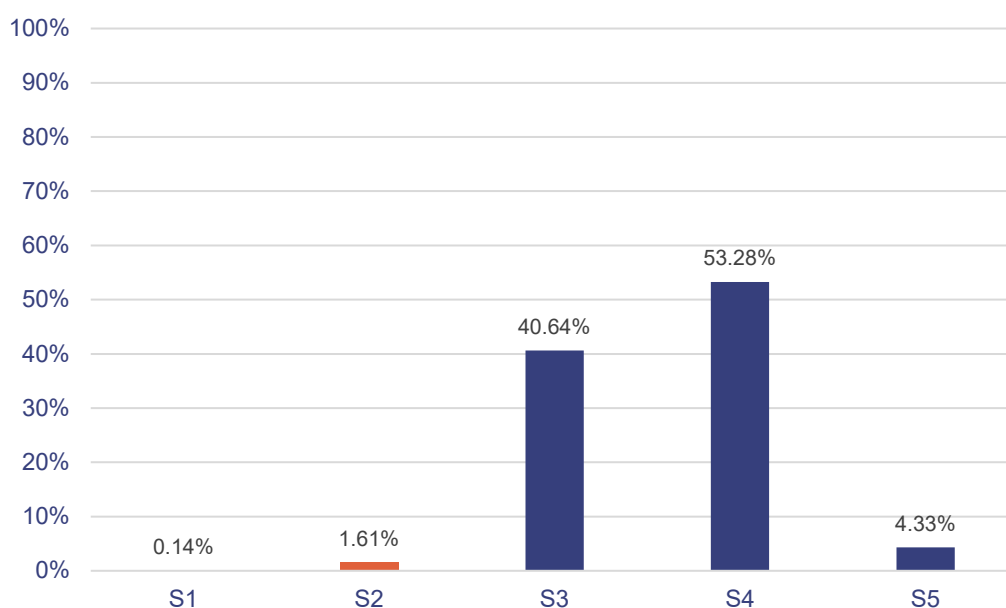
DoE has established baseline data showing that most school facilities (98.25 per cent) were at, or above, the expected standard of S3 at the time of the assessment (conducted over 18 months between 2016–2018). In future, DoE will be able to use updated assessments to report the impact of school maintenance programs on the condition of its buildings and structures.

To maintain this standard, the next step for DoE is to work with schools to quantify its maintenance demand. (The maintenance demand is the requirement for departments to assess and financially quantify the demand for maintenance as the first step in planning annual works programs.)

### Condition of school buildings and structures

The asset life cycle assessment (ALCA) data provides information on the condition of the buildings and structures, when to maintain them, and how much it will cost. Almost all school buildings and structures were at, or above, S3. Figure D shows the distribution of condition ratings at all school buildings and structures. This includes sheds, external structures (shade) and covered walkways.

**Figure D**  
**Proportion of buildings and structures assessed at each condition rating S1 to S5**



Note: The orange bars show buildings and structures rated below the expected standard; blue shows those at, or above, the expected standard.

Source: Queensland Audit Office from Department of Education data.

Buildings and structures rated S5 (best condition) include new buildings or refurbished elements. Building elements rated S1 (worst condition) include elements such as fences and gates, roof cladding, and external building finishes.

## Forecasting planned expenditure on school maintenance

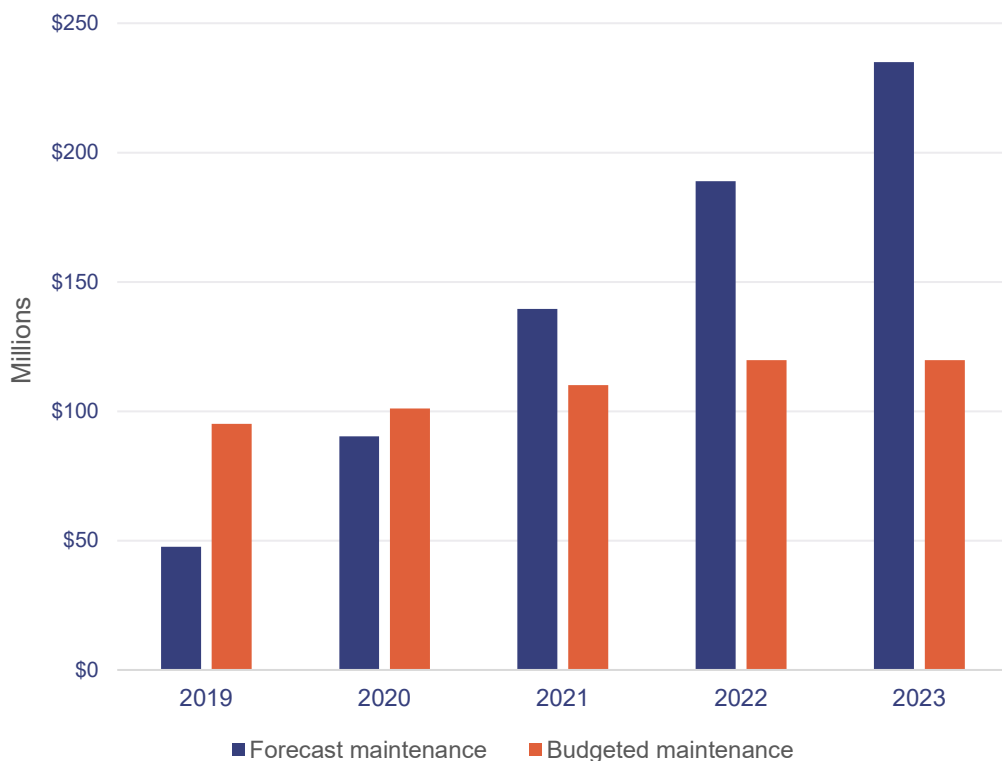
We analysed the assessors' forecast expenditure data in the ALCA datasets. We identified the value of the maintenance work required to maintain the school buildings and structures at the expected standard. Figure E shows the forecast maintenance expenditure compared with DoE's planned maintenance budget. Fresh data from the second round of ALCA assessments will be available as they are completed (MMF recommends three yearly), and DoE will need to update forecast expenditure regularly.

Based on the current condition assessments from the ALCAs, we estimate the total expenditure required for planned maintenance over the next five years is at least \$700 million. This figure does not:

- include the value of deferred maintenance, that is, maintenance works due in 2017 and 2018 from the 2016 ALCA, but not done due to other priorities or insufficient funding
- account for the value of maintenance works completed by schools and regions since the 2016 ALCA was completed.

The DoE budget for planned maintenance for the next five years totals \$546 million, a potential shortfall of at least \$154 million compared to forecasted maintenance required. In addition, DoE estimates that the value of deferred maintenance has reduced from an estimated maintenance backlog of \$214 million in 2014–15 to \$146 million as at 30 June 2018. It will be important for DoE to gain a complete analysis of its maintenance demand over the next three to four years to ensure the budget is enough to keep all its buildings and structures at the expected standard.

**Figure E**  
**Forecast versus budgeted maintenance expenditure 2019 to 2023**



Source: Queensland Audit Office.

# Developing and delivering a strategic asset maintenance program

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## Developing the program

DoE now has much of the information needed to develop a maintenance program that balances preventative (planned) and reactive (unplanned) maintenance. It has developed statewide maintenance programs and school-level infrastructure plans.

In 2017–18, schools that used BAS for their maintenance program (64.5 per cent of all schools) used 38.3 per cent of their maintenance budgets on planned maintenance. This has improved from our original audit when maintenance activities were prioritised on addressing defects from the backlog. The department advises schools to spend 50 per cent of their maintenance budget on planned maintenance. DoE does not have information on how schools that go directly to the market (35.5 per cent) use their maintenance budgets.

## Maintenance demand

DoE has not been able to assess its maintenance demand to inform the development of its maintenance budget, as it has not had all the information needed to make a full assessment. For example, it doesn't know if schools have deferred or brought forward maintenance, nor whether buildings are no longer fit for purpose (requiring minimal maintenance). DoE needs this information to be able to coordinate maintenance work across regions and the state and thus to optimise value for money.

The MMF requires departments to assess and financially quantify maintenance demand as the initial step in developing annual maintenance plans. The key inputs in assessing maintenance demand are:

- the current condition of the buildings and structures and when planned maintenance is due
- deferred (backlog) maintenance
- statutory and health and safety requirements
- unplanned maintenance based on historical information.

## Maintenance budget

The MMF recommends departments use a minimum funding benchmark of one per cent of the Asset Replacement Value (ARV) of the department's building portfolio on maintenance (planned and unplanned). At 30 June 2018 the ARV of the DoE portfolio was \$19.3 billion. The MMF also states that an agency is likely to require more than one per cent of ARV for maintenance if it has unfunded or deferred maintenance projects.

DoE is allocating close to the recommended minimum of one per cent of ARV on maintenance. In 2017–18 DoE allocated \$185.2 million (0.959 per cent of ARV) to maintenance and \$26.6 million to minor works, a total of \$211.8 million (1.097 per cent of ARV). However, DoE's annual maintenance allocation is not sufficient to address deferred maintenance tasks.



## Delivering maintenance programs

DoE is now able to assess the impact of its maintenance delivery programs, BAS and direct-to-market on the condition of its buildings and structures. In 2015, it completed a comparative assessment of both procurement methods in collaboration with BAS. Future assessments of the two programs will be able to consider more precise and consistent information from the ALCAs, which use detailed measurements (linear and/or square metres), and locality weightings to establish the baseline costs.

DoE concluded that both direct-to-market and BAS delivery were meeting the varied needs of state schools across Queensland. Being able to choose one of these two approaches gave schools the flexibility and autonomy to determine the most appropriate method of delivery for their local school context/environment.

## Next steps

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To fully implement recommendation four, DoE needs to fully assess its maintenance demand. To support this, we have made an additional recommendation to DoE as part of this follow-up audit. DoE will need to support schools to take the existing forecast maintenance information from the ALCAs and develop a maintenance plan.

A school maintenance plan would:

- consider the condition assessments and set the maintenance priorities for major maintenance activities, such as painting, roofing, and flooring (carpets and vinyl)
- cover all buildings with an estimated replacement value of more than \$100 000 for three to four years
- identify any maintenance work not completed by the forecast replacement date from the assessment (deferred).



# Audit conclusions

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The Department of Education has made significant progress in implementing the recommendations we made in the original audit. It has taken a more proactive approach to school maintenance and has advised schools to use 50 per cent of their maintenance funding on planned maintenance.

It has implemented an asset life cycle approach for assessing the condition of school buildings and now has comprehensive information on the general state of its buildings and a forecast of the expenditure required to maintain at or bring them up to the expected standard.

DoE now needs to consider the assessments of school buildings and schools' asset needs to quantify its future maintenance demand and financially quantify the value of existing defects and of the maintenance tasks that schools have deferred from 2015 to 2018. It will need to confirm or update its current estimate of the \$146 million in deferred maintenance. This will require schools to take a greater role in planning, monitoring and reporting their maintenance activities to give DoE a thorough understanding of its maintenance demand to inform budgeting.

The data from the asset life cycle assessments forecasts a significant increase in DoE's expenditure to maintain school buildings and structures at the expected standards. Over the next six years, DoE's planned maintenance budget will need to increase its focus on preventative maintenance, to avoid the backlog of school maintenance tasks continuing to rise.

Balancing the pressures of growth, renewal and maintenance on an asset portfolio of this size will require DoE to consider a range of options to ensure it continues to provide a safe working environment for staff and students.



# Recommendations

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## Department of Education

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We recommend that the Department of Education:

1. supports all schools to develop three-year maintenance plans for all school buildings with a replacement value greater than \$100 000.

This should include:

- schools and regional infrastructure managers developing a three-year maintenance plan during the next round of asset life cycle assessments
- ensuring the plans cover the key preventative maintenance elements, such as roofing, drainage and painting for the next three years
- aggregating the asset demand data at a regional and portfolio level to inform the development of its maintenance programs
- ensuring plans are in place to maintain school buildings at the expected standard of S3 or S4 (Chapter 2).

# 1. Rating the condition of the asset portfolio

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This chapter covers progress made by the Department of Education to assess the condition of its portfolio of school buildings.

## Introduction

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A clear understanding of the condition of buildings allows infrastructure managers to plan where and when to repair, replace or demolish elements of buildings and structures (for example: roofs, carpets and paint finishes).

For an asset portfolio of more than 1 200 schools across the state, it is important that assessments of the condition of buildings and structures are consistent and comprehensive.

Assessing the condition of buildings and structures is the initial step in the planning and delivery of maintenance work programs. The Maintenance Management Framework (MMF) requires all government agencies to conduct condition assessments every three years at a minimum, using competent assessors.

Government departments and agencies rate their buildings and structures on a five-point scale (S1 to S5). Refer to Appendix E for more details on the MMF standards. The condition standard Department of Education (DoE) set for maintenance of school buildings and structures is S3. The condition assessment identifies those building and structures either at or above the standard (S3, S4 and S5) or below the standard (S1 and S2). This information allows agencies to prioritise maintenance work, and quantify the demand for maintenance and the estimated cost of the work to budget for each year.

## Setting the standard at which to maintain the buildings

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**In 2014–15, we recommended that DoE develop detailed descriptions of specific condition ratings for its buildings and that it document the level at which it will maintain school buildings.**

In our original audit, we found that the Building and Asset Services (BAS) condition assessors and schools had different interpretations of the definition for condition standard rating S3. This resulted in inconsistent assessments.

DoE set the S3 condition standard in its service level agreement with BAS. But it did not explain the rationale for why the expected condition of schools was S3. Nor did it provide a detailed description of what S3 means for school buildings, for the various building components such as superstructure, cladding, roofing, lighting, plant, major fixtures and fittings—each with different useful lives and maintenance requirements.



We found that BAS believed that, when it conducted the condition assessments, it went beyond the standard definition for S3 and included defects that affected the appearance of a building, which the MMF defines as S4 (see Appendix G for an example of a condition standard).

## Progress made

DoE has now clearly set the standard at which it plans to maintain its buildings and structures. Infrastructure managers in schools, regional offices and central office, have a set of common detailed definitions to assess the condition of buildings and structures.

DoE has developed its *Strategic Maintenance Plan 2014–2018* to define how the MMF condition standards S1 to S5 apply to its buildings and structures. The plan specifies that it will maintain:

- classrooms, libraries, storage/gardener sheds, teacher houses, toilets and staff rooms at S3 condition standard
- cyclone shelters at S4 condition standard.

The plan provides descriptions of the expected condition standards for the seven types of school facilities. The definitions cover 193 different elements of its buildings and structures. Appendix F contains a listing of all the element codes and descriptions for the different types of buildings and structures.

The following example shows the level of detail DoE specifies for each condition standard for each of its 193 elements. DoE's detailed description of the **condition of boundary fences** shows the difference between an element that is acceptable (S3) and one that needs immediate maintenance (S2) to bring it up to the expected standard:

- **S3 description**—Boundary walls/fences/gates components and services are in an average aesthetic condition (minor cracks, holes, scratches). Performance and structure are reliable and functioning adequately. There are no obvious health & safety concerns. Minor planned repair or backlog maintenance exists.
- **S2 description**—Boundary walls/fences/gates components and services are in a poor condition (palings missing, posts loose, paint deteriorated). Performance and structure are poor, unreliable or unsuitable for intended use. There are possible health and safety concerns. Planned repair or backlog maintenance exists.

## Assessing the condition of the buildings

**In 2014–15, we recommended that DoE assesses the condition of school buildings to be able to report the impact of its maintenance programs. We also recommended the Department of Housing and Public Works use qualified and experienced assessors to improve the consistency of the assessments and use consistent local cost rates.**

In our original audit we found that DoE had cleared 90 per cent of the 2011–12, \$298 million school maintenance backlog and was on track to clearing this backlog by 2014–15. However, DoE couldn't objectively demonstrate that a significant investment in rectifying defects had improved the condition of school buildings.

The results of condition assessments did not provide a complete picture of the overall condition of school buildings. The condition assessment process focused on identifying defects that schools needed to rectify in the next 12 to 18 months. This made it difficult to track improvements in school buildings over a three-year period. The condition assessments in years two and three included new maintenance tasks not accounted for in year one.

BAS staff and BAS contractors were not consistent in how they completed the 2013–14 school condition assessments. This led to 160 schools being reassessed and the discovery of a \$10 million maintenance backlog that was previously unidentified. We also found BAS staff and BAS contractors were inconsistent in how they determined indicative cost rates for defects identified in condition assessments.

## Progress made

DoE now has access to more consistent data on the current condition of all its buildings and their constituent elements. It has established baseline data showing that most school buildings (98.25 per cent) and constituent elements (98.10 per cent) at the time of the assessments were at, or above, the expected standard of S3. In future, DoE will be able to use the updated assessments to report the impact of school maintenance programs on the condition of its buildings and structures.

DoE contracted appropriately qualified and experienced assessors to conduct the condition assessments. The contractors used consistent cost rates to determine the financial value of the forecast maintenance expenditure. The forecast expenditure calculations were based on the condition assessments and the expected replacement year.

The next step is for DoE to use the data it now has on forecast maintenance to better inform the budgeting process, to ensure funding is sufficient to maintain buildings and structures at the S3 level.

## Asset life cycle assessments

In 2016, DoE took over responsibility for coordinating the condition assessments for its buildings from the Department of Housing and Public Works. It engaged two appropriately qualified facilities management companies to conduct asset life cycle assessments (ALCAs) between March 2016 and May 2018, across six different stages. A staged roll-out allowed DoE to review the process and to adjust before proceeding to the next stage. DoE conducted the first two stages simultaneously, using the two providers. They selected one provider to complete the ALCAs for the remaining four stages.

Qualified assessors examine all school buildings and other building assets (for example, car parks, shade structures, sports facilities) during the ALCA process.

ALCAs provide:

- a condition rating for the major elements within each building asset
- an overall condition rating for each building asset
- the estimated remaining useful life of building elements
- an estimated renewal year for each building asset
- cost rates with a locality component
- list of major defects and all workplace health and safety issues
- estimated cost of replacing building elements over a 12-year period, including current major defects.



In addition, assessors examine concealed infrastructure (for example, drainage, electrical services and reticulation systems) on a risk-management basis. DoE excludes the following building elements from ALCAs:

- air conditioning
- swimming pools
- information and communication technology (ICT)
- plant and equipment (for example, fire hydrants, switchboards)—not considered to be building assets.

DoE identifies and addresses the maintenance needs of air conditioners, ICT, and swimming pools through stand-alone maintenance programs.

DoE has completed the assessments at all its eligible schools. Eligible schools included community schools, Indigenous community schools, outdoor and environmental education centres, schools of distance education, special schools and support units. They did not include public–private partnership (PPP) schools, schools and education centres not owned by DoE, hospital schools, new schools, closed schools and schools that DoE marked for closure or relocation.

### Forecast expenditure to maintain buildings and structures at S3

Historically, expenditure was based on a listing of unrectified defects. DoE calculated a backlog from the results of the old annual condition assessment process, undertaken by Building and Asset Services (BAS), Department of Housing and Public Works.

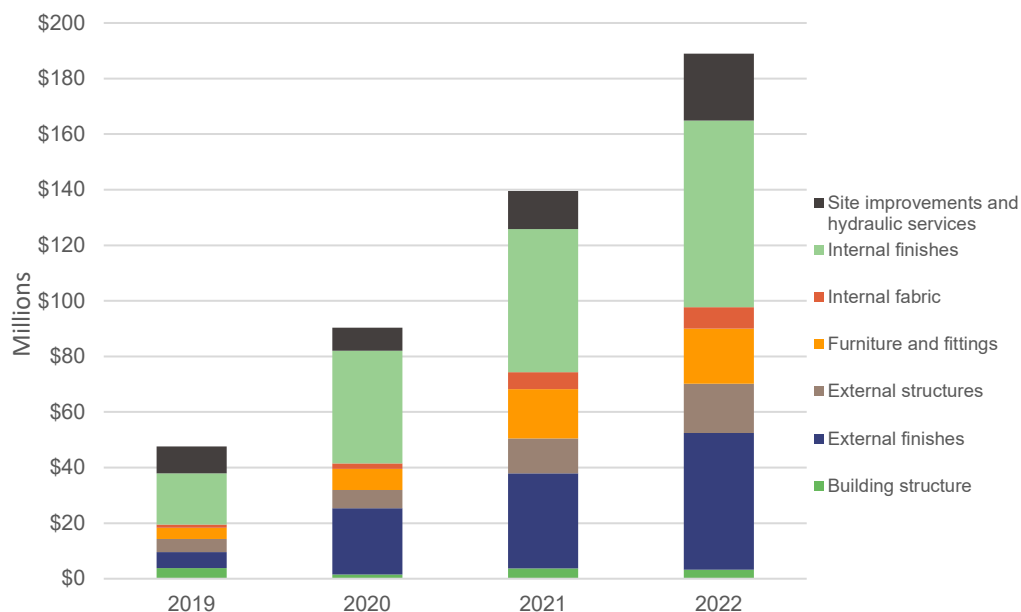
The old condition assessments identified asset defects that needed attention within the subsequent 12–18 months and an estimated cost to rectify the defects. The maintenance backlog was the total cost to rectify all identified defects from the maintenance assessment report.

Asset life cycle assessments (ALCAs) have since replaced condition assessments (which only assessed defects). During the transition, the department was using a combination of deferred maintenance jobs from ALCA and condition assessment data (unrectified defects) to monitor and report the maintenance backlog. The ALCA data replaced the condition assessment data as it became available for individual schools.

In June 2018, DoE estimated that the backlog of school maintenance based on a mix of unrectified defects and deferred maintenance was \$146 million. However, DoE does not have a robust process for updating the list of defects or the planned maintenance tasks schools have completed or deferred. The current estimates could change significantly when the next round of assessments is completed.

Based on the condition assessments conducted by the DoE contractors, we calculated the forecast expenditure (using the standard rates) on planned maintenance from 2019 to 2022 as \$466 million. Figure 1A shows a breakdown of the condition assessments of the different element groups assessed for school building and structures. It shows the assessed demand for asset maintenance for the next four years to keep school buildings and structures at the S3 condition standard.

**Figure 1A**  
**Forecast maintenance expenditure, by element groups 2019–2022**



Note: This data does not include any defects or deferred maintenance from 2015, 2016, 2017 and 2018.

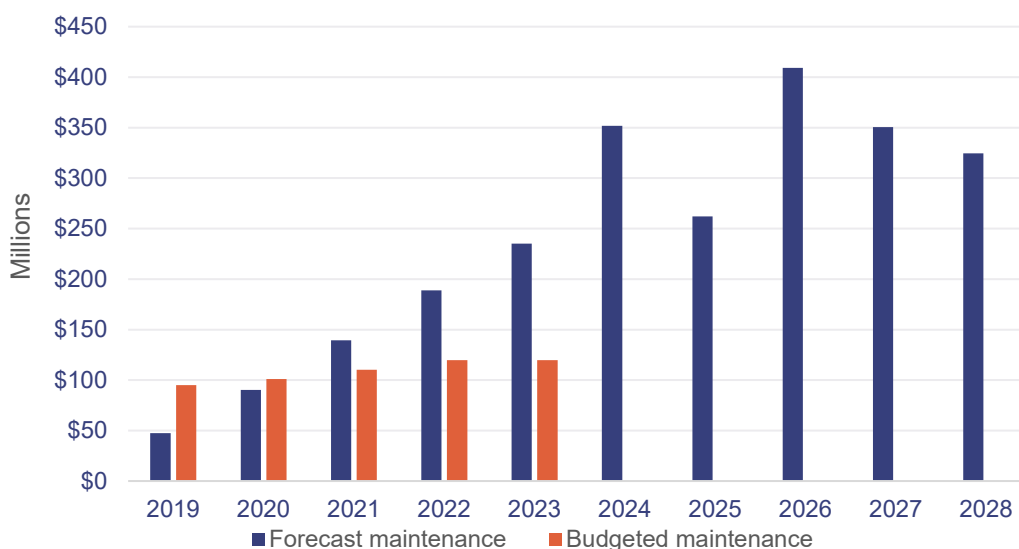
Source: Queensland Audit Office.

We acknowledge that there are many limitations to the forecast expenditure data as it is at a point in time and does not consider changes to the condition of the buildings and structures since the assessment. Figure 1B shows the forecast expenditure on planned maintenance for the next 10 years compared to the budgeted expenditure. We note this does not:

- include the value of deferred maintenance, that is, maintenance works due in 2017 and 2018 from the 2016 ALCA, but not done due to other priorities or insufficient funding
- account for the value of maintenance works completed by schools and regions since the 2016 ALCA was completed.

(Chapter 2 contains more information on the budget process).

**Figure 1B**  
**Forecast expenditure on planned maintenance compared to the current budgeted expenditure, 2019 to 2028**



Note: The ALCA data is based on a calendar year. We have allocated the financial year budget data to calendar years to allow for comparison of trends. For example, 2018–19 is allocated to 2019.

Source: Queensland Audit Office from the ALCA dataset.

DoE needs to do more analysis to understand the total maintenance demand, to include maintenance tasks and defects schools have deferred from 2015 to 2019 and to remove work they have completed. Without a complete assessment of maintenance demand, there is a risk that the DoE maintenance budget may not be sufficient to cover planned maintenance. This could defer school maintenance and create another backlog.

### Data inconsistencies

DoE's staged approach to the condition assessments allowed it to refine its assessment process; however, it also created some inconsistencies across the ALCA data. For example, the assessors included air conditioning, car parks and other assets in some stages and not others. DoE will need to resolve the differences in how it categorises its assets to allow analysis of the ALCA data and identify its forecast maintenance expenditure.

These inconsistencies are a consequence of DoE improving its practice across the different stages and using two providers for the first two stages.

### Maintenance support systems

DoE currently records ALCA data in excel spreadsheets, but it has developed specifications for an asset assessment system (AAS) to support and capture ALCA data. The proposed AAS system functions include data entry, data reviews, post-assessment updates, dashboard visualisations, ad-hoc reporting and analytics capabilities. At the time of the audit, these were proposed enhancements for future implementation. Therefore, we could not assess their functionality.



## 2. Developing and delivering a maintenance plan

This chapter covers progress made by the Department of Education (DoE) to develop and deliver its strategic maintenance plan.

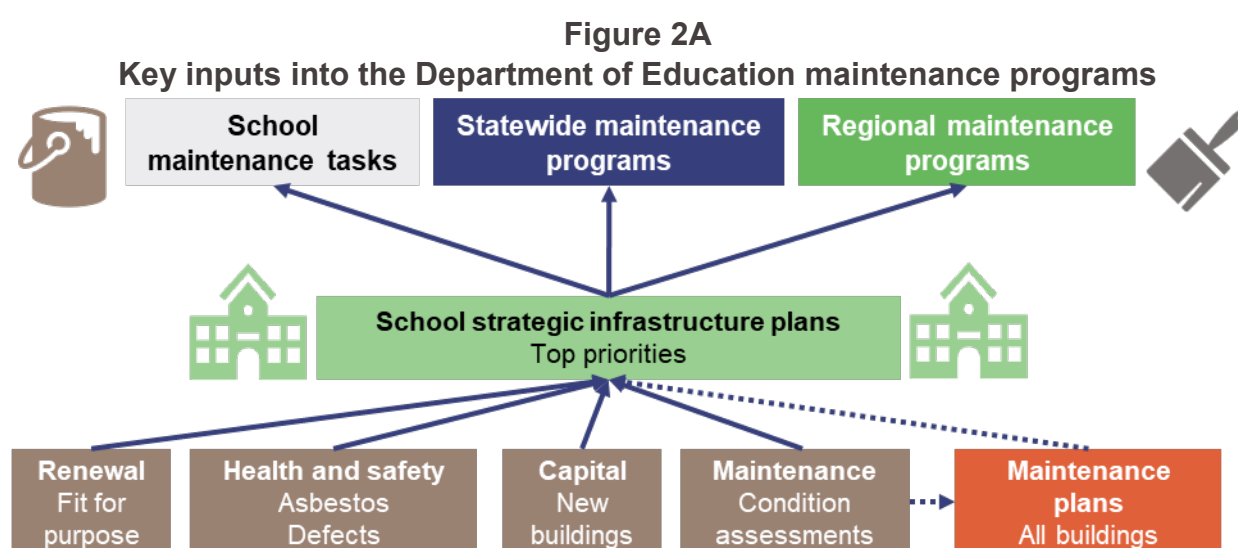
### Introduction

#### Developing the maintenance programs

DoE has almost 43 000 buildings and structures in its asset portfolio. To effectively manage its maintenance program, DoE must consider changes in demographics and the need to renew old buildings for a modern curriculum.

The benefits of having strategic maintenance programs include being able to invest in preventative maintenance, rather than just reacting to problems once they occur. For example, fixing drains and leaking roofs before they become a major problem saves having to replace carpets and furniture and repainting damaged walls.

Figure 2A shows how schools, regions and the DoE infrastructure branch plan for maintenance. Schools develop a school strategic infrastructure plan (SSIP) based on their top infrastructure priorities for new facilities and maintenance. They use their grant for maintenance tasks within the limit of their funds and seek additional regional and statewide funding for any unfunded priorities. DoE does not require schools to develop maintenance plans.



Note: The orange box with Maintenance plans shows an element needed, but currently not in place.

Source: Queensland Audit Office.

The Queensland Government's Maintenance Management Framework (MMF) recommends that departments formulate an annual maintenance budget that is a realistic calculation of the quantum of funding required to address the department's maintenance needs. The MMF recommends a minimum funding benchmark of one per cent of the building asset replacement value (ARV) of the department's building portfolio. For example: if a department has a building portfolio with a current ARV of \$800 million, then the MMF suggests the department should set aside a minimum of \$8 million for that year's maintenance budget.

The MMF states that departments should view this one per cent funding recommendation as the minimum threshold for annual maintenance expenditure for their building portfolio, not as the optimal funding level.

Developing the budget and planning for maintenance requires up-to-date information on maintenance demand. A maintenance demand assessment takes the information about the condition of the buildings, deferred maintenance, and other maintenance requirements and prioritises the work to maximise the infrastructure investment. For example, if A Block was due to be painted in 2020, B Block was due in 2021 and C Block in 2022, the school could take a long-term view and prioritise all the painting in 2021 with a single contractor, to save money and minimise disruption to learning.

## Delivering the maintenance program

Schools have a choice to use Building Assets Services (a division of the Department of Housing and Public Works) to deliver their maintenance programs or to go directly to the market and manage maintenance themselves.

### Direct-to-market

The direct-to-market procurement method allows schools to tender and contract directly with service providers outside the public sector. Under this method, schools are responsible for ensuring contractors have the necessary licences to undertake the required work.

The school principal retains the risk to ensure contractors complete work to the required standard. The principal or business service manager inspects maintenance work for completion and quality, and manages any defect issues directly with the contractor.

### Building Asset Services

DHPW provides asset maintenance services to other government departments through its Building Assets Services (BAS) unit. Before 2012, BAS was the sole provider of asset maintenance services to schools. Schools using BAS don't conduct background checks on BAS contractors as BAS ensures its contractors have the necessary licences. BAS retains the risk of ensuring that contractors complete work to the required standard and manage any defects from the work completed.

## Developing the maintenance program

**In 2014–15, we recommended that DoE implement a maintenance program that balances planned and unplanned maintenance tasks to prolong the life of its assets and reduce the cost of maintaining them.**

In our original audit we found the previous condition assessments focused on defects. They did not provide information for preventative maintenance to inform long-term maintenance planning. As a result, DoE was not analysing condition assessment data to determine overall maintenance issues to inform future planning.

We also found DoE's budget submissions did not historically include preventative maintenance because of funding constraints. DoE included life cycle maintenance measures in its then draft strategic maintenance plan to take a less reactive approach to maintenance.

### Progress made

DoE now has much of the information needed to develop a maintenance program that balances preventative (planned) and reactive (unplanned) maintenance. But it still needs to improve its information on maintenance demand to ensure its forecasts are accurate and can inform the budget. This will strengthen its ability to manage the risk of an accumulation of deferred maintenance becoming another backlog.

DoE now has a budget which includes preventative maintenance. DoE has developed statewide maintenance programs and school level plans through school strategic infrastructure planning. However, schools need more support to develop school maintenance plans for all significant buildings and structures (valued at or above \$100 000) over the medium term, that is, 2–3 years.

### Statewide and regional approaches

DoE delivers statewide and regional maintenance programs for schools. For example, there are specific programs for school swimming pools, asbestos removal and air conditioning.

DoE has developed a framework to deliver its statewide and regional maintenance programs, including a:

- departmental maintenance policy, which identifies the responsibilities for school maintenance, but does not give responsibility to a single person to ensure its facilities are maintained at the expected level of S3 or that each of its sites has an approved maintenance plan
- maintenance strategy, which considers
  - planned maintenance—predictive, condition-based and service maintenance (preventative and statutory)
  - unplanned maintenance—corrective or routine breakdown and incident or emergency
- strategic maintenance plan, which identifies the strategies, policies and processes the department will develop and implement over the next five years to maintain its buildings at a standard that can provide optimal support for student learning outcomes
- departmental maintenance budget, which allocates the funding of statewide and regional maintenance programs.

Now that DoE has a complete dataset on the life cycle and condition ratings of its building and structures, it can use this information to inform its statewide plans for how it aims to maintain its assets.



## School strategic infrastructure plans

Since the original audit DoE has initiated a new infrastructure planning process for schools—a school strategic infrastructure plan (SSIP). The plan encourages schools to identify their top infrastructure priorities based on educational and operational needs. The SSIP gives schools an opportunity to consider how they will integrate issues associated with growth, renewal and maintenance into a single plan for its top priorities. As this is a new process, not all schools have developed a SSIP yet.

To develop the infrastructure priorities, schools:

- identify educational and curriculum goals for the next four years, aligning with the school Quadrennial Plan
- review asset life cycle assessment (ALCA) data to assist with long-term asset planning alongside the infrastructure requirements and how this may be prioritised into the SSIP
- complete the fit-for-purpose self-assessment tool to document areas of the school that are not fit for their intended purpose or are limiting the ability to deliver education outcomes
- consult with relevant members of the school community on any significant local factors (for example heritage and environment)
- identify options for consideration by regional and central office and the possible funding sources to implement these options.

The following case study illustrates how one school used the SSIP to renew its infrastructure.

### Case study—Kedron State High School

#### Renewal and redevelopment of home economics block

Kedron State High School is located on Park Road, Kedron, Brisbane. In the February 2017 census, the enrolment count at Kedron State High School was 1 491 students. The school's current built capacity is for 1 926 students. DoE forecasts that the school will grow to between 1 650 and 1 700 students by the year 2020.



The current kitchens (pictured), designed for teaching home economics, do not have the equipment to deliver more training-focused courses. Rather than undertake maintenance on the current kitchens, DoE will build a new two-storey learning centre.

The new building will have four general classrooms and two industrial kitchens. The old kitchens will be reconfigured into two general classrooms. This will increase overall capacity with four new and two refurbished teaching spaces and increase the school's built capacity to 2 077 students.

This innovative approach to renewing infrastructure will allow the school to upgrade its facilities and be able to use the industrial kitchens to deliver Certificate III and IV hospitality courses.

Source: Department of Education. Photo: Queensland Audit Office.

The SSIP is a useful prioritisation tool but does not constitute a school maintenance plan as it does not identify planned maintenance tasks to ensure the school has a plan to maintain all its buildings and facilities at the expected condition of S3.

### School maintenance budget

The MMF requires departments to develop an annual maintenance budget to address their planned and unplanned maintenance needs. DoE develops an annual budget to inform its statewide and regional maintenance programs. It uses information from the condition assessments, and analysis of demand from the SSIP and regional input on infrastructure priorities. DoE did not have a complete analysis of its maintenance demand to inform the 2018–19 budget. This was because the assessors finished the assessments in May 2018. Other relevant information on deferred maintenance is also incomplete as DoE is not able to capture maintenance work either completed or deferred by schools.

We analysed the DoE budget on maintenance and compared it to the DoE's ARV. We found DoE is close to allocating the recommended minimum of one per cent of ARV, and exceeds the one per cent when it includes minor works. However, DoE's maintenance budget is not sufficient to address deferred maintenance tasks.

DoE does not know whether schools have used minor works to address maintenance needs. For example, if in conducting minor works, schools address a series of planned maintenance tasks. Figure 2B shows the breakdown of DoE budgets for maintenance, including and excluding minor works compared to ARV.

**Figure 2B**  
**School maintenance budgets, 2015–16 to 2017–18**

	2015–16	2016–17	2017–18
ARV of schools	\$18.074 b	\$18.624 b	\$19.308 b
Maintenance budget, including minor works	\$183.220 m	\$202.927 m	\$211.830 m
Percentage of ARV (including minor works)	1.01%	1.09%	1.10%
Maintenance budget, excluding minor works	\$183.220 m	\$177.868 m	\$185.191 m
Percentage of ARV (excluding minor works)	1.01%	0.96%	0.96%

Source: Queensland Audit Office.

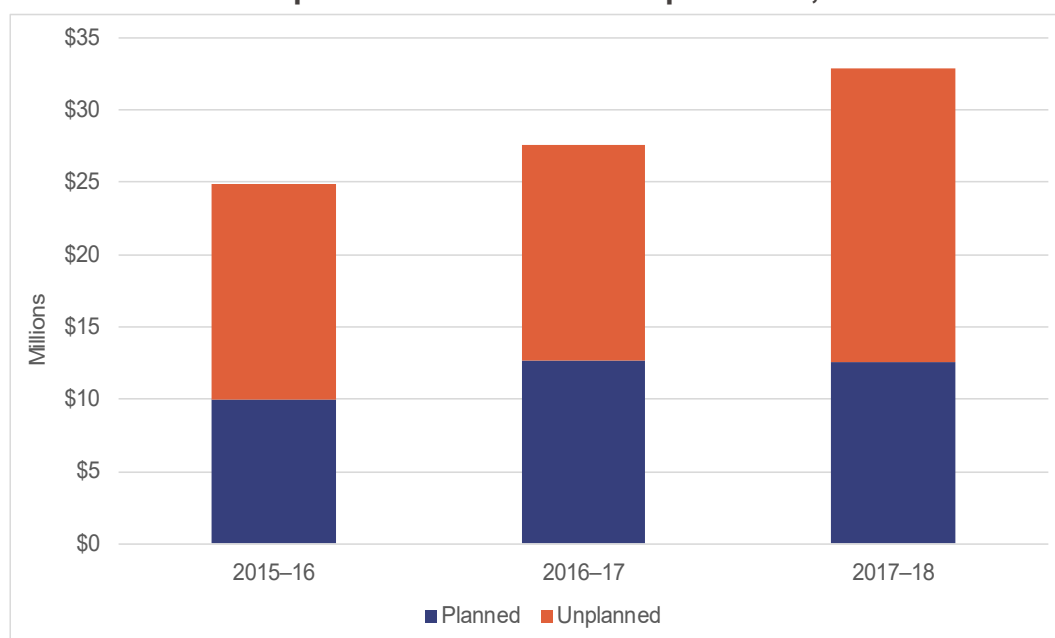
In 2018, schools received one third (\$66 million) of the statewide school maintenance budget (2018–19) of \$210 million as a grant to manage their maintenance activities. DoE used the other \$144 million for statewide and regional maintenance and minor works programs.

Some schools (35.5 per cent) go directly to the market to manage their maintenance activities themselves and the rest (64.5 per cent) use BAS to do their maintenance. DoE pays the maintenance grant directly into the bank accounts of direct-to-market schools. Schools that use BAS have a notional budget and BAS charges all maintenance work to the budget.

DoE has advised schools to spend 50 per cent of their maintenance funding on planned maintenance. This encourages schools to prioritise preventative maintenance and reduces the risk that the backlog of school maintenance continues to accumulate.

DoE can monitor how much schools that use BAS are spending on planned and unplanned maintenance from their notional budgets. It does not have complete data on maintenance expenditure by direct-to-market schools. Figure 2C shows the split between spending on planned and unplanned maintenance at schools using BAS to deliver their maintenance programs.

**Figure 2C**  
**Planned and unplanned maintenance expenditure, BAS schools**



Source: Department of Education.

At the time of our original audit, school maintenance was reactive, as it focused on defects and did not consider preventative or planned maintenance. In 2015–16, BAS schools spent 40.1 per cent of their maintenance grants on planned maintenance, this increased in 2016–17 to 45.8 per cent, but then dropped to 38.3 per cent in 2017–18. DoE has made considerable progress in shifting expenditure to focus on planned maintenance at BAS schools.

DoE's asset information system cannot report on the planned maintenance expenditure by direct-to-market schools. This means that DoE does not have complete information on how schools spend their maintenance budgets and cannot report on the impact of the school maintenance grant on the condition of its buildings and structures.

## Next steps

### School maintenance plans

The MMF requires departments to develop an annual maintenance works program covering all buildings. The recommended planning horizon is at least three years; the minimum duration is one financial year.

Schools now have access to 12 years of forecast maintenance tasks on all their buildings and structures, from the ALCA. DoE does not currently require principals to use this information to develop a maintenance plan.

There is a risk that DoE may not have detailed planning information from schools to allow it to develop maintenance programs that ensure it maintains all its buildings and structures at the expected standard of S3.

We have made an additional recommendation for DoE to support principals to develop a maintenance plan for each school site. DoE could use the next round of ALCAs to support schools to develop a three-year maintenance plan. The DoE contractors who conduct the ALCA could use the existing exit interview with the principal/business services manager to:

- confirm the condition and life cycle assessments for each building
- prioritise the maintenance tasks and costs (including funding sources) for the next three years for every building with a replacement value greater than \$100 000
- consider the impact of any planned asbestos removal programs
- identify upcoming statutory health and safety requirements
- incorporate fit-for-purpose assessments.

We acknowledge this is a complex task for such a large portfolio of assets across the state. It will be important for DoE to balance the independence of schools to plan for the use of their individual facilities with its need to ensure accountability for maintaining its assets at the expected standard.

## Delivering the maintenance program

**In 2014–15, we recommended that DoE agree with BAS on a consistent and accurate approach to reporting savings from the direct-to-market and BAS procurement methods and complete a comparative assessment of the benefits, costs, and risks of both procurement methods.**

In our original audit we found that BAS and DoE reported cost savings for maintenance work, to compare the value for money of the two approaches. However, the indicative costs were unreliable, and used different approaches to calculate savings.

BAS and DoE both used the indicative cost from the condition assessment as the baseline to calculate cost savings. This was problematic because the accuracy of the indicative costs depended on the quality of condition assessments and the experience of the assessors. We found that both factors varied. We also found that indicative costs were not based on current market conditions and could not provide a like-for-like comparison.

BAS and DoE used different methods to calculate savings which made them incomparable. The key differences in their methods were:

- management fees—BAS included a 12.5 per cent management fee; DoE did not include direct-to-market project management costs incurred by schools
- scope variances—BAS accounted for scope extensions, but not reductions; DoE did not account for any scope variances
- actual cost—BAS used tender price; DoE used the actual price.

## Progress made

DoE is now able to assess the impact of its procurement methods, BAS and direct-to-market, on the condition of its buildings and structures. It is now using comparable costs for forecasting maintenance expenditure, which provides a comparable baseline to monitor and compare the two approaches to school maintenance.





It has completed a comparative assessment of both procurement methods in collaboration with BAS. The new assessment is more precise and consistent because it uses industry data, which it applies to detailed measurements (linear and/or square metres), and locality weightings to establish baseline costs.

DoE selected a representative statewide sample of 59 of the 371 direct-to-market schools to participate in the direct-to-market review. The process involved face-to-face interviews with school personnel (for example, principals and business services managers), a written questionnaire and inspecting a sample of maintenance works at the school. DoE developed the questionnaire to be comparable with the BAS customer satisfaction survey. The direct-to-market review assessed perceived value-for-money, contractor performance, work quality and efficacy of the direct-to-market process.

BAS provided their customer satisfaction survey to 904 schools, with 885 responding. The BAS review also involved face-to-face interviews with school personnel and inspection of a sample of maintenance works. The review assessed perceived value-for-money, contractor performance and work quality.

DoE reported the following benefits:

- Both delivery methods provide strong benefits to schools.
- Nine out of 10 direct-to-market schools were satisfied with this delivery method.
- Almost nine out of 10 BAS schools were satisfied with this delivery method.

DoE also identified some opportunities for improvement:

- direct-to-market—implement formal project planning and tracking, initiate start-up meetings, use the quote form as a standard process, and streamline and simplify the direct-to-market administrative processes
- direct-to-market—training should remain available for new staff and schools using direct-to-market for the first time
- BAS—ensure school staff and all contractors actively manage the Work Area Access Permits (WAAPs) process.

DoE improved its approach to reporting savings by deriving baseline costs from industry rates. As direct-to-market does not include costs related to project management or school overheads, DoE excluded the BAS 12.5 per cent delivery charge (to cover contract and project management fees) in its analysis. DoE reported from its desktop analysis of direct-to-market and BAS, that for both procurement methods:

- on average, delivery rates are comparable to, or better than, market rates
- delivery costs tend to be lower in urban areas and higher in remote areas
- delivery costs in the rural and remote parts of the state can vary greatly depending on the availability of contractors, the distance required to travel to jobs, and accommodation costs.

We agree with the findings of the comparative assessment and we note that DoE has improved the consistency and accuracy of its approach to reporting savings since our original audit.

The current evaluation report compares costs for a selection of items across South East Queensland and the rest of Queensland. DoE could improve the assessment in future periodic reviews of the maintenance delivery program, by comparing results for all items and analysing the variations in costs across different types of works and regions.



# Appendices

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<b>A.</b>	<b>Full responses from agencies</b>	<b>30</b>
	Comments received from Director-General, Department of Education	31
	Comments received from Director-General, Department of Housing and Public Works	33
<b>B.</b>	<b>Audit objectives and methods</b>	<b>34</b>
	Entities subject to this audit	34
	Audit approach	34
<b>C.</b>	<b>The Maintenance Management Framework</b>	<b>36</b>
<b>D.</b>	<b>Definition of school maintenance</b>	<b>39</b>
<b>E.</b>	<b>Description of condition assessment ratings</b>	<b>40</b>
<b>F.</b>	<b>Elements assessed</b>	<b>41</b>
<b>G.</b>	<b>Example of condition assessment standard for internal finishes</b>	<b>42</b>



# A. Full responses from agencies

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As mandated in Section 64 of the *Auditor-General Act 2009*, the Queensland Audit Office gave a copy of this report with a request for comments to the Department of Education and the Department of Housing and Public Works.

The heads of these agencies are responsible for the accuracy, fairness and balance of their comments.

This appendix contains their responses.



## Comments received from Director-General, Department of Education



Office of the  
**Director-General**

Department of  
**Education**

11 APR 2019

Mr Brendan Worrall  
Auditor-General  
Queensland Audit Office  
Email: [gao@gao.qld.gov.au](mailto:gao@gao.qld.gov.au)

Dear Mr Worrall *Brendan*

Thank you for your letter dated 21 March 2019 regarding the follow-up audit on maintenance of public schools.

It is reassuring to know that the Queensland Audit Office's findings support the Department of Education's evolving processes for the management of its assets.

I confirm that the department agrees with the report's recommendations and enclose our detailed response.

If you wish to discuss any aspect of the draft report, please contact Mr Kevin Mara, Assistant Director-General, Infrastructure Services Branch, on [redacted] or by email at [redacted]

Thank you for affording the department the opportunity to provide feedback on the follow-up audit report.

Yours sincerely

A handwritten signature in black ink that reads "Tony Cook".

**TONY COOK**  
**Director-General**

Ref: 19/154230

Enc

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## Responses to recommendations



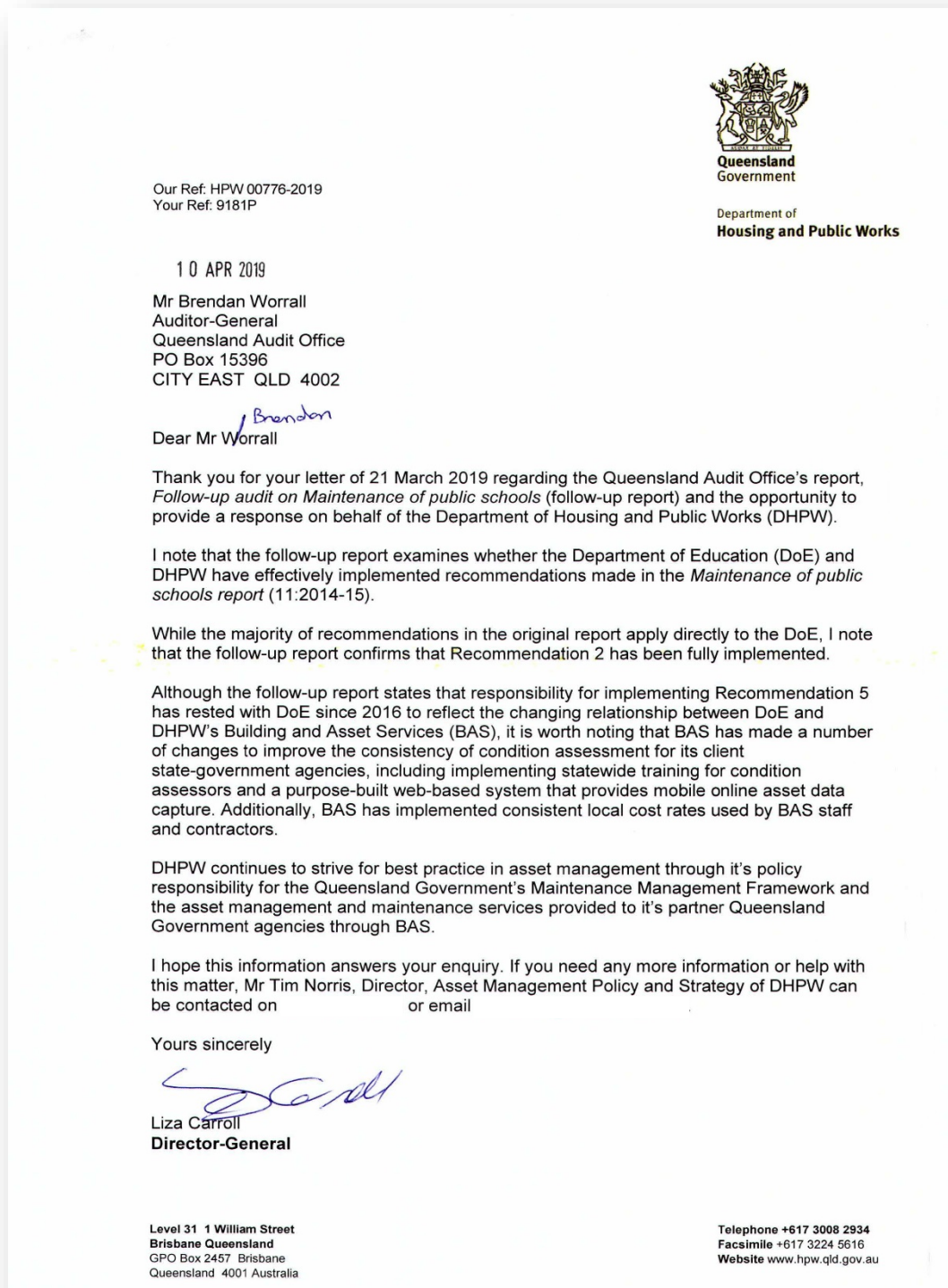
### Department of Education

#### *Follow-up of Maintenance of public schools*

Response to recommendations provided by Director-General, Department of Education (DoE), 12 04 2019.

Recommendation	Agree/ Disagree	Timeframe for implementation (Quarter and year)	Additional comments
1. Supports all schools to develop three-year maintenance plans for all school buildings with a replacement value greater than \$100,000. This should include:	Agree	Quarter 2, 2019	DoE is developing an information package that will assist Regional Infrastructure staff to use the Asset Life Cycle Assessment (ALCA) data to help schools to develop maintenance plans.
• schools and regional infrastructure managers developing a three-year maintenance plan during the next round of asset life cycle assessments		Quarter 3, 2019	DoE will train regional staff in the development of school maintenance plans.
• ensuring the plans cover the key preventative maintenance elements, such as roofing, drainage and painting for the next three years		Quarter 4, 2019	An Asset Assessment System is being developed that will enable schools and regions to access and use ALCA data and allow DoE to reliably forecast its future maintenance demand at a portfolio and regional level.
• aggregating the asset demand data at a regional and portfolio level to inform the development of its maintenance programs		Commencing Quarter 4 2019 with full implementation across all schools by 2020-21	Regional Infrastructure staff will work with schools to develop maintenance plans aimed at maintaining school buildings to the expected standard.
• ensuring plans are in place to maintain school buildings at the expected standard of S3 or S4 (Chapter 2).			

## Comments received from Director-General, Department of Housing and Public Works



## B. Audit objectives and methods

The objective of the audit is to assess whether entities have effectively implemented the recommendations made in *Maintenance of public schools* (Report 11: 2014–15). The audit will address the primary objective through the following sub-objectives and lines of inquiry.

**Figure B1**  
**Audit sub-objectives and lines of inquiry**

Sub-objectives		Lines of inquiry	
1.	The entities have actioned the recommendations	1.1	The entities have implemented the recommendations in accordance with their responses or have taken alternative actions.
		1.2	The entities implemented the recommendations in a timely manner.
2.	The entities have addressed the underlying issues which led to the recommendations.	2.1	The entities have addressed the issues that led to the recommendations.
		2.2	The entities' actions have resulted in improvements in the maintenance of public school facilities.

Source: Queensland Audit Office.

### Entities subject to this audit

- Department of Education

We also engaged the Department of Housing and Public Works as part of this audit because of its role in the original audit and because it is the policy owner of the Maintenance Management Framework.

### Audit approach

In January 2017, as part of our strategic audit planning process, we asked the two entities to self-assess their progress in implementing our recommendations against the following criteria:

- F—fully implemented
- P—partially implemented
- A—alternative action undertaken
- NA—no substantial action taken.

We also asked the entities to provide comment on the outcomes of actions they have taken and on planned future actions.

We conducted the audit in accordance with the Auditor-General of Queensland Auditing Standards—September 2012, which incorporate the requirements of standards issued by the Australian Auditing and Assurance Standards Board.

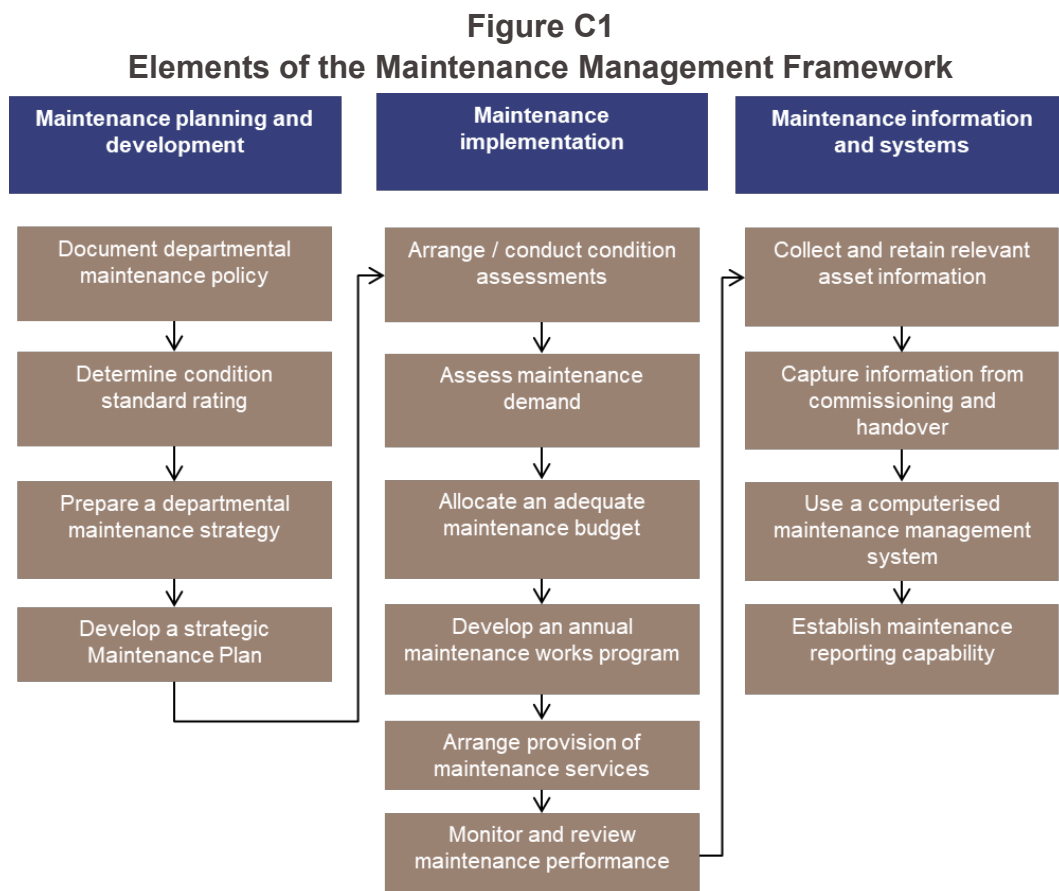
The follow-up audit process included:

- ensuring the responses address the intent of the recommendation, and subsequent effectiveness and outcomes of the recommendations
- testing documentation for evidence consistent with the entities' responses
- analysis of data including life cycle assessments, maintenance liabilities and asset replacement values
- observation of maintenance assessments
- conducting interviews to clarify responses.



## C. The Maintenance Management Framework

The Queensland Government has an established Maintenance Management Framework (MMF) which all departments must follow for managing building maintenance. The MMF encourages departments to take a strategic approach to maintain their assets. It recommends a minimum maintenance funding benchmark of one per cent of the total asset replacement value (ARV) per year.



Source: The Department of Housing and Public Works.

The MMF has three main elements: planning, implementation and information systems. These elements must form part of how departments develop their strategic and operational approaches to asset maintenance.



## Maintenance planning and development

The maintenance planning and development element has four policy requirements. Departments must:

- produce an internal departmental maintenance policy that complies with the MMF
- determine a condition standard rating for each building asset, and periodically review and update the rating (see Appendix E for a description of the condition assessment ratings)
- adopt a maintenance strategy which incorporates a balance of planned (preventative and statutory work to prolong the life of the asset) and unplanned (repairs to fix health and safety issues, or damage from natural disasters)
- develop a strategic maintenance plan as part of its strategic asset planning process to meet its maintenance needs over the immediate, medium and long-term.

## Maintenance implementation

The maintenance implementation element has six policy requirements. Departments must:

- conduct condition assessments (by competent assessors) to evaluate the physical state of building elements and maintenance needs at least every three years, as a minimum
- assess and financially quantify the demand for maintenance as the initial step in the planning and delivery of annual maintenance work programs, including
  - preventative maintenance which considers expert advice and manufacturers' recommendations
  - condition-based maintenance works
  - deferred (backlog) maintenance
  - mandatory statutory and health and safety requirements
  - reactive maintenance estimates based on historical information
- allocate an adequate maintenance budget which is a realistic calculation of the quantum of funding required to address the department's maintenance needs. This relies upon reliable data extracted from
  - the departmental maintenance strategy
  - the strategic maintenance plan
  - the maintenance assessment reports
  - current state and age of the department's building portfolio
  - analysis of maintenance demand
  - deferred maintenance levels
- develop an annual maintenance works program based on condition assessments, existing programs and historical data, and their strategic asset plan
- arrange provision of maintenance services for schools either through Building Asset Services (BAS) or direct-to-market
- monitor and review maintenance performance against budget, time and quality, and deferred maintenance.



## Information systems

The maintenance information systems element has four policy requirements. Departments must:

- collect and retain relevant asset information on buildings, services and site improvements
- ensure information from commissioning and handover of new buildings is collected and retained
- use an effective computerised maintenance management system that supports maintenance planning, implementation and reporting
- establish maintenance reporting capability on the condition of their building portfolio.

## D. Definition of school maintenance

---

The Department of Education (DoE) defines maintenance as all work on an existing building asset that is:

- 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 (for example, after a major building failure)
- mitigation of the consequences of a natural disaster
- assessing buildings for maintenance requirements (for example, to obtain accurate and objective knowledge of physical and operating condition, including risk and financial impact for the purpose of maintenance).

DoE does not consider the following as maintenance:

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



## E. Description of condition assessment ratings

The Maintenance Management Framework sets out standards for the condition of buildings according to their functional purpose. All government departments must use these standards to manage their facilities. In its *Strategic maintenance plan 2014–18* the Department of Education specified that its aim is to maintain its assets to a minimum standard of S3. Figure E1 shows the five standards used across government to assess buildings and a description of each standard.

**Figure E1**  
**Maintenance standards**

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

Source: *Maintenance Management Framework, Department of Housing Public Works.*

## F. Elements assessed

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The Department of Education (DoE) has detailed descriptions of S1 to S5 ratings for 193 building elements across 20 different types of building and structures.

1. External structures–7 elements
2. Site improvements–10 elements
3. Building structure–14 elements
4. External finishes–3 elements
5. Internal fabric–4 elements
6. Internal finishes–3 elements
7. Hydraulic services–27 elements
8. Electrical services–16 elements
9. Communications & data–6 elements
10. Fire protective systems–13 elements
11. Security & safety systems–13 elements
12. Mechanical ventilation–12 elements
13. Air conditioning–11 elements
14. Refrigeration/environmental control–6 elements
15. Gases–9 elements
16. Transportation–5 elements
17. Furniture & fittings–3 elements
18. Fixed equipment–15 elements
19. Loose equipment–15 elements
20. Asbestos–1 element



## G. Example of condition assessment standard for internal finishes

Element group: Internal finishes	
Element: Internal painting 601	
<b>Description</b> —All decorative or protective painting of internal surfaces such as walls, stairs, ceilings, windows, doors, columns, etc.	
<b>Condition standard</b>	
5	<ul style="list-style-type: none"> <li>Internal painting is sound for its intended use and performs reliably. Surface preparation, colour, gloss, surface texture, protective coatings, joint treatments, have no defects. Appearance is as new.</li> <li>There are no obvious health &amp; safety concerns</li> <li>No planned repairs or backlog maintenance exist.</li> </ul>
4	<ul style="list-style-type: none"> <li>Internal painting materials and finishes exhibit superficial minor signs of deterioration that do not require major maintenance (e.g. decoloured paint, colour variation, loss of gloss, natural aging paint, weathered surface, fading colour).</li> <li>No major defects exist that may affect expected performance or reliability.</li> <li>There are no obvious health &amp; safety concerns.</li> <li>No planned repairs or backlog maintenance exist.</li> </ul>
3	<ul style="list-style-type: none"> <li>Internal painting is in an average condition but performs reliably.</li> <li>Deteriorated or defective surfaces require attention (e.g. patchy finish, stains, degradation of sealant filled joints, organic growth, etc.).</li> <li>The size and number of defects is not considerable and do not affect intended use.</li> <li>There are no obvious health &amp; safety concerns.</li> <li>Minor planned repair or backlog maintenance exists.</li> </ul>
2	<ul style="list-style-type: none"> <li>Internal painting is severely deteriorated and does not perform reliably (e.g. cracked paint, scratches, impact damage, efflorescence, rust stains, resin bleed, chalking surfaces, paint degradation on painted brick or block, premature coating failure, peeling, bubbling, blistering).</li> <li>General appearance is poor and a number of major defects exist.</li> <li>If corrective work were not carried out, further deterioration would be costly.</li> <li>There are possible health &amp; safety concerns.</li> <li>Planned repairs or backlog maintenance exists.</li> </ul>
1	<ul style="list-style-type: none"> <li>Internal painting's surface preparation, protective coatings, joint treatments, colour, gloss finish, surface texture have failed.</li> <li>A number of defects exists that require extensive corrective work.</li> <li>There are health &amp; safety concerns.</li> <li>Urgent planned repairs or backlog maintenance exist.</li> </ul>

Source: *Building and Asset Services Condition Standard Ratings, Department of Housing and Public Works*

# Auditor-General reports to parliament

## Reports tabled in 2018–19

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1. **Monitoring and managing ICT projects**  
Tabled July 2018
2. **Access to the National Disability Insurance Scheme for people with impaired decision-making capacity**  
Tabled September 2018
3. **Delivering shared corporate services in Queensland**  
Tabled September 2018
4. **Managing transfers in pharmacy ownership**  
Tabled September 2018
5. **Follow-up of Bushfire prevention and preparedness**  
Tabled October 2018
6. **Delivering coronial services**  
Tabled October 2018
7. **Conserving threatened species**  
Tabled November 2018
8. **Water: 2017–18 results of financial audits**  
Tabled November 2018
9. **Energy: 2017–18 results of financial audits**  
Tabled November 2018
10. **Digitising public hospitals**  
Tabled December 2018
11. **Transport: 2017–18 results of financial audits**  
Tabled December 2018
12. **Market-led proposals**  
Tabled December 2018
13. **Health: 2017–18 results of financial audits**  
Tabled February 2019
14. **Queensland state government: 2017–18 results of financial audits**  
Tabled February 2019
15. **Follow-up of Oversight of recurrent grants to non-state schools**  
Tabled March 2019
16. **Follow-up of Maintenance of public schools**  
Tabled April 2019



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## Performance engagement

This audit has been performed in accordance with ASAE 3500 *Performance Engagements*.



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