

Maintenance of public schools

Report 11: 2014–15



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March 2015

The Honourable P Wellington MP
Speaker of the Legislative Assembly
Parliament House
BRISBANE QLD 4000

Dear Mr Speaker

Report to Parliament

This report is prepared under Part 3 Division 3 of the *Auditor-General Act 2009*, and is titled *Maintenance of public schools* (Report 11: 2014-15).

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

Yours sincerely

A handwritten signature in black ink, appearing to read 'Andrew Greaves', with a stylized flourish at the end.

Andrew Greaves
Auditor-General

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Summary

The Department of Education, Training and Employment (DETE) is responsible for providing a safe working and learning environment for its staff and students in 1 333 school campuses across Queensland. Well maintained school buildings and grounds contribute to the safety of staff and students and to educational outcomes.

The Maintenance Management Framework (MMF) is the Queensland government policy all departments must follow for managing building maintenance. It recommends a minimum maintenance funding benchmark of 1 per cent of the total asset replacement value (ARV).

All Queensland state schools receive an annual maintenance allocation. When funding is inadequate, asset maintenance backlogs occur. As a result, school buildings and school ground facilities can deteriorate much faster than intended, and so reach the end of their useful lives earlier than they should.

In June 2012, DETE had an estimated school building maintenance backlog of \$298 million. In response to this backlog the government provided an additional \$300 million above the recurrent base maintenance allocation, to be paid over three years through two programs—Advancing our Schools Maintenance (AoSM) and Fixing our Schools (FoS)—whose objective was to clear the 2011–12 school maintenance backlog of \$298 million.

We examined whether the AoSM and FoS programs were well planned and achieved their objectives of reducing the maintenance backlog and improving the condition of school facilities, while also obtaining value for money from more devolved procurement practices. We also considered the overall cost effectiveness of DETE's asset management practices.

Conclusions

DETE is not maintaining its schools to its own standards and requirements. The root cause of this has been the historical underfunding of maintenance, and this situation continues today. Underfunding has created backlogs of repairs and other corrective maintenance tasks, which consume almost all available recurrent funds set aside for maintenance.

Given limited resources, the need to address the backlogs means DETE is effectively locked into a cycle of reactive maintenance, when what is needed is for it to be more proactive, by adopting and giving effect to preventative and predictive maintenance strategies.

Against this background, unsurprisingly, while DETE is on track to meet the primary objective of the AoSM and FoS programs, these have been successful only as short term, stop-gap solutions.

The two programs have not resolved the fundamental problem that contributed significantly to the backlog in the first instance. With their focus only on the pre-existing maintenance backlog up to 2011–12, a new \$232 million maintenance backlog has since developed.

Recurrent maintenance budget allocations remain below the government's own minimum recommended benchmark and, as the new backlog demonstrates, they remain insufficient to address new maintenance requirements. This means that the maintenance backlog will continue to compound and DETE could find itself in a situation worse than before AoSM, with attendant risks to the safety of staff and students in the schools.

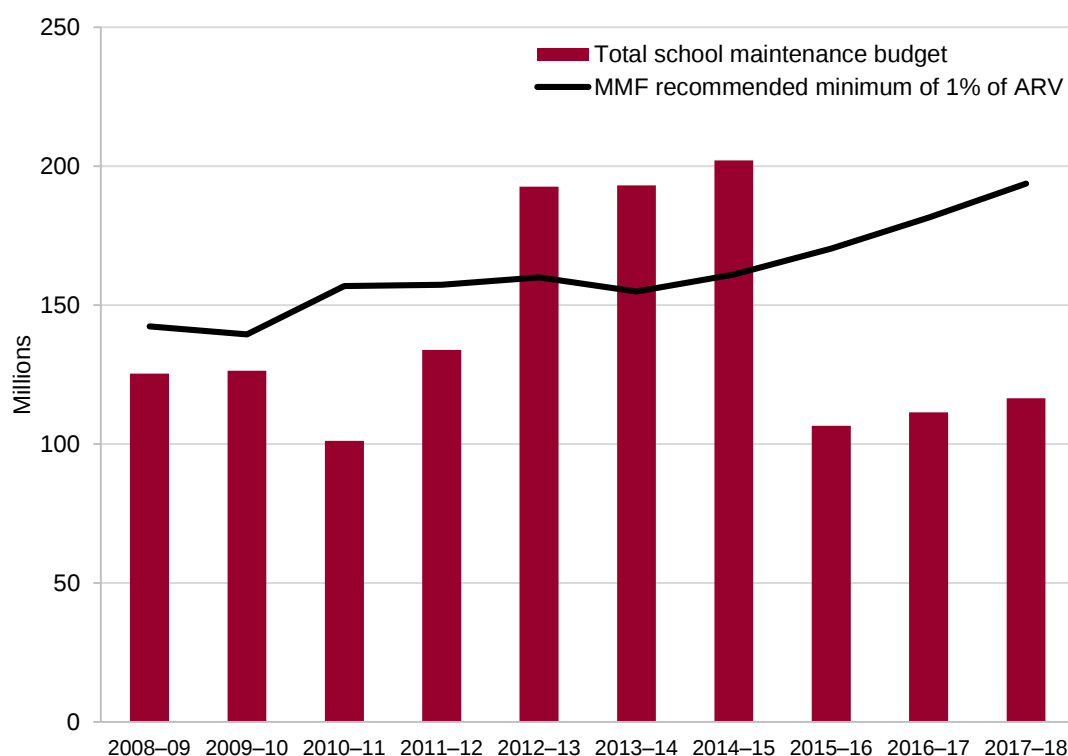
This outcome casts significant doubt on whether the two programs were the most cost effective use of the limited maintenance funds allocated by the department.

Funding of school maintenance

School maintenance activities have been funded through a series of discrete programs since 2001 to supplement the base funding allocated for school maintenance. All these programs provided reactive solutions. They did not provide a long term solution to adequately fund school maintenance needs and prevent the ongoing deferral of school maintenance tasks.

As Figure A shows, the AoSM and FoS programs which operated from 2012–13 to 2014–15 provided funding above the MMF minimum recommended 1 per cent of ARV, but only for the life of those programs.

Figure A
Funding for school maintenance 2008–09 to 2017–18



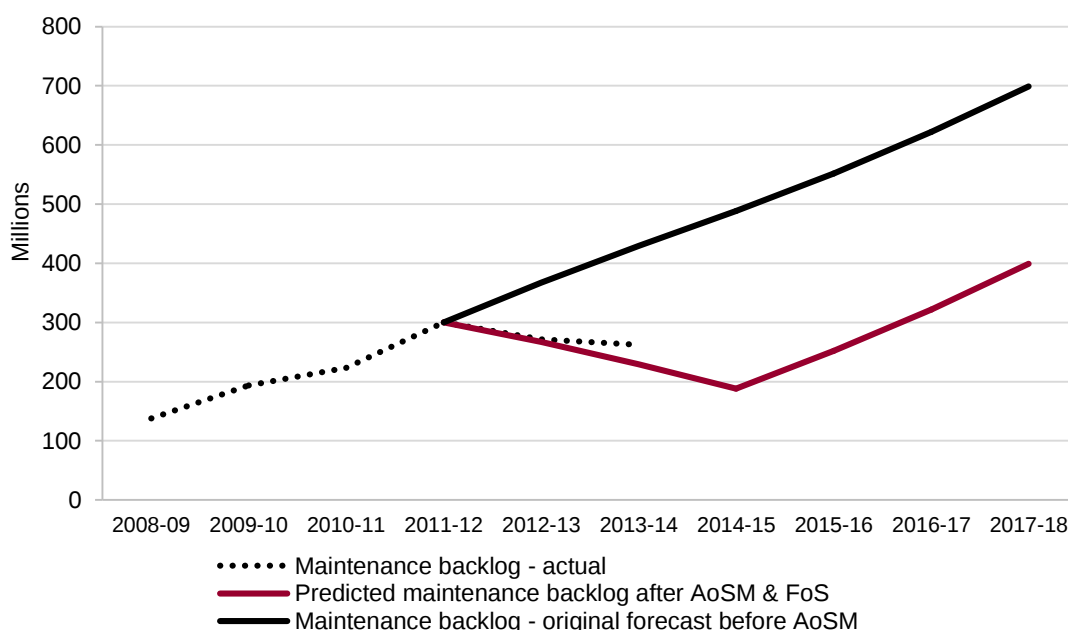
Source: Queensland Audit Office from data obtained from Department of Education, Training and Employment

The funding for the AoSM and FoS programs was provided to schools to clear their 2011–12 maintenance backlogs only, and it did not provide sufficient additional funding to enable schools to address maintenance tasks identified in subsequent years. Schools were not authorised to use funds for higher priority tasks identified since 2011–12. Where higher priority tasks were identified in 2012–13 and 2013–14, and were not considered a workplace health and safety risk or an emergency issue, schools had to obtain funds from other sources to complete the tasks, or defer the maintenance tasks.

The focus placed on clearing the 2011–12 backlog means that maintenance activities identified since 2011–12 were largely deferred. This has resulted in a maintenance backlog of \$263 million as at October 2014, which includes \$30 million remaining from the 2011–12 backlog.

Figure B shows the predicted increase in backlog maintenance after the FoS program is completed in 2014–15. If the future base funding remains consistent with historical trends, the 2017–18 backlog is expected to revert to pre AoSM levels.

Figure B
School maintenance backlog 2008–09 to 2017–18



Source: Queensland Audit Office from data provided by Department of Education, Training and Employment

The AoSM and FoS programs

DETE has cleared 90 per cent of the 2011–12 \$298 million school maintenance backlog and is on track to meet its program deliverable to clear all of the 2011–12 backlog by 2014–15.

DETE implemented an effective governance framework for delivering the AoSM and FoS programs, and communicated well with schools to support them in implementing the direct-to-market (D2M) delivery method.

However, because DETE did not establish measures and systems to assess and report the extent to which the AOSM and FoS program objectives were achieved, it has no benchmark to determine whether the condition of its school building portfolio improved as a result of these maintenance programs. DETE's current process for assessing the condition of school buildings does not provide a true measure of the overall condition of school assets because it is focused only on identifying defects which need to be rectified in the next 12 to 18 months.

There was no business case provided to us for the AoSM and FoS programs setting out a detailed analysis of the maintenance backlog and related issues, and the options available to address this problem.

The funding allocation model in the first year of AoSM provided schools up to \$160 000 of their 2011–12 maintenance backlog and consumed almost half of the total funding allocation over the three years of the programs. While this model most favoured schools with maintenance backlogs up to \$160 000, it enabled all schools to start organising maintenance works.

The model for allocating funds to schools changed over the three years, and these changes were confusing for schools. The funding model for 2015–16 has not been confirmed, creating further uncertainty for schools on what funding they will receive to maintain their school buildings.

Introducing the option for schools to use D2M to procure maintenance, rather than using the Building and Asset Services (BAS) unit of the Department of Housing and Public Works, has provided benefit to all schools. It has encouraged price competition and reduced costs.

In 2014–15, 29 per cent of schools used the D2M procurement option. Schools using the D2M method benefit by obtaining competitive prices for the cost of maintenance tasks, while schools using BAS benefit by obtaining maintenance services at a lower cost than they did. BAS has been able to reduce their costs and deliver savings by grouping services of similar work and within certain geographical locations.

DETE and BAS use different methods to measure their 'savings', but both start with an unreliable baseline. Because the two savings measurement methods cannot be compared on a like-for-like basis, DETE and BAS have missed the opportunity to assess which procurement method delivers better value for money.

Strategic asset management practices

DETE's maintenance approach has been reactive rather than preventative and not consistent with a whole of asset life cycle approach, which takes account of the total cost of ownership. DETE has not systematically and rigorously analysed its asset portfolio to determine the most cost effective approaches to prolonging the life of its assets. Instead, assets are generally repaired after they have deteriorated. Three interrelated reasons contribute to DETE's short term and reactive planning:

- limited funding
- poor data to support long term planning
- no foresight greater than 12–18 months.

As part of assessing the condition of schools, DETE requires BAS to report defects and the indicative cost of repairs. Condition assessments do not prioritise current and anticipated maintenance. Nor do they provide a recommended schedule of maintenance work necessary to keep each asset to its required condition for its useful life.

Furthermore, DETE had not clearly defined its condition standard rating, therefore BAS staff and contractors had expectations different from DETE staff regarding the required condition standard rating for buildings. This led to inconsistent condition assessments. Due to the inconsistencies, BAS reassessed 160 schools in 2013–14 and discovered an additional \$10 million of maintenance tasks.

DETE's strategic asset maintenance plan now has a vision for life cycle planning to improve asset performance. DETE and BAS have piloted a program to trial asset life cycle assessments and plan to introduce this new model through a phased approach and replace annual condition assessments with three yearly condition assessments. This will help DETE better understand its assets and move towards long term and preventative maintenance.

Recommendations

It is recommended that the Department of Education, Training and Employment:

1. assesses the condition of school buildings at a portfolio level so it can report objectively how school maintenance programs have affected the condition of school buildings
2. agrees 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 completes a comparative assessment of the benefits, costs and risks of both procurement methods
3. ensures a common understanding between DETE, condition assessors and school staff of the condition standards expected for school facilities by:
 - developing detailed descriptions of its specified condition standard ratings (S1 to S5) for school facility assets as required by the Maintenance Management Framework (MMF)
 - documenting the level at which school facilities are to be maintained, as required by the MMF
4. implements 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.

It is recommended that the Department of Housing and Public Works:

5. improves the consistency of condition assessment results by:
 - ensuring all condition assessors are competent assessors with relevant training, qualifications and experience as per the MMF
 - implementing consistent local cost rates used by BAS staff and contractors.

Reference to comments

In accordance with section 64 of the *Auditor-General Act 2009*, a copy of this report was provided to the then Department of Education, Training and Employment and the Department of Housing and Public Works with a request for comments.

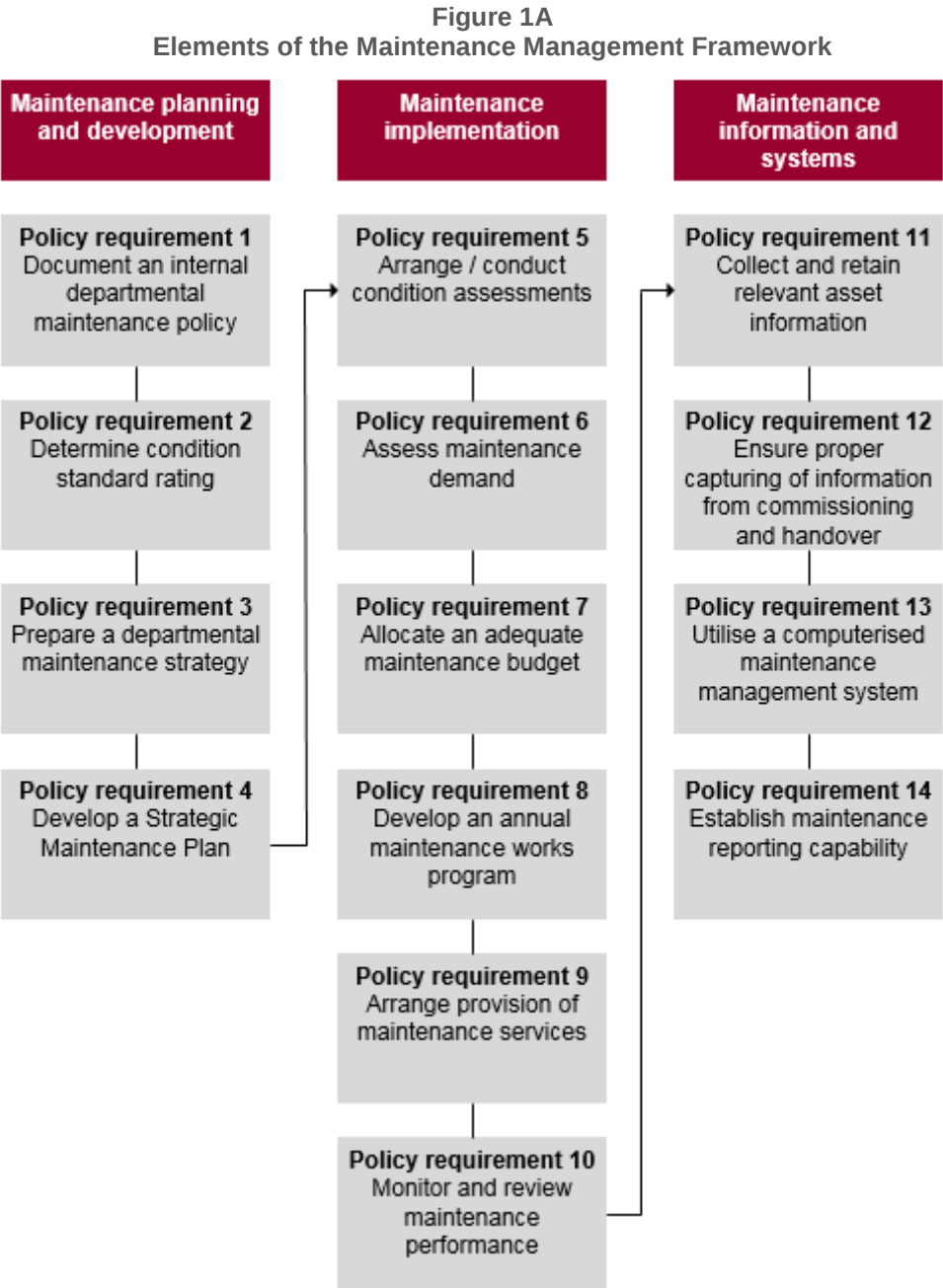
Their views have been considered in reaching our audit conclusions and are represented to the extent relevant and warranted in preparing this report.

The comments received are included in Appendix A of this report.

1 Context

1.1 Maintenance Management Framework

The Maintenance Management Framework (MMF) is the Queensland government policy all departments must follow for managing building maintenance. Figure 1A shows the 14 policy requirements of the MMF.



Source: Queensland Audit Office adapted from the Maintenance Management Framework

Every MMF policy requirement is mandatory, but key elements within the policy require agencies to:

- develop an internal maintenance policy and strategic maintenance plan
- determine condition standard ratings for each building asset
- develop a maintenance strategy to incorporate a balance of planned and unplanned maintenance
- conduct condition assessments at least every three years
- assess and financially quantify maintenance demand in the planning steps
- allocate sufficient funds in their maintenance budget to enable their building portfolio to be maintained to the condition standard ratings. The minimum funding benchmark is 1 per cent of the building asset replacement value (ARV) of the department's portfolio
- use a computerised maintenance management system to capture and update maintenance data and have the capability to generate report for analysis.

1.2 Maintenance approaches

Keeping long-lived assets well maintained extends their expected life and avoids future unexpected repair costs.

Maintenance involves more than just repairing broken or run-down assets. Figure 1B illustrates the various categories of a comprehensive maintenance works program, and how they interrelate.

Figure 1B
Maintenance work classification and sub-categories

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

Source: *Maintenance Management Framework, Policy for the maintenance of Queensland Government buildings*

Preventative and predictive maintenance over the useful life of the asset is generally more cost effective, in terms of the total cost of ownership, than corrective and breakdown maintenance.

Figure 1C demonstrates the typical relative cost efficiency of the five maintenance approaches on a sliding scale from low to high.

Figure 1C
Overall efficiency of maintenance elements



Source: Queensland Audit Office adapted from National Centre for Education Statistics website

Both preventative and predictive maintenance help to avoid breakdown and emergency maintenance (also known as reactive maintenance).

Failing to undertake preventative maintenance may lead to more rapid asset deterioration than expected or desired and ultimately asset impairment before the end of its planned operating life.

Preventative maintenance starts with systematic assessments of the functioning and condition of the significant components of school buildings, ground improvements and major pieces of equipment. This is to identify the scheduled care and service required to keep them in a satisfactory operating condition and avoid any unscheduled breakdown or disrepair.

Predictive maintenance is a technical activity involving periodic monitoring and diagnosis of assets to forecast the failure of assets based on age, user demand and performance measures. A software system can be used to assist with this process.

Preventative and predictive maintenance are necessary components of strategic asset management plans for long-lived assets and they complement a life cycle approach. They can help government agencies develop a better understanding of their assets, long term maintenance and renewal requirements. They also help reduce their costs and predict future replacement or renewal requirements for budget planning.

1.3 Roles and responsibilities

Department of Education, Training and Employment

The Department of Education, Training and Employment (DETE) was renamed the Department of Education and Training as part of the new administrative arrangements that took effect from 16 February 2015. In this report we use the name DETE as this audit was concluded prior to the administrative arrangement order.

The department controls property, plant and equipment valued at \$17.428 billion at 30 June 2014. Most of DETE's assets are land and buildings associated with schools, Technical and Further Education institutes and early childhood facilities.

As at 30 June 2014, DETE was responsible for 1 233 schools comprising primary, secondary and special schools. Because some schools have multiple campuses, there are 1 333 public school campus sites in Queensland.

DETE is responsible for ensuring schools are maintained according to the condition standards specified by the MMF. School principals are accountable for managing the asset maintenance process.

Department of Housing and Public Works

The Department of Housing and Public Works (DHPW) role is to provide policy advice and services to government agencies on construction, asset and facilities management, procurement and fleet management. DHPW provides asset maintenance services to other government departments through its Building and Asset Services (BAS) unit.

BAS provide a condition assessment service to DETE for all schools. The MMF defines a condition assessment as:

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

Service level agreements have been established between DETE and BAS for condition assessments. The results of the condition assessments are presented annually to DETE through a maintenance assessment report (MAR), which lists the maintenance tasks to be addressed within the next 12 to 18 months and their respective indicative costs.

Historically, BAS were the sole provider of asset maintenance services to schools; however, the Advancing our Schools Maintenance (AoSM) and Fixing our Schools (FoS) programs gave schools the option to procure and contract-manage outside BAS to deliver planned maintenance services. BAS remain responsible for all emergency maintenance, statutory maintenance and asbestos removal, and management works in all schools.

Principals and/or their staff either work with BAS or directly with contractors to rectify maintenance issues identified in the MAR. They ensure all emergency maintenance work, including problems with workplace health and safety, is carried out immediately. DETE regional offices work in cooperation with schools to provide guidance and assistance when required.

1.4 School maintenance programs

All state schools receive an annual maintenance allocation. In 2011–12, the total annual recurrent school maintenance budget was \$134 million, and there was an estimated maintenance backlog of repairs estimated by DETE to cost \$298 million at June 2012.

The AoSM program was announced in the September 2012 State Budget to provide \$200 million in additional funds over two years from 2012 to 2014. The program objective was to reduce the pre-existing maintenance backlog in state schools. In March 2013, the program was extended for a further year, with an additional \$100 million committed under the FoS program to further address the maintenance backlog.

Figure 1D shows all of DETE's maintenance funding for schools from 2010–11 to 2014–15.

Figure 1D
School maintenance budgets 2010–15

Component	2010–11 \$ m	2011–12 \$ m	2012–13 \$ m	2013–14 \$ m	2014–15 \$ m
Recurrent					
Base funding	75.204	79.879	87.798	87.778	92.167
Targeted maintenance (hard surfaces)	4.938	4.938	4.834	5.234	9.834
Non-recurrent					
Additional funding for asbestos	21.000	24.000			
School Maintenance and Investment program		25.000			
AoSM and FoS programs			100.000	100.000	100.000
Total	101.142	133.817	192.632	193.012	202.001

Note: From 2012–13, \$20 million per annum for asbestos removal is included in the base funding allocation

Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

The three rounds of AoSM and FoS funding were allocated to 1 275 public schools over the 2012–13, 2013–14 and 2014–15 financial years. For the purpose of this report, we use the term schools when referring to school campuses. The difference between the total number of schools and the number of schools that received maintenance funding through the AoSM and FoS programs is because:

- public-private partnership schools are maintained under separate contractual arrangements
- schools expected to close were not allocated AoSM or FoS maintenance funding
- new schools did not receive AoSM or FoS funding because any issues with the newly built schools are managed under a defect liability period.

Schools are also provided funds separate to the AoSM and FoS funding for unplanned maintenance to address:

- routine breakdown (for example, dripping taps)
- statutory and service maintenance (for example, water-based fire systems, lifts)
- emergencies (for example, defects that are life-threatening in nature or become a workplace health and safety issue).

If during the condition assessment process, a workplace health and safety issue is identified, such as asbestos, this becomes a priority one rating and these tasks are responded to immediately. DETE regional offices manage these funds and the maintenance work is undertaken by BAS.

1.5 Maintenance backlog

Section 7.2.3 of the MMF defines deferred maintenance or maintenance backlog as maintenance work that is postponed until funds are made available. The MMF refers to the terms deferred maintenance and backlog interchangeably.

DETE refers to the 2011–12 \$298 million maintenance backlog as a maintenance *liability* in its program documentation. However it does not appear on the department's balance sheet, as it does not represent a liability for external financial reporting purposes. Under the Australian Accounting Standard AASB 137 *Provisions, Contingent Liabilities and Contingent Assets*, a liability is a present obligation to a third party arising from past events. The MAR balance does not represent an obligation that DETE owes to a third party.

In this report, we use the term maintenance backlog.

1.6 Audit objective, method and cost

The objective of the audit was to assess how well public school buildings and facilities are maintained.

The audit examined whether:

- the school maintenance programs (AoSM and FoS) achieved their objectives
- school buildings and facility asset management practices are cost effective.

The cost of the audit was \$310 000.

1.7 Report structure

The remainder of the report is structured as follows:

- Chapter 2—Funding school maintenance
- Chapter 3—Advancing our Schools Maintenance and Fixing our Schools programs
- Chapter 4—Strategic asset management
- Appendix A contains responses received
- Appendix B contains the audit method.

2 Funding school maintenance

In brief

Background

The Maintenance Management Framework recommends a minimum maintenance funding benchmark of 1 per cent of the total asset replacement value. Maintenance backlogs occur when funding for school maintenance is inadequate. The effort and funding required to clear a maintenance backlog means that fewer resources are available to undertake preventative and predictive maintenance, which is generally more cost effective than corrective and breakdown maintenance.

Conclusions

The Department of Education, Training and Employment (DETE) has been historically underfunded for maintenance of its school buildings, and this situation continues today. The underfunding has created backlogs of repairs and other corrective maintenance tasks, which consume almost all available recurrent funds that are set aside for maintenance.

Given limited resources, the need to address the backlogs means DETE is effectively locked in a cycle of reactive maintenance. It needs to be more proactive, by adopting and giving effect to preventative and predictive maintenance strategies.

Key findings

- At June 2012, DETE's estimated school building maintenance backlog was \$298 million.
- More than half of Queensland state school buildings were built before 1990 (7 735 buildings out of 12 893) and some of these are heritage-listed.
- 84 per cent of the backlog maintenance is for schools more than 25 years old.
- The Building Education Revolution program has created a new maintenance legacy with additional \$19 million in annual maintenance required over the next 20 years.
- Despite spending \$300 million to reduce the 2011–12 backlog, the actual value of deferred school maintenance tasks as at October 2014 is \$263 million—a reduction of \$35 million from the 2011–12 backlog.
- The school maintenance backlog will continue to be a significant issue post-Advancing our Schools Maintenance and Fixing our Schools programs. Without sustained higher funding for maintenance, the backlog will continue to increase each year.

2.1 Background

The Maintenance Management Framework (MMF) recommends a minimum maintenance funding benchmark of 1 per cent of the total asset replacement value (ARV). Maintenance backlogs occur when funding for school maintenance is inadequate. The effort and funding required to clear a maintenance backlog means that less resources are available to undertake preventative and predictive maintenance which is generally more cost effective than corrective and breakdown maintenance.

In June 2012 DETE had an estimated school building maintenance backlog of \$298 million. In response to this backlog the government provided for an additional \$300 million above the recurrent base maintenance allocation, to be paid over three years through two programs—Advancing our Schools Maintenance (AoSM) and Fixing our Schools (FoS).

2.2 Conclusions

DETE has been historically underfunded for maintenance of its school buildings, and this situation continues today. The underfunding has created backlogs of repairs and other corrective maintenance tasks, which consume almost all available recurrent funds that are set aside for maintenance.

Given limited resources, the need to address the backlogs means DETE is effectively locked in a cycle of reactive maintenance, when what is needed is for it to be more proactive, by adopting and giving effect to preventative and predictive maintenance strategies.

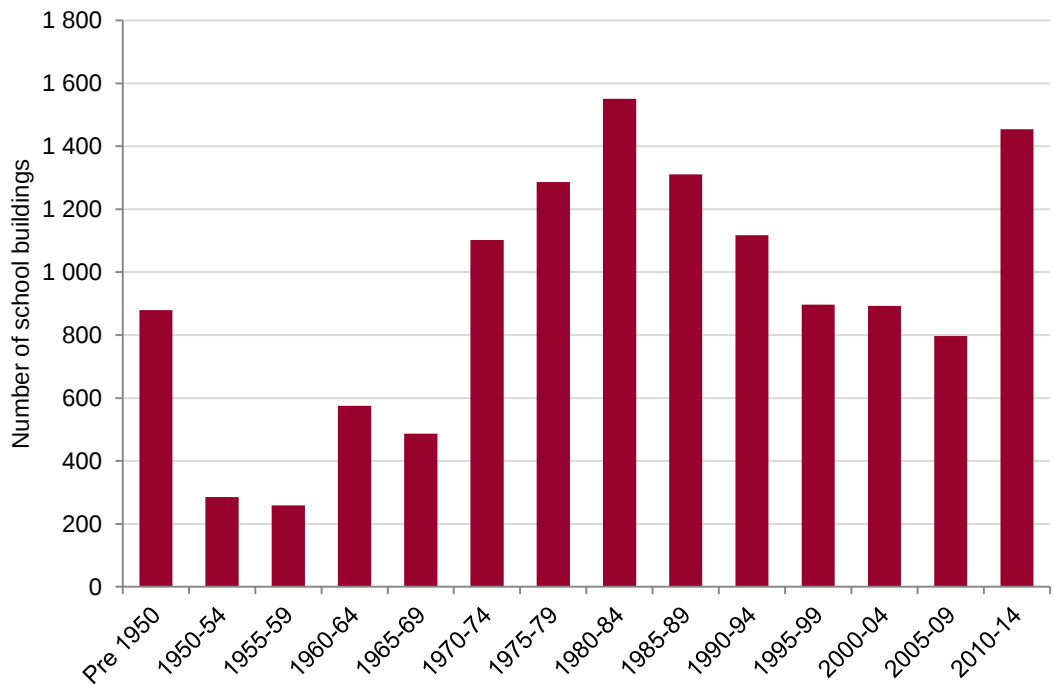
The AoSM and FoS programs provided a reactive short term solution to reduce the maintenance backlog amount. The systemic maintenance backlog issue is not solved. Despite spending \$300 million to reduce the 2011–12 backlog, the actual value of deferred school maintenance tasks as at October 2014 is \$263 million—a reduction of \$35 million from the 2011–12 backlog.

2.3 School buildings age profile

Before the AoSM and FoS programs, schools received recurrent maintenance funding based on the previous years' funding levels which considered the replacement value and age of school buildings, rather than being based on their actual maintenance needs, which extended beyond buildings.

More than half of Queensland state school buildings were built before 1990 (7 735 buildings out of 12 893) and some of these are heritage-listed. Figure 2A illustrates the age of the school buildings.

Figure 2A
Distribution of school buildings according to age

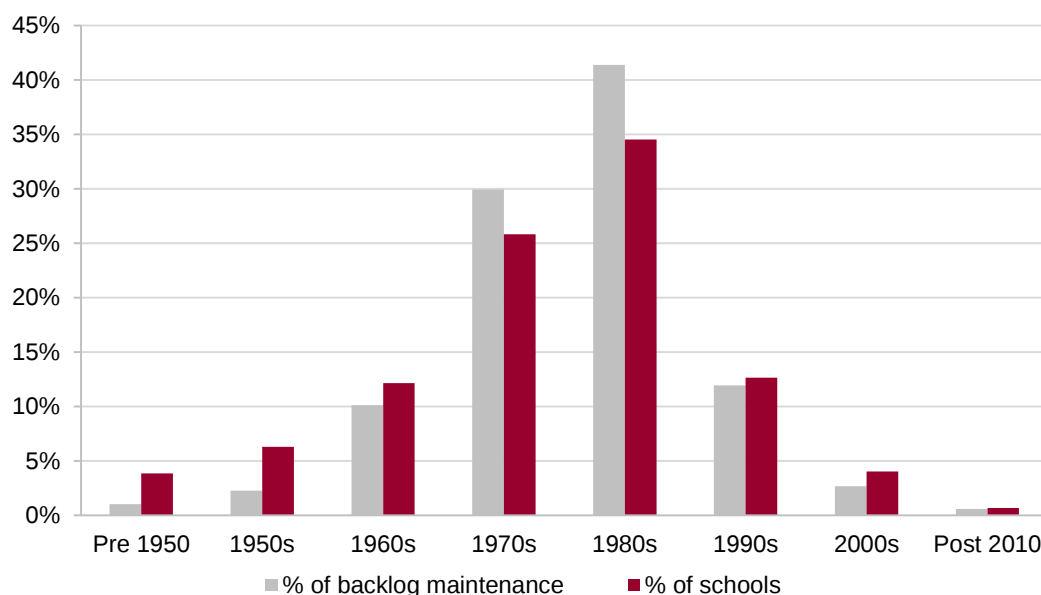


Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

A combination of ageing and heritage-listed buildings increases maintenance demand and requires a larger budget than 1 per cent of the ARV to prevent maintenance tasks being deferred to subsequent years.

Figure 2B shows the proportion of school buildings by average age and their average maintenance backlog. This indicates 84 per cent of the backlog maintenance is for schools more than 25 years old.

Figure 2B
Schools' average building age and 2011–12 maintenance backlog by era



Note: Figure 2B does not take building refurbishment and renewals into account.

Source: Queensland Audit Office from data provided by Department of Education, Training and Employment

We examined DETE records dating back to 2006 and identified that maintenance funding levels since 2006–07 were lower than the MMF recommended minimum benchmark of 1 per cent of the ARV until the AoSM program in 2012–13. Failure to meet the minimum funding benchmark over time significantly contributed to a maintenance backlog of \$298 million in 2011–12.

Figure 2C shows the total funding allocated for school maintenance as a percentage of the ARV from 2006–07 to 2014–15.

Figure 2C
School maintenance funding allocations 2006–07 to 2014–15

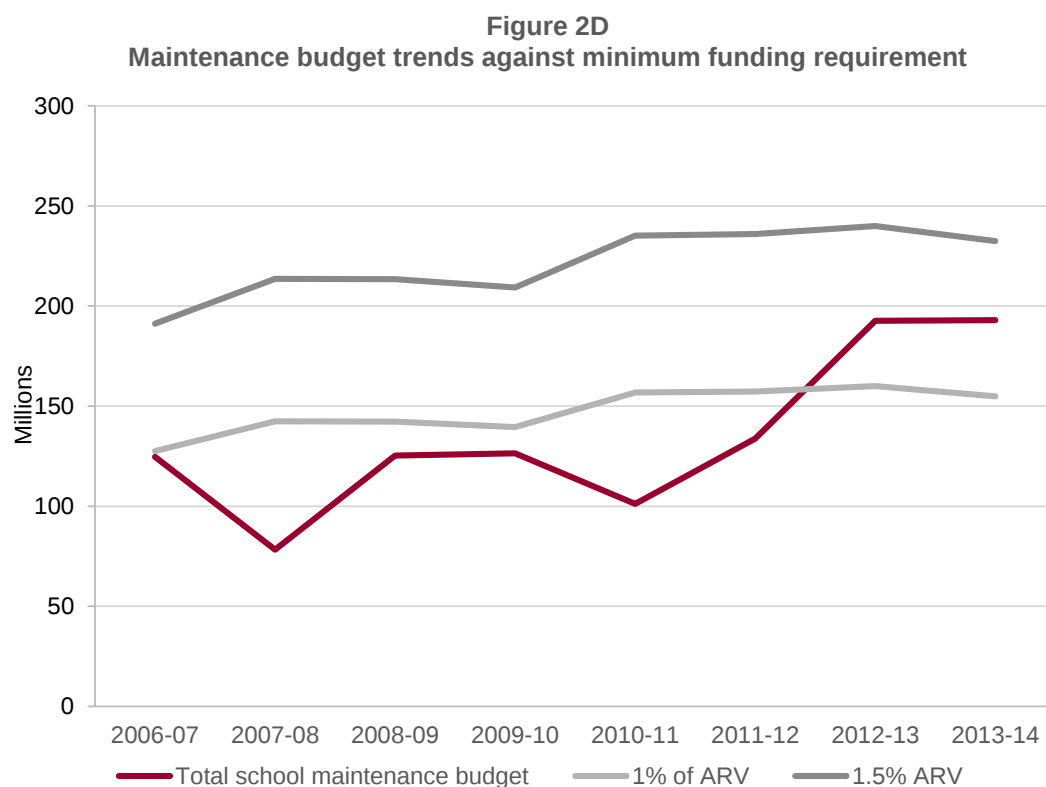
Year	Total school maintenance budget \$ m	ARV of schools \$ b	Funding as percentage of ARV %
2006–07	124.661	12.750	0.98
2007–08	78.282	14.240	0.55
2008–09	125.302	14.230	0.88
2009–10	126.428	13.951	0.91
2010–11	101.142	15.680	0.65
2011–12	133.817	15.736	0.85
2012–13	192.632	16.000	1.20
2013–14	193.012	15.494	1.25
2014–15	202.001	16.103	1.25

Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

The MMF recommended minimum funding benchmark is for current maintenance tasks. It is to be expected, as is the case for DETE schools, that the funds required to appropriately maintain the assets need to exceed the minimum benchmark where the asset portfolio includes:

- unfunded or backlog maintenance projects
- ageing or deteriorating buildings
- heritage or iconic buildings.

Figure 2D compares the maintenance funding trend since 2006 against the minimum 1 per cent funding of the ARV for the same period. It also compares the actual maintenance budget and a generally accepted industry better practice benchmark of a minimum of 1.5 per cent of the ARV. Since AoSM, the budget has increased slightly higher than the 1 per cent MMF recommendation; however, it does not meet the accepted practice of 1.5 per cent of the ARV.



Source: Queensland Audit Office from data obtained from Department of Education Training and Employment

Along with ongoing capital works programs, Queensland schools' capital growth accelerated with the \$2.1 billion federally-funded Building and Education Revolution (BER) program since 2009–10. This has affected maintenance expenditure, with school maintenance budgets not commensurate with ARV growth. DETE's policy is to pro-rate new buildings over the first 10 years (for example, 0.10 per cent in year one, 0.20 per cent in year two, etc.) with full funding (1.0 per cent) occurring in the 10th year. The BER ARV is \$1.8 million; therefore, the amount will ultimately result in a requirement for an additional \$19 million in annual maintenance over 20 years.

2.4 Funding programs

In addition to its base annual maintenance budget, DETE has been provided with a stream of discrete programs to address maintenance needs that the base funding could not meet. This demonstrates a consistently reactive approach to addressing school maintenance needs. The programs focused on specific topics and did not provide a holistic maintenance and budget plan. Each program remained active for approximately two to three years before another funding initiative was introduced. While these programs assisted school maintenance, they did not resolve the underlying issue of historical funding below the recommended benchmark or provide a sufficient long term solution through a preventative maintenance approach.

Because the focus of the AoSM program was solely on the 2011–2012 backlog, schools were not given additional funding to address new maintenance tasks identified after 1 July 2012 and since deferred.

This means that, despite spending \$300 million to reduce the 2011–12 backlog, the actual value of deferred school maintenance tasks as at October 2014 is \$263 million—a reduction of \$35 million from the 2011–12 backlog.

Figure 2E shows DETE's continuing reactive maintenance programs since 2001.

Figure 2E
School maintenance funding programs

Funding program	Year	Maintenance funding	Program objective
Triple R maintenance program	2001–2004	\$50 million	The Triple R maintenance program allocated funds over three years from 2001–02 to 2003–04 to repaint schools, replace deteriorated roofing, and improve water reticulation systems.
High priority maintenance program	2003–2004 to 2008–2009	\$18.8 million provided over the first three years \$4.6 million was allocated each year from 2006 to 2009	This program was an election commitment and focused on four maintenance categories i.e. classroom upgrades, re-flooring, playground structures and tuckshop upgrades. It was originally approved for a three year period, then extended for a further three years.
State Schools of Tomorrow (SSoT)	2008–2011	\$108 million	SSoT was part of the Queensland Government's investment to improve educational facilities to meet the needs of Queensland communities. State schools were provided \$747.5 million to modernise or regenerate older state schools. Of this, \$108 million was provided for maintenance of school assets.
School Maintenance Investment Program (SMIP)	2011–2012	\$50 million	SMIP provided \$50 million for high priority maintenance tasks and asbestos removal. This project introduced a value for money process, and allowed the schools more autonomy to use private contractors to deliver maintenance tasks.
AoSM	2012–2014	\$200 million	\$200 million was provided in additional funding over two years to significantly clear the 2011–12 maintenance backlog.
FoS	2014–2015	\$100 million	A further \$100 million was provided to clear the 2011–12 maintenance backlog.

Source: Queensland Audit Office from information provided by the Department of Education, Training and Employment

2.5 Future outlook

The MMF requires departments to determine a condition standard rating for each building asset and allocate sufficient funding in their maintenance budget to maintain the buildings in their portfolio to the required standard. DETE's 2014–18 strategic maintenance plan has a condition standard rating three for all buildings within a school ground, with the exception of a cyclone shelter which is rated as a priority four. The MMF also guides departments to explore options when their funding allocations are less than the amount required to undertake identified maintenance tasks. These options include:

- seeking more funding from within their funding source
- ensuring maintenance is not considered a discretionary item when funding is being determined
- reviewing the performance of building assets to identify any opportunities for disposal
- deferring some maintenance work (with exceptions of statutory and health and safety requirements) after considering value for money factors and all the risks of doing so.

DETE conformed to the MMF in 2011 by considering the option to rationalise school facilities to address their maintenance funding shortfall as a long term strategy. DETE's strategy was to provide financial gain through proceeds of property sales as well as reducing ongoing operational costs and depreciation. In 2013, a number of schools were consolidated and school assets were placed on the market.

In line with its strategic plan, DETE ended its arrangement with the former QBuild (now Building and Asset Services (BAS)) to deliver all maintenance services and allowed schools to explore the direct-to-market (D2M) option by using the private sector for maintenance services. This was first trialled with the school maintenance investment program (SMIP), then continued with the AoSM and FoS programs to achieve better value for money and greater delivery efficiencies.

These strategies are short term initiatives to assist with maintenance funding. However, unless DETE can provide an asset life cycle maintenance program (without further quick-fix program solutions) and maintenance funding is increased, the backlog maintenance will revert to pre AoSM and continue to grow.

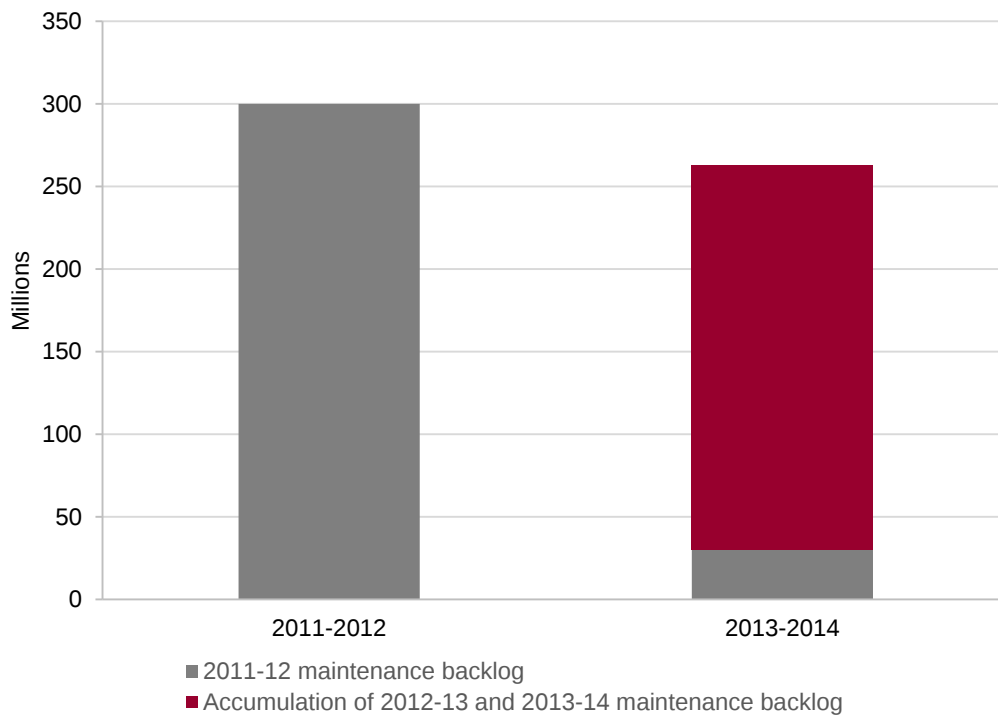
The budgets of the AoSM and FoS programs were provided to significantly reduce the pre-existing maintenance backlog identified in the 2011–12 Maintenance Assessment Report (MAR) over three years. The budgets did not provide sufficient funding for all schools to undertake current maintenance work identified in subsequent MARs. Therefore, the 2013–14 school asset maintenance backlog remains high at approximately \$263 million as at October 2014.

School maintenance backlog will continue to be a significant issue post AoSM and FoS. With the existing assets base, without sustained higher funding for maintenance the backlog will continue to increase each year.

The focus on clearing a pre-existing backlog without considering the overall maintenance requirement and funding model means that a significant volume of new maintenance tasks had to be deferred.

Figure 2F shows the decrease in the 2011–12 maintenance backlog, and the accumulation of the new backlog since 2012–13.

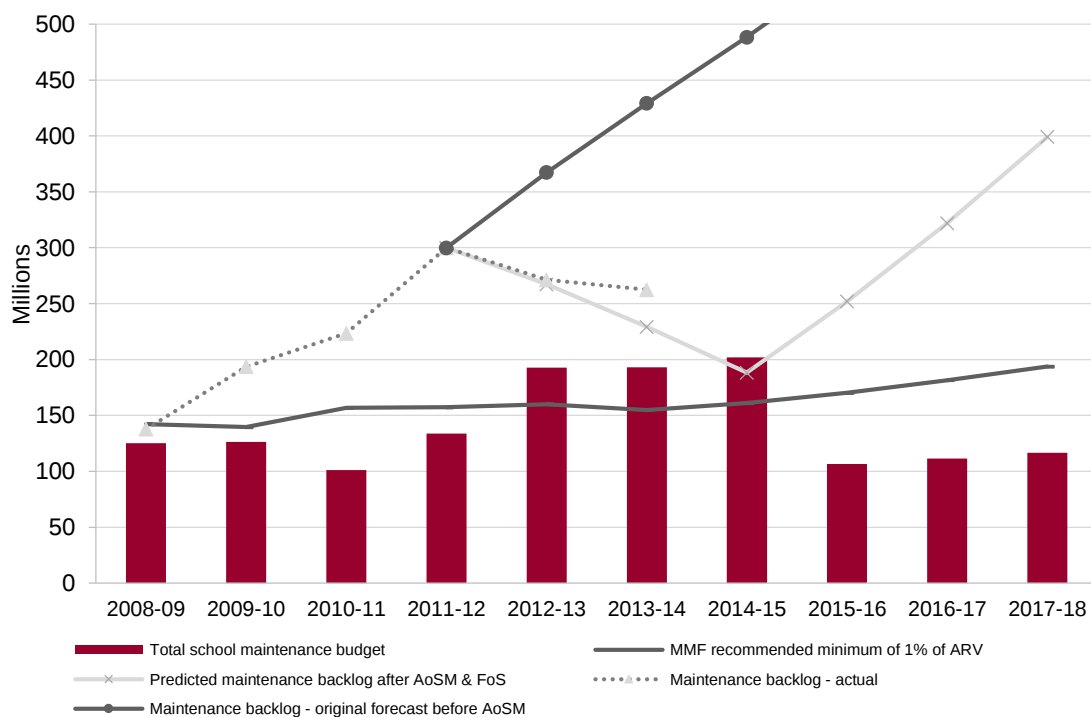
Figure 2F
School maintenance backlog balance from 2011–12 to 2013–14



Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

Figure 2G illustrates examples of predicted backlog maintenance if the AoSM and FoS programs had not been implemented. It also shows a prediction of the backlog maintenance after the FoS program if the funding allocation reverts back to historical funding methodologies prior to AoSM.

Figure 2G
Predicted maintenance backlog after FoS



Source: Queensland Audit Office from data obtained from Department of Education, Training and Employment

3 Advancing our Schools Maintenance and Fixing our Schools programs

In brief

Background

The then Premier announced additional maintenance funding of \$200 million in the September 2012 State Budget through the Advancing our Schools Maintenance (AoSM) program to reduce the pre-existing 2011–12 maintenance backlog over 2012–14. In March 2013, a further \$100 million was provided through the Fixing our Schools (FoS) program to further address the 2011–12 maintenance backlog.

Conclusions

The Department of Education, Training and Employment (DETE) is on track to fulfil the government's objective to clear the 2011–12 school maintenance backlog by 2014–15 through the AoSM and FoS programs, demonstrating good program delivery. However, there is no reliable measure to report whether this significant investment has improved or maintained the overall condition of school buildings. Both DETE and Building and Asset Services (BAS) have reported savings under their respective procurement methods but, because each have deployed different methods to calculate savings, DETE cannot compare the two methods on a like-for-like basis to determine which method delivers better value for money, commensurate with the risk profile of the two methods.

Key findings

- DETE did not develop a business case to provide government with a detailed analysis of the maintenance backlog and the related issues prior to the funding announcement for the AoSM and FoS programs. It also did not establish measuring capabilities to assess and report the extent to which the AoSM and FoS program objectives have been achieved.
- DETE implemented an effective governance framework for delivering the AoSM and FoS programs, and supported the schools well in implementing the direct-to-market delivery method.
- The AoSM program did not allow schools to use funds for higher priority tasks outside the 2011–12 list of maintenance backlog tasks. Where higher priority tasks were identified in 2012–13 and 2013–14 maintenance assessment reports, and were not considered a workplace health and safety risk or an emergency issue, schools had to obtain funds from other sources to complete the tasks, or defer the maintenance tasks.
- There was no evidence of an options analysis to inform the AoSM's first year funding allocation model which allocated up to \$160 000 to each school. This model favoured schools with a maintenance backlog less than \$160 000. DETE modified the funding allocation models for years two and three of the programs so all schools could clear their 2011–12 maintenance backlog.
- DETE has cleared 90 per cent of the 2011–12 \$298 million school maintenance backlog and is on track to meet its program deliverable to clear all of the 2011–12 backlog by 2014–15.
- DETE cannot objectively demonstrate that a significant investment in rectifying defects has improved the condition of school buildings.
- While BAS and DETE have reported savings in the cost of rectifying defects identified in 2011–12 against indicative cost estimates in 2011–12, we cannot determine the value of these savings due to the unreliability of the indicative costs and inconsistent approaches to measuring savings.

Recommendations

It is recommended the Department of Education, Training and Employment:

1. assesses the condition of school buildings at a portfolio level so it can report objectively how school maintenance programs have affected the condition of school buildings
2. agrees 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 completes a comparative assessment of the benefits, costs and risks of both procurement methods.

3.1 Background

In the September 2012 State Budget, the government announced an additional \$200 million for school maintenance over the 2012–13 and 2013–14 financial years as part of the Advancing our Schools Maintenance (AoSM) program. The objective of this investment was to reduce the 2011–12 school maintenance backlog of \$298 million in Queensland state schools.

In March 2013, the then Premier announced a further \$100 million for school maintenance funding for the 2014–15 Fixing our Schools (FoS) program to continue clearing the pre-existing 2011–12 maintenance backlog.

The Department of Education, Training and Employment (DETE) is responsible for the implementation and achievement of the AoSM and FoS programs. Figure 3A provides a timeline of school maintenance funding events from 2011 to 2014.

Figure 3A
Timeline of school maintenance funding events

Date	Event
April 2011	DETE presented a budget submission to the government, advising how historically low school maintenance budgets placed pressure on maintaining school facilities to acceptable standards, and requested additional funding to address the situation.
September 2012	The Premier announced the AoSM initiative, which provided additional funding of \$200 million over two years to reduce the \$298 million maintenance backlog in state schools.
November 2012	The Minister for Education, Training and Employment announced the first \$100 million AoSM budget and funding methodology.
March 2013	The Premier announced a third round of funding of \$100 million through the FoS program to continue addressing the school maintenance backlog.
October 2013	DETE announced the funding methodology for the second round of AoSM to prepare schools for budget hand down.
November 2013	The Premier and the Minister for Education, Training and Employment announced the second round of AoSM funding methodology (\$100 million).
August 2014	The Minister for Education, Training and Employment announced the 2014–15 planned maintenance funding methodology and school budget allocations as part of the FoS maintenance initiative.
September 2014	DETE deposited FoS funding allocations for direct-to-market (D2M) schools into school bank accounts.

Source: Queensland Audit Office

To assess if the AoSM and FoS programs were well planned and implemented, we examined whether:

- the AoSM and FoS program decisions were informed through an evaluation of options so decision makers were aware of the risks, benefits, and costs of various options
- the criteria for success were well defined so that DETE could objectively assess the success of the programs
- DETE implemented the government's policy objectives through a governance framework that monitors progress, and through effective communication strategies with schools to ensure timely progress
- funding was distributed to schools equitably
- funding allocation models prioritised funding allocation based on maintenance needs
- DETE has achieved the AoSM and FoS objectives to reduce the pre-existing maintenance backlog, improve the condition of school buildings and deliver better value for money outcomes.

3.2 Conclusions

DETE is on track to meet its program deliverable to clear the 2011–12 school maintenance backlog of \$298 million through the AoSM and FoS programs. Accordingly, the AoSM and FoS programs are successful as short term solutions to clear years of accumulating maintenance backlog.

The significant investment in rectifying the defects as part of the AoSM and FoS programs has not materially improved the assessed condition ratings of school buildings; however, DETE surveys indicate students, staff and parents have noticed improvements.

DETE has no benchmark against which to assess whether the AoSM and FoS programs have improved the condition of school facilities. Current condition assessments identify only the defects required to be repaired in the next 12 to 18 months. There is no further asset information to assist DETE to determine the need for, and timing of, preventative actions to minimise service disruption and maximise cost effectiveness.

DETE cannot determine to what extent the direct-to-market (D2M) and Building and Asset Services (BAS) procurement practices are delivering better value for money because DETE and BAS have not defined a consistent and robust approach to calculate savings. The benchmark used by both entities to measure savings is a poor measure and results in the reported savings under both reporting methods being overstated.

3.3 Program management

3.3.1 Planning

There is no business case for the AoSM and FoS programs that provides a detailed analysis of the problem to be addressed and an assessment of the costs, benefits and risks of several options to address the identified problem. Therefore, we are unable to determine whether DETE considered alternatives to address the identified school maintenance problem.

Following the government's September 2012 announcement, DETE completed an AoSM project plan in October 2012, to implement the government's policy for school maintenance funding for 2012–13 and 2013–14. The project plan documents the roles and responsibilities of individual officers; however, it has not been formally approved. DETE completed the FoS project plan in September 2014 after it developed the funding methodology.

The AoSM project plan outlines three program deliverables—the first two state the program's objectives:

- to clear a significant portion of pre-existing maintenance liability and significantly improve the condition of the school facilities
- to achieve better value for money from the maintenance budget and greater delivery efficiencies by supporting
 - schools to transition to D2M maintenance delivery
 - BAS efficiencies in innovative procurement and delivery strategies
- report quarterly to Queensland Treasury on the results of school expenditure.

The FoS project plan outlines similar program deliverables with a slight change in the first deliverable to 'clear **all** pre-existing maintenance liability and significantly improve the condition of school facilities'.

DETE did not establish measures to assess and report the extent to which all of the AoSM and FoS program objectives had been achieved. The qualitative terms 'significantly improve' and 'better value for money' in the AoSM project plan are not supported by objective and systematic measurement methods.

3.3.2 Governance

DETE governs the implementation of the AoSM and FoS programs through a project steering committee (PSC) which meets quarterly to oversee implementation of program objectives. The PSC comprises officers from DETE, BAS, Queensland Treasury and Trade, the Department of Premier and Cabinet, and is chaired by the Deputy Director-General of DETE.

The documented governance framework appropriately allocates responsibilities for program sponsorship, program delivery and representation of stakeholder interests.

The PSC actively monitors risks and issues that affect program deliverables, and receives regular program status reports detailing distribution of funds, funding methods, BAS work commitments, status on budget commitments and D2M delivery. The status reports provide a good foundation for decision making. They identify emerging risks and issues and encourage discussions on remedial actions where necessary.

DETE communicates well with state schools regarding the implementation of the AoSM and FoS programs. All schools we visited spoke favourably of how DETE communicated with them during the AoSM and FoS programs.

DETE designed and implemented an online application, OnePortal, which provides schools with tools to assist them implement the programs, including a self-managed guide for schools opting to use the D2M delivery method.

Other communication methods DETE uses include video on-demand presentations on key topics, regional and corporate support through school visits, support and advice to schools from DETE regional managers, and conference sessions for school business service managers.

3.3.3 Implementation

The AoSM program introduced a new methodology for allocating the department's annual maintenance funding to schools from 2012–13. This funding model replaced the traditional annual planned maintenance funding normally provided to address maintenance backlog tasks. The objective of the new allocation method was to provide funding to all schools to significantly reduce their 2011–12 maintenance backlog, with an allied objective to give schools direct control over their allocated funds for those schools that chose the D2M procurement method. Figure 3B outlines how funding was allocated to schools over the three years.

Figure 3B
Funding allocations for AoSM and FoS

Date of budget	AoSM/FoS allocations	Breakdown of funding allocation
November 2012 First year— AoSM funding	Allocation of funds for planned maintenance: - Schools with a 2011–12 maintenance backlog less than \$160 000 were funded to the level of their maintenance backlog up to \$160 000. - Schools with a 2011–12 maintenance backlog greater than \$160 000 received \$160 000. Schools also received a separate allocation for routine breakdown maintenance. Additional funds were held centrally and managed by DETE to address emergency maintenance.	11 schools received \$0 funding as they had no maintenance backlog on their 2011–12 Maintenance Assessment Report (MAR). 685 schools were funded their MAR balance up to \$160 000; of which 575 schools received the maximum available funding of \$160 000.
November 2013 Second year— AoSM funding	This funding allocation targeted schools with the highest maintenance backlog: - All schools received a minimum allocation of double their 2011–12 planned funding prior to AoSM. - Where that did not cover existing maintenance backlog, further funding was provided up to the level of their backlog capped at \$70 000. - Schools with a maintenance backlog greater than \$70 000 received a further 14 per cent of their remaining backlog. Schools also received a separate allocation for routine breakdown maintenance. Additional funds were held centrally and managed by DETE to address emergency maintenance.	1 271 schools received a minimum allocation of double their 2011–12 planned funding prior to AoSM. 142 schools received funding up to \$70 000. 352 schools received the maximum \$70 000 funding plus 14 per cent of their remaining backlog.
August 2014 FoS funding	The FoS funding allocation was announced to schools and provided a package to ensure all schools receive at least their planned maintenance base allocation prior to the AoSM or a minimum of \$5 000, plus: - further funding of any outstanding maintenance carried over from 2011–12 (if not covered by the base), plus - up to \$35 000 to schools with a 2013–14 maintenance backlog. Funding for routine breakdown maintenance and emergency maintenance are provided in the same way as the AoSM program.	1 275 schools received up to \$5 000. 268 schools were fully funded for their remaining 2011–12 maintenance backlog. 508 schools were provided up to \$35 000 for their 2013–14 maintenance backlog.

Source: Queensland Audit Office

Funding allocations methodology

The first round of funding in 2012–13 was capped at \$160 000 per school. Each school received an amount equivalent to their 2011–12 MAR balance, up to \$160 000. This model allowed for 700 schools to be fully funded in the first year of the AoSM to clear their 2011–12 maintenance backlog.

There is no evidence explaining why this capped funding allocation method was selected, or demonstrating whether this model was more cost efficient from a whole-of-system perspective, compared to alternative options for allocating funds based on actual maintenance need at each school.

In relative terms, the capped funding model benefited most those schools that had maintenance backlogs up to \$160 000, meaning they could fully address all of their backlog. For all schools it had the benefit of providing funding certainty and allowed them to start organising maintenance works to reduce their 2011–12 MAR tasks.

The AoSM funding allocation methodology also required schools to apply AoSM funds to the 2011–12 maintenance backlog tasks first, before addressing more recently identified backlogs.

Schools with high priority maintenance tasks identified in more recent assessments could apply to the DETE region to be considered for special maintenance funding and/or use other funding sources such as minor works, parents and citizen contributions or capital works programs. We noted an example of this at a school where the 2013–14 MAR had the flooring of the tennis court recorded as a priority maintenance task because it was a trip hazard. The school funded the repairs to the tennis court through school funding.

DETE changed the funding models in years two and three to ensure all schools could clear the total value of their maintenance backlog. In year two, DETE considered the remaining 2011–12 maintenance backlog balance and developed options to fund the schools with the highest 2011–12 maintenance backlog.

In year three (2014) DETE assessed funding allocation options for the FoS program, recognising that new maintenance tasks had accumulated since the 2011–12 backlog. DETE's FoS funding methodology options were based on 2013–14 condition assessment data, with its priority to clear any remaining pre-existing 2011–12 maintenance backlog. Therefore, funding was directed to schools that needed it the most. Remaining funds assisted schools to undertake newly identified maintenance tasks beyond 2011–12.

While the government announced that \$200 million would be allocated evenly over the 2012–13 and 2013–14 financial years, \$140 million was actually allocated through the funding model in the first year. This left \$60 million for the second year, but DETE required an additional \$20 million to ensure the allocation for the second year was consistent with the allocation methodology. DETE sourced these funds from the third year, FoS funding, leaving \$80 million to allocate to schools in the third year.

Figure 3C shows how the AoSM and FoS funds were distributed.

Figure 3C
AoSM and FoS funding distribution

Sector	AoSM 2012–13 \$ m	AoSM 2013–14 \$ m	FoS 2014–15 \$ m	Total \$ m
Primary	105.985	45.538	52.521	204.044
High	27.941	32.100	24.555	84.597
Special	4.138	1.635	2.024	7.798
Other	2.271	1.812	2.920	7.003
Total	140.335	81.085	82.020	303.442

Source: Queensland Audit Office

Because the model for allocating funds to schools differed significantly over the three years, the changes were confusing for schools. During the AoSM program, schools advised DETE that they would like to see the funding methodology remain consistent from year to year. The funding model for 2015–16 has not been confirmed, creating further uncertainty for schools on what funding they will receive to maintain their school buildings.

Timing of funding allocations

The timeliness of the AoSM budget allocations to schools was initially problematic. School holidays are the best time for any major school maintenance tasks to be completed as the absence of students and staff on the school grounds provides a safer work environment. The December–January holidays are the longest holiday period and provide the best opportunity for work to be conducted. Schools were challenged by budgets being released in November each year during the AoSM program. This left them little time to organise and plan work tasks with D2M contractors and BAS for the delivery of work over the December and January holiday season.

DETE's AoSM program governance arrangements, project team and regional managers worked together to support the schools that were most at risk of not committing the provided funds in time. This was to ensure all work was committed and delivered within the AoSM program's two year timeframe. This approach worked well as, at the end of the two years, schools that received funds using the D2M procurement method committed 94 per cent of their allocated funds to maintenance works.

DETE learnt from the timing of funding allocations for the AoSM program. The FoS program funding methodology and school allocations were announced in August 2014 and the funds were released to D2M schools in September 2014. This was two months earlier in the calendar than had occurred during the AoSM program.

BAS manage allocated funds on behalf of schools that choose BAS as their preferred procurement method, and they fully committed all allocated funds to maintenance tasks within the AoSM program's two year timeframe. Figure 3D shows the total funding allocated across the BAS and D2M procurement methods, and the funds committed and invoiced for maintenance works.

Figure 3D
AoSM program funding allocation and use over 2012–14

	BAS 2012–14 \$ m	D2M 2012–14 \$ m	Total \$ m
AoSM funding allocation	134.989	86.227	221.216
Funds committed for school maintenance (includes AoSM and other funding sources)	158.713	76.166	234.879
School maintenance work invoiced (includes completed work paid for with AoSM and other funding sources)	138.587	59.238	197.825

Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

3.4 Program outcomes

3.4.1 Maintenance backlog

Over the three years of the AoSM and FoS program, the \$298 million 2011–12 maintenance backlog has reduced to \$30.27 million as at October 2014. However, it is difficult to determine how much of the \$269.73 million reduction can be directly attributed to these programs. In some instances schools amended the scope of their repairs and used capital and other funding sources to deliver a better outcome for their school assets.

By doing this, these schools provided a longer term solution to the defects identified in the 2011–12 period, and extended the useful life of their assets.

Figure 3E shows the reduction in 2011–12 maintenance backlog amounts as at 31 October 2014.

Figure 3E
2011–12 maintenance backlog reduction

	Amount \$m	Number of schools
2011–12 maintenance backlog	298.717	1 271
2011–12 maintenance backlog cleared	268.449	742
2011–12 maintenance backlog remaining (as at October 2014)	30.268	529

Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

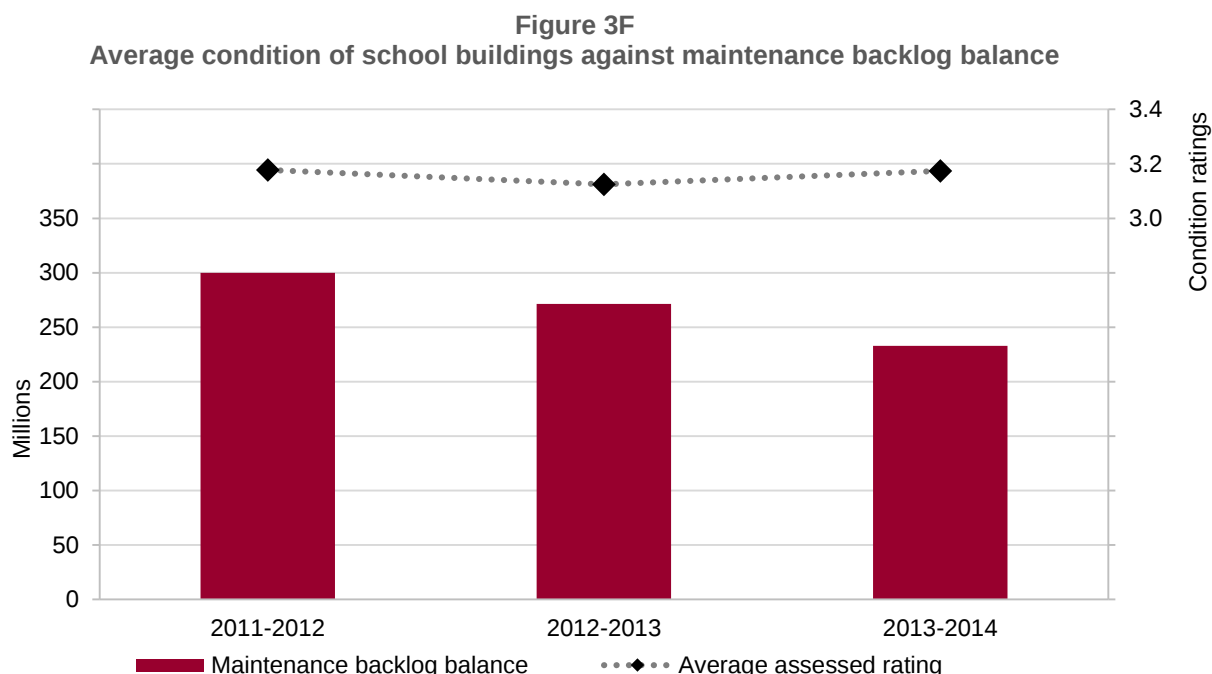
The 529 schools that have residual 2011–12 maintenance backlog started off with a collective MAR balance of \$200 million (67 per cent of the total maintenance backlog). DETE expects that these 529 schools will have cleared their maintenance backlog by the end of 2014–15.

3.4.2 Condition of school building assets

DETE outsources annual condition assessments to BAS for all school building assets. The results of condition assessments do not provide a complete picture of the overall condition of the school assets.

The current condition assessment process focuses on identifying defects which need to be rectified in the next 12 to 18 months. This makes it difficult to track improvements in the assessed condition over a three year period, because the assessed condition in years two and three includes new maintenance tasks not accounted for in year one.

Figure 3F shows that the reduction in the overall maintenance backlog does not significantly affect the average assessed condition of school buildings.



Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

Over the three years of the AoSM and FoS programs, while the overall maintenance backlog has decreased, the average assessed condition of school buildings has decreased marginally from 3.18 in 2011–12 to 3.17 in 2013–14 but remains above DETE's expected condition rating of three. This shows that, based on the current method for assessing the condition of school buildings, a significant investment in rectifying defects does not affect the assessed condition ratings.

Based on our school visits, and discussions with school staff, there is general consensus that the appearance of school buildings has improved, which positively affects both staff and student morale. The results of school opinion surveys conducted by all schools annually also shows that staff, students and parents have noticed an improvement in the condition of school buildings in 2014, compared to 2011 before AoSM was introduced. In 2014, students, parents and staff survey results show:

- students—18.85 per cent more students agreed schools were well maintained compared to 2011
- parents—16.15 per cent more parents agreed schools were well maintained compared to 2011
- staff—22 per cent more staff agreed schools were well maintained compared to 2011.

DETE plans to implement a life cycle approach in the first half of 2015 to help show how well schools are maintained and to better inform long term maintenance planning, and thus to improve maintenance strategies.

3.4.3 Value for money

The AoSM and FoS programs allow schools to choose their preferred procurement method for school maintenance, rather than the traditional approach where all schools used BAS maintenance services. The D2M procurement method allows schools to tender and contract directly with service providers outside the public sector.

Under the D2M procurement method, schools are responsible for ensuring contractors have the necessary licences to undertake the required tasks. Schools using BAS are not required to conduct background checks on BAS contractors as BAS ensure their contractors have the necessary licences to operate. DETE directed D2M schools to use the BAS registered contractors list for maintenance tasks over \$5 000 because they all have the required qualifications and trade licences.

Under the BAS procurement option, BAS retain the risk of ensuring that work is completed to the required standard, and manage any defects from the work completed. BAS' supervisors conduct inspections either every two weeks or on completion of the work (whichever comes first). The school principal, as the accountable officer, may appoint a school business service manager or a school facilities officer to check maintenance work has been satisfactorily completed before a BAS' supervisor signs off on the quality and completion of the work.

Similarly, for D2M schools, the principal may delegate authority to their business service manager who will sign off on maintenance work following a final inspection of both completion and quality and manage any defect issues directly with the contractor. The school principal retains the risk to ensure work is completed to the required standard. Schools may need to procure their own project management resources to obtain professional and technical advice on whether maintenance work has been completed to the required standard. As this is optional for D2M schools, work may be signed off without a proper inspection. Schools therefore retain any risks associated with work that was not satisfactorily completed.

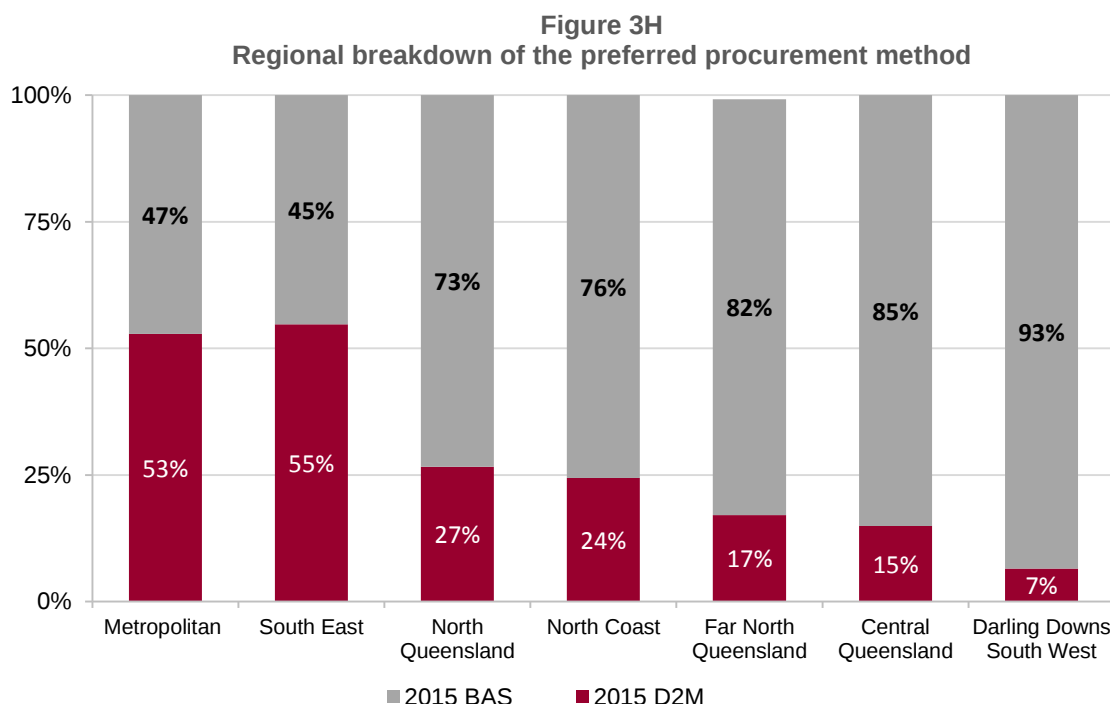
Figure 3G provides a comparison between the two procurement methods and as it can be seen under the D2M method, schools are responsible for the entire maintenance process.

Figure 3G
Comparison of procurement method

Task	D2M	BAS
Compliance requirements of contractors	Schools need to ensure contractors have the required licence to carry out the maintenance tasks.	BAS ensure contractors have the required licence.
Scoping of work requests, tendering, evaluating, negotiating and awarding of contracts, and managing defects through to completion	Schools are responsible for ensuring all documentation is complete and the terms of the contract clearly specify all warranty requirements.	BAS handle the maintenance tasks from scoping to completion.
Confirmation that the work completed is according to the required quality	Schools have the final responsibility and sign off on the completion of work checklist.	BAS conduct final check and provides expert opinion and the completion checklist is signed off once both BAS and the schools agree.
Probity risk and governance	Any probity risks need to be managed by schools.	BAS manage any probity and governance risks.

Source: Queensland Audit Office

Figure 3H shows, by region, schools' preferred procurement method for maintenance in 2014–15.



Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

Schools which favour BAS for completing their maintenance works are located in regional areas where there is a shortage of contractors, and where schools may not have the necessary resources to implement the D2M procurement method. Schools in the Brisbane metropolitan and south-east Queensland areas favour the D2M procurement method and have a wider scope of contractors to choose from.

In 2014–15, 71 per cent of the 1 275 schools in the FoS program chose BAS as their preferred procurement method, while the remaining 29 per cent preferred D2M. In 2014–15, the number of schools that preferred BAS as their procurement method increased by 3 per cent from 2013–14.

Schools which prefer BAS as their service provider do so because it is less resource intensive than the D2M method. They do not need to accept the additional risks associated with the D2M method, and BAS' background knowledge on schools assures them that maintenance tasks are completed to required standards. While the number of schools using the D2M method declined in 2014–15, the competitive tension introduced with D2M has challenged BAS to improve their service delivery method and provide better value for money for its services.

Direct-to-market procurement option

The D2M method has provided school principals with greater autonomy to select their own service providers to complete maintenance works. This allows for more efficient use of their maintenance budget and delivers better value for money. Schools can also integrate work tasks and coordinate maintenance with other DETE projects, such as capital or minor works.

Through our school visits we noted that schools which favoured D2M did so because this method gave them flexibility to control what maintenance tasks were prioritised and when they were completed. Schools were also able to vary the scope of works to provide a longer term solution to the identified defects

DETE created guidelines and supporting checklists to assist schools with the tendering and procurement process, and provided training to schools through workshops and at the School Business Managers' Conference. Schools using the D2M method are required to ensure they follow DETE's guidelines when procuring their preferred contractors to complete maintenance tasks.

Schools that use the D2M method require their staff to comply with tender processes. A DETE internal audit in June 2014 identified 79 per cent of the 121 D2M projects reviewed did not meet the requirements of the project planning guidelines provided by DETE. This means schools that do not follow the DETE guidelines and maintain appropriate documentation for project planning and delivery are exposed to the risks that they may:

- not be able to request contractors to re-perform work if they have not maintained the documentation required by DETE's project planning guidelines
- be legally liable if work was not conducted according to the Workplace Health and Safety regulation
- not adequately manage safety associated with maintenance tasks.

Savings realised

While schools had the option to adopt the D2M procurement method, BAS introduced a different service delivery method to provide better value for money for schools that chose to retain BAS as their service provider. BAS introduced bundling and clustering as a method to save costs by identifying bulk procurement of like maintenance (bundling) spread across a number of geographical locations (clustering). Some D2M schools from the same region also introduced the bundling technique to promote savings to schools in their region.

DETE and BAS have both produced internal reports that show savings under the respective delivery methods —19 per cent for D2M and 21 per cent for BAS. Both entities use the maintenance assessment report indicative cost as the baseline to measure savings against. This is a weak measurement approach because:

- Indicative costs vary based on the quality of condition assessments, and on the experience of the condition assessors. Our review of the data provided shows that in some cases the indicative cost was over-estimated and in others it was under-estimated
- The indicative cost does not account for current market conditions, and is not a like-for-like comparison. There is a significant time lag between when maintenance task costs were estimated to when the costs were incurred. There is up to three years between when defects were identified in 2011–12 to when they were rectified between 2012–13 and 2014–15. Comparing these costs at two different points in time distorts the savings reported.

BAS and DETE used different methods to calculate their savings, but we found both methods were unreliable. The only common factor in both calculation methods is the baseline used. The key differences include how management fees and scope variations are accounted for. Specifically:

- BAS make adjustments where there are increases in scope, whereas DETE does not make any adjustments
- BAS include its 12.5 per cent management fee in their savings calculations, whereas DETE does not include any management costs that DETE and schools incur to deliver the maintenance program.

Because of such differences, we cannot compare the savings reported by each entity to form an opinion on which procurement method has delivered better value for money.

In the first year of the AoSM program, schools did not have sufficient resources to implement the D2M method, because no funds were allocated for project management and procurement. Recognising this difficulty, DETE allowed schools to use 5 per cent of their AoSM funding allocation for project management and procurement activities in the second year of the program. The Minister for Education, Training and Employment advised schools that 5 per cent was sufficient for project management and procurement-related costs, but DETE has not monitored what schools have spent on this nor accounted for these costs in calculating savings.

Figure 3I below shows a summary of the methods used by each entity:

Figure 3I
BAS and DETE savings calculation methods

	BAS	DETE
System	Ellipse	Agresso
Baseline	MAR indicative cost	MAR indicative cost
Actual cost variable	MAR tender price	Paid invoice amount
Variations in scope	Captures scope extension but not scope reduction	Not captured
Project management and procurement costs	Yes—12.5 per cent BAS management fee included	No—project management and procurement costs incurred by DETE and schools not included
Integrity in savings calculation method	Weak	Weak

Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment and Building and Asset Services

DETE's financial system for school expenditure records expenditure against maintenance tasks from which it extracts data and manually produces value for money reports. We found the controls over the value for money reporting were weak because of limitations in the reporting capabilities of DETE's financial system for school expenditure and inaccurate data inputted by schools. Specifically, we identified the following issues:

- Where a contractor performed multiple jobs, the invoice was charged against only a single maintenance task record.
- Jobs were physically completed, yet remained 'incomplete' in DETE's finance system with an open purchase order amount. This arose when schools raised more than one purchase order for numerous maintenance tasks, but received one invoice because the job was done by the same contractor. The invoice offset only one of the purchase orders and the remaining purchase orders were not closed. The OneSchool system does not give DETE staff the ability to close open purchase orders.
- Schools incorrectly coded transactions, making it difficult for DETE staff to determine which maintenance tasks were completed. DETE Internal Audit reported in April 2014 that there were a number of deficiencies in transaction coding, including instances where task descriptions were inadequately documented and MAR identification numbers were not recorded against invoices.
- Task data contained no explanations, which made it difficult for DETE staff to determine relevance of data.
- Scope variations were not accounted for, which resulted in DETE reporting savings that did not reflect actual savings.

Because of these issues, the process required to produce a report on savings is labour intensive and requires a large degree of subjectivity and professional judgement. This results in an unreliable report.

BAS record maintenance expenditure in their financial system against tasks and export data to produce value for money reports. We identified the following issues with this reporting process:

- Where the scope was increased, two tender prices were recorded—one for the original scope and one for the new scope. The tender for the original scope was used for the savings calculation.
- Where the scope was decreased, no additional tender price was recorded, meaning that savings were calculated using an over-inflated baseline and producing a skewed overall result.
- There were numerous records where comments inserted by BAS staff indicated that the MAR indicative cost was either over- or under-estimated.
- The indicative cost includes a BAS management fee of 7.5 per cent and the final tender fee includes a BAS management fee of 12.5 per cent—the two amounts are not comparable.

Figure 3J shows examples where BAS included savings due to reduction in scope in its overall savings calculation.

Figure 3J
Examples of BAS assumed savings when scope of works reduced

Example	MAR indicative costs \$	MAR tender price \$	Assumed Savings %
Example 1	250 000	5 569	98
Example 2	24 000	6 327	74
Example 3	8 500	3 729	57
Example 4	9 800	809	92
Example 5	4 200	809	81

Source: Queensland Audit Office using data provided by Building and Asset Services

Both departments have recognised the need to re-evaluate the measure for the value-for-money outcome of the asset maintenance program. The departments acknowledge that, due to variations in the scope of maintenance tasks, it is difficult to compare like-to-like maintenance tasks.

3.5 Recommendations

It is recommended the Department of Education, Training and Employment:

1. assesses the condition of school buildings at a portfolio level so it can report objectively how school maintenance programs have affected the condition of school buildings
2. agrees 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 completes a comparative assessment of the benefits, costs and risks of both procurement methods.

4 Strategic asset management

In brief

Background

Well planned maintenance prolongs the useful life of school buildings and assets and helps to keep students and teachers safe. It also reduces operating costs. The Department of Education, Training and Employment (DETE) uses the whole-of-government Maintenance Management Framework policy to guide its maintenance work. Building and Asset Services (BAS) conduct condition assessments for DETE and help to deliver maintenance service tasks.

Conclusions

Constrained by inadequate funding, DETE has not optimised the service potential of its school assets because it predominantly uses reactive maintenance over preventative and predictive maintenance. DETE's current strategic maintenance planning includes a vision for life cycle planning to better understand their assets and long term maintenance and renewal requirements, including preventative maintenance. The condition assessment and reporting process does not help DETE with long term maintenance planning because the focus is solely to record defects.

Key findings

- Before the Advancing our Schools Maintenance program, schools were less interested in ensuring their condition assessments were correct because of the historical trend of funding allocations being insufficient for maintenance needs. Schools have become more vigilant in ensuring their condition assessments correctly identify all maintenance requirements.
- BAS' condition assessors and schools have different interpretations of the definition for condition standard rating (S3), which is the condition standard for maintenance set by DETE.
- BAS' condition assessors (BAS staff and contractors) were not consistent in their conduct of the 2013–14 school condition assessments, which led to 160 schools being reassessed and the discovery of \$10 million of maintenance backlog that was previously unidentified.
- There are inconsistencies between BAS staff and BAS contractors when determining indicative cost rates for defects identified in condition assessments.
- Condition assessments focus on defects and do not provide information for preventative maintenance to inform long term maintenance planning. As a result, DETE has not been analysing condition assessment data to determine overall maintenance issues to inform future planning.
- DETE's budget submissions have not historically included preventative maintenance because of funding constraints. DETE has included predictive maintenance or life cycle maintenance measures in its draft strategic maintenance plan which positions DETE towards predictive maintenance and away from reactive maintenance.

Recommendations

It is recommended that the Department of Education, Training and Employment:

3. ensures a common understanding between the Department of Education, Training and Employment, condition assessors and school staff of the condition standards expected for school facilities
4. implements 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.

It is recommended that the Department of Housing and Public Works:

5. improves the consistency of condition assessment results by ensuring all condition assessors satisfy the competency requirements of the Maintenance Management Framework and implementing consistent local cost rates used by Building and Asset Service's staff and contractors.

4.1 Background

The Department of Education, Training and Employment (DETE) is responsible for ensuring that its school facilities are managed and maintained appropriately so that teachers and students have a safe working environment.

DETE follows policies from the whole of government Maintenance Management Framework (MMF). An internal strategic maintenance plan and a maintenance policy should also guide DETE to develop good maintenance plans, organise condition assessments, develop maintenance work programs, budget appropriately for all maintenance tasks and collect, retain and analyse relevant information.

While DETE outsources condition assessments to Building and Asset Services (BAS), a division of the Department of Housing and Public Works, it is responsible for ensuring condition assessments are conducted as per the MMF requirements. BAS provided condition assessment services to DETE in 2013–14 for \$6.24 million in line with their service level agreement with DETE.

4.2 Conclusions

DETE's asset management approach does not optimise the service potential of its school asset portfolio over the life of the assets. There has been no asset life cycle approach to integrate key asset management phases—planning, budgeting, acquisition, operation and disposal—to ensure a sustainable and cost effective outcome.

Constrained by inadequate funding, DETE has predominantly used reactive maintenance over preventative and predictive maintenance, missing the opportunity for consistent, efficient and effective operating facilities and a reduction in costs.

Its condition assessment and reporting process does not help DETE with long term maintenance planning, as the present focus is solely to record defects. Relevant information required for long term planning, such as preventative maintenance, is absent from the reports.

DETE's current strategic maintenance plan has a vision for life cycle planning. DETE and BAS piloted a program to trial asset life cycle assessments to improve understanding of their assets and long term maintenance and renewal requirements, including preventative maintenance.

4.3 Condition assessments

The MMF requires the results of condition assessments to be presented in a report that includes:

- the desired condition rating for each school building
- an assessed condition index for each building
- an itemised recommended schedule of maintenance work necessary to bring each building up to the condition recommended by the asset owners
- cost estimates of the remedial work identified
- advice about longer term maintenance needs of the building to assist in planning and decision making.

4.3.1 Setting the standard

Policy requirement two of the MMF states that departments must determine condition standard ratings for each building asset, and periodically review and update the rating. The MMF further states that, where standards are specified at an overall building level, detailed descriptions of what each condition rating means should be developed.

Detailed descriptions ensure assessors have a common understanding of how to assess building conditions. Descriptions also provide for more detailed and useful reporting, where more complex and critical building elements need to be maintained to a higher standard than required for the overall building.

BAS and DETE have different expectations for condition assessment because the selected condition standard rating (S3) is not clearly defined in the agreement between the parties.

Figure 4A shows the MMF's definition of specified condition standards.

Figure 4A
Maintenance Management Framework—specified condition standards

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

Source: Maintenance Management Framework, Policy for the maintenance of Queensland Government buildings

While DETE's service level agreement with BAS states that school buildings are to be maintained at the S3 level, it does not explain its rationale for why the expected condition of schools is to be S3. Nor does it provide a detailed description of what S3 means for school buildings, which comprise a number of integrated components such as superstructure, cladding, roofing, lighting, plant, major fixtures and fittings—each with different useful lives and maintenance requirements.

BAS contend that, historically, they have conducted condition assessments and captured all defects which are to be rectified for both functional purposes and improvement in appearance. BAS therefore believe that, when they conducted condition assessments, they went beyond the standard definition in the MMF for an S3 and also included defects that affected the appearance of school buildings, which MMF defines as an S4.

The current condition assessment process carries a high risk of inconsistent assessments because DETE has not defined what an S3 condition standard rating means in the context of school buildings, as required by the MMF. Consequently, the condition assessment process relies on the professional judgement and experience of the assessors and how they interpret the MMF's high-level definition of the S3 building standard. This can differ from one assessor to the next, and can result in inconsistent reporting of assessment outcomes.

4.3.2 Conducting condition assessments

Condition assessors walk through school buildings to identify and document any defects they see. Each defect identified is given an indicative cost for repair or replacement and a priority rating. The priority rating ranges from one to four, where rating one is a high priority task and needs to be rectified as soon as possible, for example, to satisfy health and safety requirements.

After condition assessors identify defects within a building element, they assign condition index ratings to the various elements present within a building. Condition assessors aggregate the results of element ratings to determine an overall specified condition standard of the facility.

BAS provide the results of condition assessments as a maintenance assessment report (MAR) to each school and provide an aggregated form of the defect list for all schools to DETE.

Figure 4B provides the MMF's definition of the condition ratings assessors should use to represent the general condition of the building assets.

Figure 4B
Maintenance Management Framework—assessed condition ratings

Assessed rating	Status	Definition of rating/condition of building asset
5	Excellent	No defects As new condition and appearance
4	Good	Minor defects Superficial wear and tear Some deterioration to finishes Major maintenance not required
3	Fair	Average condition Significant defects are evident Worn finishes require maintenance Services are functional but need attention Deferred maintenance work exists
2	Poor	Badly deteriorated Potential structural problem Inferior appearance Major defects Components fail frequently
1	Very Poor	Building has failed Not operational Not viable Unfit for occupancy or normal use Environmental/contamination/pollution issues exist

Source: *Maintenance Management Framework, Policy for the maintenance of Queensland Government buildings*

The indicative cost to rectify a defect includes an indicative cost rate, a BAS management fee of 7.5 per cent and a locality index. BAS assign an indicative cost rate to identified defects based on an indicative cost guide. These rates are set by the BAS cost administrator and are based on industry experience and market research using industry cost guides; however, they have not been updated since November 2012. BAS contractors determine indicative cost rates on their own rates and knowledge, so the rates used by BAS staff and BAS contractors are inconsistent.

Section 7.2 of the MMF states that condition assessments need to be conducted by competent assessors, which it defines as people who have the relevant training, qualifications, experience and (where required by law) the appropriate licences to undertake building assessments.

In 2011–12, the former QBuild had approximately 94 condition assessors. After introducing the contestability model, BAS have 34 condition assessors.

BAS asked their regions to determine the number of assessors required to meet BAS's service delivery to their clients. BAS recently trained 30 interested trade staff to conduct condition assessments to supplement their 34 full time assessors. Condition assessors work across regions, and BAS also propose to increase their capacity, if required, by employing additional temporary staff to assist in peak periods.

BAS outsourced the 2013–14 condition assessments for 593 of 1 271 schools. Schools and regional offices identified potential issues with the 2013–14 condition assessment data and requested reassessments to occur at identified schools. All schools were contacted and provided the opportunity to review their 2013–14 MAR to mitigate the risk of inconsistencies and errors in the 2013–14 MAR data.

This resulted in BAS re-performing 160 school condition assessments that were originally completed by BAS staff and BAS contractors. BAS reassessment identified maintenance tasks worth \$10 million, which were previously unaccounted for in the 2013–14 MAR provided to DETE in July 2014. Funding allocations for 19 schools were adjusted to reflect the revised condition assessments.

4.3.3 Reporting

Information generated from the current condition assessment process does not assist DETE in planning long term school maintenance and managing its asset portfolio throughout its useful life. The current condition assessment is focused on the identification of defects, and does not provide sufficient information to assist with preventative maintenance.

The MMF states that the condition assessment process should minimise administrative transactions and that departments should use a computerised maintenance management system. During Advancing our Schools Maintenance (AoSM) there was no automated and common reporting platform between BAS and DETE, which delayed the collation and presentation of condition assessment data. This process relied on manual processes that required BAS to enter condition assessment data into two different systems, depending on whether the assessments were done by BAS staff or their contractors.

Up to 2013–14, BAS produced a spreadsheet for DETE with a list of all defects and the indicative cost of rectifying these defects. The previous reporting process did not provide real time data and the data does not account for maintenance work direct-to-market (D2M) schools completed since their building conditions were assessed.

In July 2014, before releasing the Fixing our Schools (FoS) funding allocations, DETE invested \$3.5 million to establish a new asset maintenance system, with an electronic interface between the BAS asset systems, to allow for a single source of maintainable asset data. DETE also upgraded its current OneSchool system to interface with the new asset maintenance system.

DETE expects this will provide significant benefits for DETE, BAS and schools. It will provide an integrated solution to align, store, maintain and track all maintenance information relating to school assets (including condition assessment data and maintenance activity). This will inform better decisions about the maintenance of schools.

BAS' 2013–14 report to DETE was delayed because of reassessments performed for 160 schools, and because of data inaccuracies resulting from the manual data recording and reporting process between the two entities. The 2013–14 MAR is yet to be finalised, with four versions of the report exchanged between the two entities from June 2014 to November 2014. The due date for the aggregated 2013–14 MAR to DETE was 30 May 2014.

Under the agreement with DETE, BAS must submit the MAR to schools within 30 days of the condition assessment process. BAS conducted condition assessments for 1 321 schools in the 2013–14 financial year and provided the MAR report within the agreed timeframe to 16 per cent of schools. According to BAS, this delay was due to the time taken to input the MAR data into the system. Figure 4C provides a breakdown of the number of schools that received their 2013–14 MAR after the 30 day time frame.

Figure 4C
Number of days taken for BAS to provide the MAR report to the schools

Number of days between condition assessment and school receipt of report	Total number of schools	BAS assessments	Contracted assessments
Less than or equal to 30 days	211	211	
Greater than 30 and less than or equal to 50 days	248	105	143
Greater than 50 and less than or equal to 80 days	557	110	447
Greater than 80 and less than or equal to 100 days	45	42	3
Greater than 100 days	260	260	
Total	1 321	728	593

Source: Queensland Audit Office from data provided by Building Asset Services of the Department of Housing and Public Works

4.4 Maintenance assessment report balances

The condition assessments focus on building defects, and tasks to rectify these defects are recorded in the MAR. Historically, school maintenance budgets did not cover the full value of indicative costs for defects listed on the schools' MARs. As a result, many of the defects listed on the MAR were not repaired.

Due to the limited budgets, the condition of the school facilities was generally below the recommended minimum standard and, over time, breakdown maintenance became more prevalent. Most of the schools' planned budget was spent on unplanned tasks. Consequently, their planned budget allocation became ineffective, many of the MAR defects were not repaired and the maintenance backlog was multiplying each year.

The MAR amount grew from \$137.7 million in 2008–09 to \$298 million in 2011–12.

Due to historically low maintenance funding patterns over the years, schools became less interested in the MARs and were not as vigilant with reviewing condition assessments as they are now. By not including all known defects, they limited the true exposure of school backlog maintenance.

Section 7.2.3 of the MMF states:

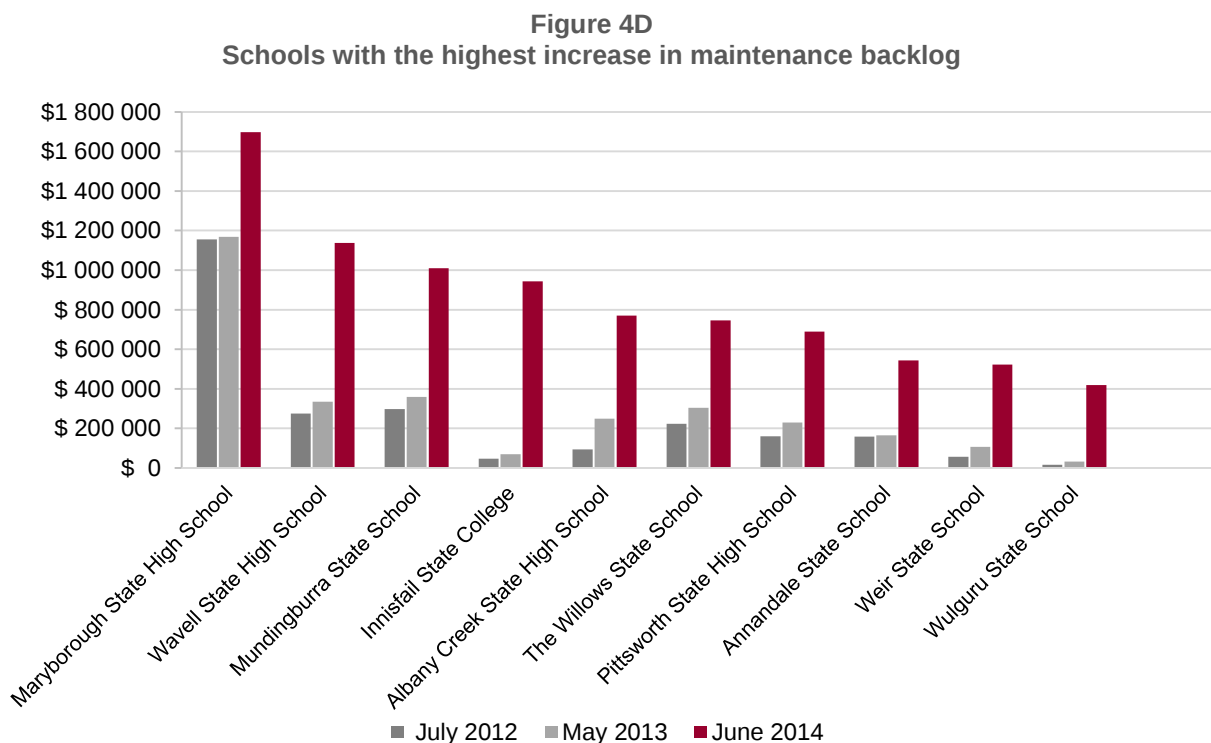
...departments that allow their building portfolios to decline through inadequate maintenance are not only failing to meet their legislative responsibilities, they are potentially exposing themselves and the Queensland Government to risk.

The introduction of the AoSM program has highlighted to schools the importance of ensuring their MAR records accurately reflect the actual deferred maintenance. Certain schools with small MAR amounts and a large amount of unrecorded maintenance backlog tasks were disadvantaged under the AoSM program, as the funding allocation methodology was based on the schools' 2011–12 MAR balances. During our school visits, DETE regional officers reported that, since the introduction of AoSM, schools have become more diligent in ensuring their MAR records are up to date and accurately reflect the actual maintenance requirements of the school.

Of the 1 271 schools, 239 have a higher maintenance backlog now than they had in 2011–12, despite being allocated funding to reduce their 2011–12 backlog. Possible reasons for this backlog increase in these schools include:

- the 2011–12 MAR backlog was understated because the schools did not ensure their MAR reports were complete
- the condition assessments only identify defects that require rectification for the following 12 to 18 months; therefore, condition assessments performed since 2011–12 will have identified new maintenance tasks that the 2011–12 assessment did not foresee.

Figure 4D shows the ten schools which had the highest increase in their maintenance backlog since 2011–12.



Source: Queensland Audit Office from data provided by the Department of Education, Training and Employment

Uncompleted MAR tasks at year end are carried forward to the following year's MAR. However, it is difficult to isolate the 2011–12 tasks in the 2012–13 MAR because the 2011–12 tasks carried forward were given new identification numbers.

Identifying the 2011–12 carried forward tasks has been a time consuming and manual process for both DETE and BAS. Both entities continue to review the 2013–14 MAR report to clearly differentiate the remaining 2011–12 outstanding MAR balances, so DETE can report whether it has delivered on the government's objective to clear the 2011–12 backlog. The remaining 2011–12 balance of approximately \$30 million is yet to be confirmed, as DETE is validating the data for accuracy. BAS now record the same identification numbers for all tasks carried forward from the 2012–13 MAR to the 2013–14 MAR to ensure this issue is not repeated.

4.5 Asset maintenance planning

DETE's asset maintenance planning has been reactive and heavily weighted towards solving immediate problems rather than long term planning to include preventative maintenance. Three interrelated reasons contribute to DETE's short term and reactive planning:

- limited funding
- poor data to support long term planning
- no foresight greater than 12–18 months.

Before AoSM, schools received funds for planned maintenance (repairing MAR defects) and unplanned maintenance (breakdowns and emergency work). They used the majority of their allocated budget for unplanned maintenance which resulted in limited funds to address MAR tasks.

DETE used to conduct a rolling three year asset condition assessment program to identify maintenance tasks up to five years for all priority rankings. Priority rankings assist assessors undertaking condition assessments to provide an indication of recommended maintenance work: from ranking one, where work should be undertaken within a year, to ranking four where work can be safely deferred beyond three years.

DETE and the former QBuild reviewed the condition assessment process in 2006. In 2007–08, they began annual inspections to ensure high priority tasks (one and two) were identified sooner.

This change resulted in a perceived reduction in maintenance backlog tasks. The annual inspections only assess defects that need to be fixed within 12 to 18 months. As a result, DETE overlooked the preventative maintenance approach.

DETE does not aggregate and analyse condition assessment data to determine overall maintenance issues to inform future planning. This is partly because the relevant information required for long term planning (that is, preventative maintenance) is not included in condition assessment reports.

4.5.1 Strategic maintenance planning

The MMF requires departments to develop an internal maintenance policy and a strategic maintenance plan. Departments must also determine a condition standard rating for each building asset with periodic review, and adopt a maintenance strategy to incorporate a balance of planned and unplanned maintenance.

DETE has recognised that its current condition assessment process identifies only defects with a short term solution. In alignment with its strategic maintenance plan, DETE piloted a life cycle assessment model during the last quarter of 2014 to develop a greater understanding of its assets and long term maintenance and renewal requirements. The reports will set out the estimated remaining life and replacement costs for each element, in each room of each building over a ten-year period. DETE expects this will provide a greater understanding of the condition of school facilities and inform better long term maintenance planning and funding requirements. DETE plans to implement this new model via a phased approach across schools, beginning in the first half of 2015.

Life cycle maintenance relies on identifying predictive maintenance tasks that are scheduled at pre-determined intervals according to the element of work. Each element of work (for example, painting) is nominated a life span determined by historical maintenance data, current industry standards and manufacturer's recommendations. Maintenance tasks will continue to be identified through condition assessments until a history of predictive maintenance life cycles is established.

In 2014–15, DETE started to implement its life cycle strategy and is replacing annual condition assessments with three yearly condition assessments. This will focus on confirming and updating the estimated life cycles for the building elements scheduled to be maintained under predictive maintenance.

The introduction of the life cycle maintenance and implementation of other strategies should help DETE to maintain its assets to an appropriate standard, thereby reducing unplanned works, reducing the higher costs associated with reactive maintenance, and prolonging asset life. This initiative provides a number of benefits including better budget planning and better value for money outcomes through more strategic planning procurement decisions.

DETE finalised an asset life cycle pilot project in conjunction with BAS and 20 selected schools. Physical inspections were completed and the program report was released at the end of November 2014. Subsequently, the first round of life cycle assessments is proposed to be completed by the end of 2014–15 financial year and the other two thirds completed in 2015–16 so that the full data set is available by the end of 2015–16.

Once life cycles are established, they will be adopted for each element of maintenance for each building. DETE's goal is to establish a long term rolling maintenance program and to use condition assessments as a safety net to identify work that does not fall under predictive maintenance. Work identified from the condition assessments that is not scheduled through a predictive maintenance program will be prioritised and scheduled. Schools will have greater control and autonomy over the prioritisation and selection of maintenance tasks to better reflect their specific requirements (both physical and functional). Life cycle maintenance assessments will provide useful data to inform long term planning about the future of assets.

DETE's current strategic planning brings a change to its historical maintenance practices. To manage and maintain its 1 333 schools (including seven public private partnership schools), DETE developed a strategic maintenance plan 2014–18 which complements its strategic asset management plan and framework and incorporates its condition standard ratings. DETE also has an asset maintenance and services operational plan and internal maintenance policy, outlining tasks and performance measures required to meet desired maintenance outcomes.

The strategic maintenance plan 2014–18 helps to support DETE's asset life cycle model to plan, build, operate and maintain its assets by delivering high quality, fit-for-purpose facilities to improve educational outcomes. To meet this expectation, DETE's strategic maintenance plan 2014–18 proposes the following strategies:

- give a greater emphasis to long term planning through life cycle maintenance
- extend the life and improve performance of assets
- outline forecasted maintenance costs to assist with better budgeting
- remodel the condition assessment including an assessment every three years
- develop and implement more effective information systems to enable better maintenance management
- take a holistic approach to the management of facilities involving integration of maintenance, capital, renewal and asbestos removal programs
- promote value for money outcomes by reducing red tape
- influence capital design with learnings from the maintenance program.

The MMF requires departments to:

- retain maintenance information
- accept and retain technical and asset information for new buildings
- use computerised maintenance management systems to capture and update maintenance data
- have the capability to generate reports for analysis of maintenance information.

The new asset maintenance system implemented in July 2014 will give DETE the ability to make decisions about the useful life of maintainable assets and inform asset life cycle decisions.

4.5.2 Budget forecasting

Policy requirements six and seven in the MMF explain assessment maintenance demand in order to determine the total maintenance requirements of the building portfolio, and how to allocate an adequate maintenance budget. The MMF states:

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

Departments' maintenance budgets should be formulated upon reliable data extracted from:

- departmental strategic maintenance plans
- MARs
- current state and age of departments' building portfolios
- analysis of maintenance demand
- backlog maintenance.

Historically, DETE only included the value of school buildings when calculating 1 per cent of the asset replacement value (ARV). However, from 2014–15, it plans to include additional infrastructure (such as sports courts, swimming pools, car parks, play equipment) along with buildings in the ARV to calculate maintenance budgets. This will provide a better estimate of funding to ensure all school infrastructure can be maintained to required standards.

The MMF requires departments to split maintenance funding needs into the following cost components when determining the composition of a maintenance budget:

- condition assessment costs
- statutory maintenance costs
- preventative maintenance costs
- condition-based maintenance costs
- unplanned maintenance costs
- agency maintenance management costs.

DETE develops internal documents individually, accounting for all cost components except preventative maintenance. DETE has not historically included preventative maintenance in its budget submissions because of funding constraints; however, in its 2011–12 budget submission DETE outlined funding pressures. These pressures included the lack of provision for an increase in maintenance expenditure, and the effect of budget allocations on the school maintenance backlog because of funding being under the recommended minimum 1 per cent of ARV since at least 2006.

DETE has included predictive maintenance or life cycle maintenance measures in its draft strategic maintenance plan, which positions DETE towards predictive maintenance and away from reactive maintenance. This approach will not only inform budget planning over the period and provide a tool for estimate budget requirements for each year, it should also achieve more effective long term budget planning and provide robust evidence to support funding submissions.

4.6 Recommendations

It is recommended the Department of Education, Training and Employment (DETE):

- 3. ensures a common understanding between DETE, condition assessors and school staff of the condition standards expected for school facilities by:**
 - developing detailed descriptions of its specified condition standard ratings (S1 to S5) for school facility assets as required by the Maintenance Management Framework (MMF)
 - documenting the level at which school facilities are to be maintained, as required by the MMF
- 4. implements 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.**

It is recommended that the Department of Housing and Public Works:

- 5. improves the consistency of condition assessment results by:**
 - ensuring all condition assessors are competent assessors with relevant training, qualifications and experience as per the MMF
 - implementing consistent local cost rates used by Building and Asset Services staff and contractors.

Appendices

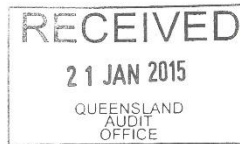
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Appendix A—Comments

In accordance with section 64 of the *Auditor-General Act 2009*, a copy of this report was provided to the Department of Education, Training and Employment and the Department of Housing and Public Works with a request for comment.

Responsibility for the accuracy, fairness and balance of the comments rests with the head of these agencies.

Comments received from Director-General, Department of Education, Training and Employment



Department of
Education, Training and Employment

19 JAN 2015

Mr Andrew Greaves
Auditor-General
Queensland Audit Office
PO Box 15396
CITY EAST QLD 4002

Dear Mr Greaves

Thank you for your letter dated 18 December 2014 regarding the performance audit on Maintenance of Public Schools. I note a copy of the report was also provided to the Honourable John-Paul Langbroek MP, Minister for Education, Training and Employment.

As you are aware, a State Government election was announced and will be held in Queensland on 31 January 2015. As a result of this announcement, the Queensland Government entered the caretaker period on 6 January 2015.

In accordance with caretaker conventions that are in place during the election period, the Minister is unable to respond to your correspondence.

I appreciate the opportunity to review your draft report to Parliament, scheduled to be tabled in February this year.

I confirm the Department agrees with the findings and recommendations and enclose our response, indicating proposed timeframes for implementation.

The Department has been advised that the Department of Housing and Public Works will provide a separate response to the recommendation within their area of responsibility.

Thank you again for contacting me about this matter.

Should your officers wish to discuss this matter further, I invite them to contact Mr Terry Lalley, Acting Executive Director, Infrastructure Operations, by email at terry.lalley@dete.qld.gov.au or on telephone 3034 4626.

Yours sincerely

DR JIM WATTERSTON
Director-General

Ref: 15/1422

Enc

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Responses to recommendations

Responses to recommendations

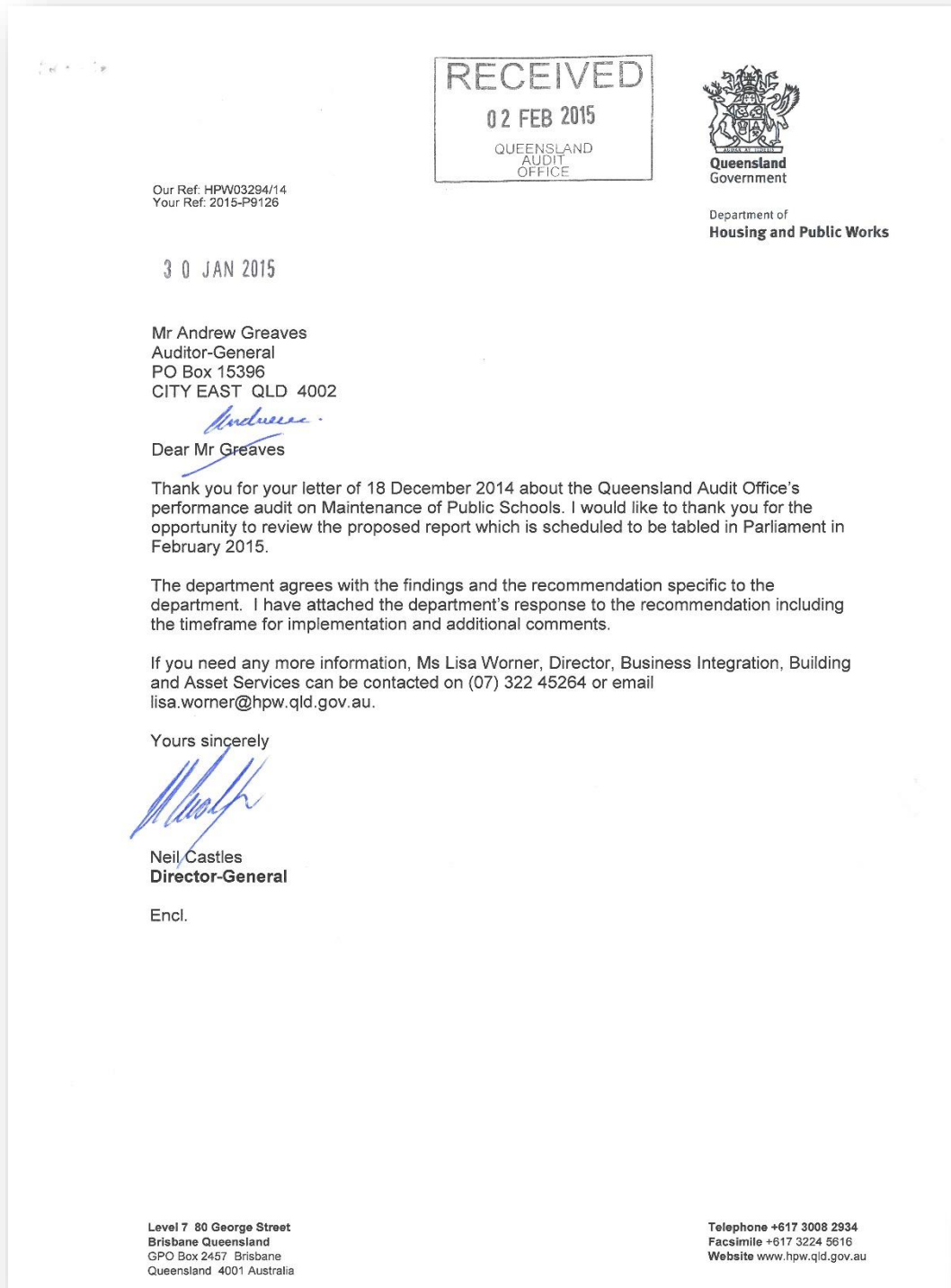
Response to recommendations provided by the Director-General, Department of Education, Training and Employment (DETE).

Recommendation	Agree / Disagree	Timeframe for Implementation	Additional Comments
1. Assesses the condition of school building at a portfolio level so it can report objectively how school maintenance programs have affected the condition of school buildings.	Agree	Implementation Trial 14/15 Commence Implementation 15/16 Full Implementation 17/18 (Full cycle of assessment)	DETE has commenced a process to trial the development of a Total Asset Management Plan (TAMP), which includes asset life cycle assessment. Given that the trial life cycle assessment costing has indicated collection of a comprehensive data set will require an investment in excess of \$20m, DETE plans to implement it over a minimum 3 year period. In addition to data collection, DETE will be required to also invest in data storage and recall and management systems that will support asset related decision making. DETE also intends to develop a comprehensive Infrastructure Investment process that will inform all infrastructure investment decisions, including major maintenance funding assessments.
2. Agrees with BAS on a consistent and accurate approach to report savings from the D2M and BAS procurement methods and complete a comparative assessment of the benefits, costs and risks of both procurement methods.	Conditional Agreement	July 2015	DETE and BAS will collaborate to develop a consistent and accurate approach that will enable the ability to report procurement savings for both D2M and BAS options more consistently. DETE will also complete a comparative assessment of the benefits, risks and costs of both options. While DETE acknowledges the need to comparatively report procurement savings, both agencies already apply the

Responses to recommendations

				principles and practices directed in the Queensland Procurement Policy for all procurement processes. The policy aims to achieve value for money for each procurement activity.
3.	Ensures a common understanding between DETE, condition assessors and school staff of the condition standards expected for school facilities by: - developing detailed descriptions of its specified condition standard ratings (S1 to S5) for school facility assets as required by the MMF. - documenting the level at which school facilities are to be maintained, as required by the MMF.	Agree	July 2015	DETE will develop a detailed description of condition standards across all major elements of infrastructure and communicate this to schools, including the targeted maintenance ratings for all infrastructure assets.
4.	Implements 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.	Agree	Commence 15/16 Full implementation in alignment with recommendation 1	DETE agrees with the recommendation and provided DETE receives appropriate funding, it will implement a school asset maintenance program that balances preventative and condition based maintenance. The program will form an integral element of a Total Asset Management Plan and asset life cycle assessment process and will align with the implementation process for recommendation 1.

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



Responses to recommendations

Responses to recommendations

Response to recommendations provided by Director-General, Department of Housing and Public Works:

Recommendation	Agree / Disagree	Timeframe for Implementation	Additional Comments
5. improves the consistency of condition assessments results by: - ensuring all condition assessors are competent assessors with relevant training, qualifications and experience as per the MMF. - implementing consistent local cost rates used by BAS staff and contractors.	Agree	July 2015	HPW has finalised the review of the condition assessment process and is implementing the following to improve the consistency and efficiency of condition assessments: - a detailed documented business rule in accordance with the MMF and DETE's expectations - standardised procedure manuals, tools, templates and other resources for use by all condition assessors - a training program for BAS and contractor assessors - a Condition Assessment Tool (CAT) that automates the recording of the assessments - a standardised methodology and indicative costing list that better ensures consistent local rates are applied by all assessors

Appendix B—Audit method

Audit objective

The objective of the audit was to assess how well public school buildings and facilities are maintained.

The objective of the audit was addressed through the sub-objectives and lines of inquiry as shown in Figure B1.

Figure B1
Audit scope

Sub-objectives		Lines of inquiry	
1	School maintenance programs (i.e. Advancing our School Maintenance (AoSM) and Fixing our Schools (FoS)) are achieving their objectives.	1.1	The AoSM and FoS programs were well planned and designed.
		1.2	The AoSM and FoS programs have reduced the school maintenance backlog and improved the condition of school buildings and facilities.
		1.3	AoSM and FoS procurement practices deliver value for money.
2	School buildings and facilities asset management practices are cost effective.	2.1	Reliable and current information is maintained on asset condition, utilisation and performance.
		2.2	Asset management plans include maintenance strategies that seek to balance preventative and reactive maintenance to achieve the lowest total cost of ownership.

Source: Queensland Audit Office

Reason for the audit

There are 1 333 school campuses across Queensland. The Department of Education, Training and Employment (DETE) is responsible for providing a safe working and learning environment for its staff and students.

All state schools receive an annual maintenance allocation. In 2011–12, the annual recurrent school maintenance budget was \$134 million, and there was an estimated pre-existing maintenance backlog of \$298 million at July 2012.

The government provided \$300 million over three years in addition to DETE's annual base maintenance allocation to clear the pre-existing backlog through the Advancing our Schools Maintenance (AoSM) and Fixing our Schools (FoS) programs.

In this audit, we determined if public funding in the AoSM and FoS programs achieved their objectives, and whether DETE's school building and facility asset management practices were cost effective.

Performance audit approach

The audit was conducted between August and December 2014.

The audit consisted of:

- interviews with staff at DETE and staff from Building and Asset Services (BAS), a division of the Department of Housing and Public Works
- analysis of key documents, including Cabinet documents and strategic plans
- analysis of key data including budgets, asset replacement values, maintenance backlog amounts and savings calculations obtained from DETE and BAS.

During the audit we visited the following six schools to validate findings:

- Mansfield State High School
- Greenbank State Primary School
- Miami State High School
- Rochedale State High School
- Samford State Primary School
- Toowoomba State High School

The audit was undertaken in accordance with *Auditor-General of Queensland Auditing Standards* which incorporate Australian auditing and assurance standards.

Auditor-General Reports to Parliament

Reports tabled in 2014–15

Number	Title	Date tabled in Legislative Assembly
1.	Results of audit: Internal control systems 2013–14	July 2014
2.	Hospital infrastructure projects	October 2014
3.	Emergency department performance reporting	October 2014
4.	Results of audit: State public sector entities for 2013–14	November 2014
5.	Results of audit: Hospital and Health Service entities 2013–14	November 2014
6.	Results of audit: Public non-financial corporations	November 2014
7.	Results of audit: Queensland state government financial statements 2013–14	December 2014
8.	Traveltrain renewal: Sunlander 14	December 2014
9.	2018 Commonwealth Games progress	December 2014
10.	Bushfire prevention and preparedness	December 2014
11.	Maintenance of public schools	March 2015

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