
New South Wales Auditor-General's Report

Performance Audit

Planning for School Infrastructure

Department of Education



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In accordance with section 38E of the *Public Finance and Audit Act 1983*, I present a report titled **Planning for School Infrastructure: Department of Education**.

A handwritten signature in black ink, appearing to read 'IG'.

Ian Goodwin
Acting Auditor-General
4 May 2017

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Executive summary

The Department of Education (Department) must provide students with a place in a government school if parents desire it. Over the next 15 years, the student population in NSW Government and non-government schools is projected to grow by 21 per cent to nearly 1.5 million students. Over 80 per cent of this is expected to be in the Sydney metropolitan area.

Improving education outcomes of students is a NSW State Priority. Research shows that well designed and maintained facilities improve student learning outcomes. A strategic objective of the 2014 State Infrastructure Strategy Update is to 'equip growing urban and regional populations with the modern schools and training infrastructure required to deliver educational service for a competitive, innovative economy'.

This audit assessed whether the Department has a strategy and implementation model to ensure it has sufficient fit-for-purpose student learning spaces when and where needed.

Conclusion

For much of the last decade, there has been chronic under-investment in NSW government school infrastructure and deficiencies in asset planning. Many schools have more students than can be accommodated in existing classrooms, and demountables are widely used for extended periods. The condition of classrooms has been declining due to insufficient maintenance, and many are not configured to support contemporary and desired future learning and teaching methods. At the same time, the government school student population is predicted to grow further, particularly in Sydney.

In response to this challenging situation, the Department has recently developed a School Assets Strategic Plan (Strategic Plan) designed to accommodate the expected student population up to 2031. This is the first such plan for the Department. It is a good plan. It covers the issues we would expect and has benefited from expert input and independent validation of assumptions, proposed solutions, and the likely costs.

The strategy embodied in the Plan includes elements that may be confronting for the community. To contain costs, the Department proposes several potentially controversial changes to the way schools are planned, designed, built, managed and funded. These include increasing the maximum number of students in new and redeveloped schools; stronger emphasis on redeveloping schools; smaller, more intensely developed sites; changing and enforcing school catchments; increased partnerships with the private sector and more recycling of school assets to deliver better facilities.

Even with these reforms, the estimated cost of infrastructure needed up to 2031 is significantly more than the Department has been receiving to date. Without the proposed reforms, the Department will need much more again. The Department's funding estimates are conservative due to the scale of proposed reform, the radical change it represents, and the risks to implementation. At the time of the audit, the government had not committed to make available the funding needed to implement the Plan.

Even if the Department obtains additional funding, implementing such a major reform will be challenging. It will require effective collaboration between, and the support of, school communities, local government, potential private sector partners, the non-government schools sector and government agencies. Many risks will need to be mitigated, any of which could undermine the strategy and drive up costs.

Further savings beyond those already identified would be possible through changing operational policies on matters such as class sizes, operating hours, and single-sex, selective, sports and performing arts schools. Any changes to such policies have implications beyond just infrastructure cost and are likely to be even more controversial.

Asset planning and investment for much of the last decade has been deficient

Over the last decade, there has been chronic under-investment in NSW Government school infrastructure. This has affected both new works and maintenance of existing assets. Until recently, the Department did not have a high-level, long-term school asset strategic plan. The Department had limited understanding of the funds needed over the long term to provide the necessary school infrastructure to meet educational needs of students economically. It had no robust method to determine whether priorities were correct and assess whether the funding split between building, upgrading and maintaining was appropriate.

Permanent classrooms in 37 per cent of government schools are fully utilised, and 180 schools are operating beyond their permanent classroom capacity. The utilisation rates vary between regions and districts. Demountables are being used for extended periods to cater for permanent student population growth. A significant increase in the number of demountables at some schools decreased student access to amenities and open play spaces.

The Department now has a Plan to meet future needs

The Department recently developed a Strategic Plan designed to ensure that there are sufficient fit-for-purpose places for students where and when required up to 2031. The Strategic Plan outlines the:

- predicted demand for future learning spaces
- condition of existing infrastructure and additional infrastructure and maintenance required
- proposed new initiatives to deliver the required infrastructure economically
- proposed new cluster planning model to determine priorities and initiatives to be implemented at the school level
- funding needed to provide appropriate learning spaces where and when needed.

The Strategic Plan has been developed with the benefit of expert advice and has been reviewed extensively within the Department, by other key government agencies and experts. The review process examined the Strategic Plan's assumptions, data quality, proposals and cost estimation approach. This process has increased assurance and improved the Strategic Plan, but has delayed implementation by approximately a year so far.

Many more learning spaces will be needed

The Strategic Plan identifies that over the next 15 years the student population in government schools will increase by 21 per cent and that the Department will need:

- 7,200 additional classrooms and to upgrade many existing classrooms to meet future teaching and learning needs
- to undertake much more planned maintenance, otherwise 40 per cent of existing government school buildings will be in such poor condition that learning outcomes could be compromised.

The Department proposes a new approach designed to minimise costs

Given the need for substantial additional infrastructure and maintenance, and underfunding over the last decade, the Department has sought to minimise costs while maintaining quality.

Initiatives proposed include an increase in the maximum number of students in new and redeveloped schools; a stronger emphasis on redeveloping existing schools; smaller, more intensely developed school sites; strengthening partnerships with the private sector to improve school assets; and school consolidation and sale of surplus land to reinvest in better facilities. We did not identify any additional options that could be proposed to make further cost saving under current operational policy settings.

The proposed new cluster planning model will assess schools in a region or district to identify the best way to deliver school assets to a cluster as a whole rather than individual schools. It will identify the most effective and efficient asset solution within a cluster of five to 15 schools.

It represents an improvement over the previous model which addressed infrastructure needs on a school-by-school basis. The initial focus of school cluster planning will be on areas of highest student growth.

The proposed new cluster planning model has potential to create efficiencies and economies of scale if implemented well. Cluster planning will determine which of the various initiatives should be implemented in the schools in the cluster. It recognises that solving enrolment trends in one school requires consideration of surrounding schools and seeks the optimum asset solution for identified schools.

Implementation will be a major challenge

Effective implementation will require good collaboration with other government agencies, non-government schools, the private sector and the community. The Department has been improving its consultation with other government agencies and the non-government school sector, and has developed models for collaborating with the community and private sector. The Strategic Plan proposes open access to information, which will be important for effective collaboration and partnerships.

There are many risks to effective implementation, which could drive up costs. These include opposition from school communities, a reduction in the proportion of students educated in non-government schools, unexpected increases in land and construction costs, failure to sufficiently streamline the planning approval system or a blow-out in renovation costs in older schools.

To provide and maintain the infrastructure needed up until 2031, the Department estimates it will need significantly more money than it receives now even if it implements its initiatives and cluster planning effectively. It would require much more again if it was to retain its current approach to planning and delivering school infrastructure.

The current school infrastructure funding arrangement does not support effective long-term planning. A four-year commitment to education infrastructure funding does not provide the flexibility needed for the Department to manage its allocations and respond to changes in priorities or emerging challenges. The Health and Transport clusters receive a ten-year funding commitment, known as a capital planning limit.

Changing operational policies could increase school utilisation

Further significant cost savings are only likely if the Department changes some operational policies. Class size is a key determinant of the number of classrooms needed. Choice in school enrolment and the existence of single-sex, selective, sports or creative and performing arts schools all can lead to underutilisation of schools and classrooms because they are not accessible to all students.

Recommendations

The Department of Education should:

1. regularly revisit and evaluate the Strategic Plan to keep it contemporary, refine it based on learnings, update cost estimates to reflect actual results, and respond to available funding
2. work with NSW Treasury to develop a framework for partnering with the private sector
3. align Total Asset Management plans with cluster plans as they are developed
4. closely consult and collaborate with communities on implementation of the Strategic Plan

5. continue to collaborate with key government agencies, local government, the non-government school sector and the private sector on implementation of the Strategic Plan
6. publish detailed information on the status of assets, current and projected enrolments, and planned school projects to support effective consultation and collaboration
7. seek a ten-year capital planning limit from NSW Treasury
8. advise the government on options to change operational policies and practices to reduce infrastructure requirements.

Introduction

Background

Legislative requirement and government priorities

Under the *Education Act 1990*, the Department of Education is responsible for providing students with a place in a government school if parents desire it, and for providing high quality education.

Improving education outcomes of students is a NSW State Priority. Research shows that well designed and maintained facilities improve student learning outcomes. Also, evidence suggests that students learn less effectively in overcrowded schools.

A strategic objective of the 2014 State Infrastructure Strategy Update is to 'equip growing urban and regional populations with the modern schools and training infrastructure required to deliver educational services for a competitive, innovative economy'.

The Department therefore needs to ensure that it is planning effectively to provide sufficient, fit-for-purpose places in government schools for all students now and into the future.

NSW Government school portfolio

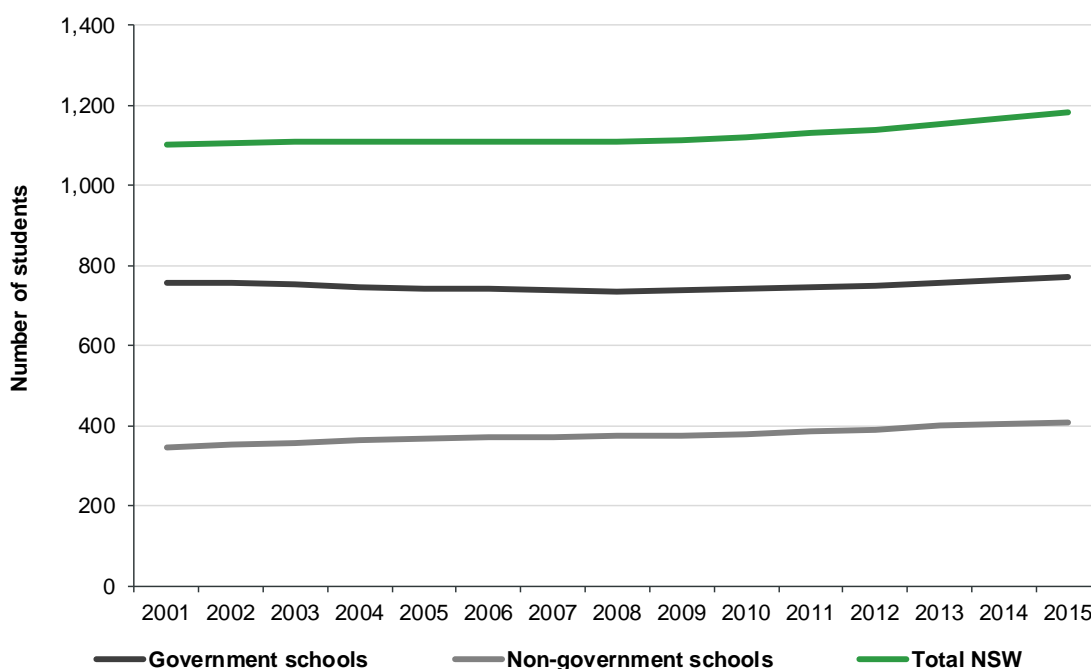
The Department is the largest provider of education in Australia with over 780,000 students enrolled in 2,211 schools across the state, including 1,606 primary schools, 401 secondary schools, and 66 central schools. Central schools provide a comprehensive education for children from Kindergarten to Year 12, and are usually located in areas of relatively low student population.

In 2016, the Department had over \$30 billion invested in school infrastructure and land throughout New South Wales, including approximately \$25 billion in built assets. The current footprint of the school portfolio is approximately 8.6 million square metres across around 27,500 buildings of varying condition, age and functionality. There are over 40,400 permanent classrooms and over 4,200 demountable classrooms in government schools.

Student population

Over the last 15 years, 81 per cent of the growth in the number of school students in New South Wales has been absorbed by non-government schools. Recently, the growth in non-government school enrolments has slowed while the growth in the school age population has increased. These factors are projected to result in a period of higher growth in government school enrolments over the next 15 years.

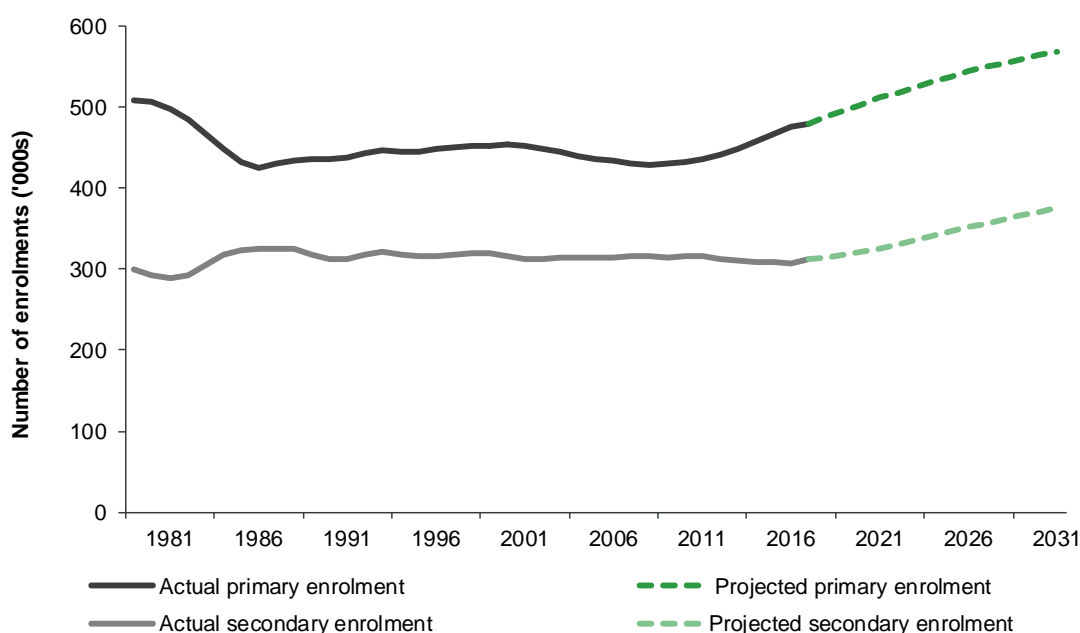
Exhibit 1: Student population in government and non-government schools



Source: Australian Bureau of Statistics, 2016.

By 2031, the student population in NSW Government and non-government schools is projected to grow by 21 per cent to nearly 1.5 million students. Over 80 per cent of this growth is expected in the Sydney metropolitan area.

Exhibit 2: Primary and secondary NSW Government students, 1980–2031



Source: Department of Education, 2016.

Long-term projections indicate that the student population in New South Wales will continue to grow beyond 2031.

Demographic changes and school planning

Population growth rates in New South Wales are highly localised, reflecting new suburbs and evolving patterns of where families live. The variability creates challenges for school infrastructure planning.

The first challenge is in the fast-growth areas of inner-Sydney where land is already at a premium. In inner-city areas with only small blocks available for schools, there is a need to develop different models for what schools should look like.

The second challenge occurs in the brand-new suburbs on the outskirts of Sydney. These areas will have long-term population growth and will need new schools.

The third challenge is in some regional areas, where the population is shrinking. Some schools will face eventual closure. There is a need to find ways to adapt to shrinking class sizes and fewer resources to offer a diverse and rich curriculum.

About the audit

This audit assessed whether the Department of Education has a strategy and implementation model to ensure it has sufficient fit-for-purpose student learning spaces when and where needed. In making this assessment, the audit examined whether the Department has:

- identified the demand for future learning spaces
- determined the infrastructure required to meet demand
- developed an implementation model to provide learning spaces when and where needed and to do so economically
- secured the funding needed to provide required learning spaces.

The audit focussed on:

- the Department's strategy and plans for delivering public school facilities up to 2031
- opportunities to implement public sector reform directions, including commissioning, collaboration, coordination, and partnerships.

The Department's response to the audit report is at Appendix 1. Further information on the audit scope and criteria is at Appendix 2.

Key findings

1. Estimating needs

The Department's assessment of future needs is robust. It shows that many more classrooms will be needed over the next 15 years, with many others requiring renovation to make them suitable for contemporary teaching and learning practices.

For much of the last decade, there has been chronic under-investment in NSW government school infrastructure. Asset planning has been deficient, although there have been recent improvements.

Many schools have more students than can be accommodated in existing classrooms. Demountables are being widely used for extended periods to cater for permanent student population growth, whereas they were originally meant to be used short-term to deal with temporary increases in student population. The condition of classrooms has been declining due to insufficient maintenance, and many are not configured to support contemporary and desired future learning and teaching methods. At the same time, the government school student population is predicted to grow further, particularly in Sydney.

The Department has developed a Strategic Plan to ensure that there are sufficient fit-for-purpose places for students where and when required up to 2031. The Strategic Plan includes forecasts of the demand for future learning spaces, an outline of the extent and condition of existing infrastructure, and an assessment of the additional infrastructure and maintenance required. The Plan shows that the Department needs to build and upgrade many more schools and do much more maintenance than in the recent past.

The information and modelling assumptions used by the Department to estimate the need for learning spaces have been subjected to an extensive review and independent verification process. This has provided a high level of assurance that the forecast infrastructure need is accurate. The downside is that the process has delayed implementation by approximately a year so far.

Recommendation

The Department of Education should regularly revisit and evaluate the Strategic Plan to keep it contemporary, refine it based on learnings, update cost estimates to reflect actual results, and respond to available funding.

1.1 Approach to planning

School asset planning is improving

In the past, the Department did not have a school asset strategy to support service delivery. Instead, it relied on the Total Asset Management plans (TAMs) which did not prioritise projects beyond the next four years. There was no link between a higher level infrastructure strategy and the projects listed in the TAMs. Capital expenditures and recurrent maintenance expenditures were not planned in an integrated way. The school regional asset management plans were not fit for purpose or regularly updated.

Demand for school infrastructure was based on five-year student enrolment forecasts and managed on a school-by-school basis. The Department did not have sufficiently robust processes to evaluate major capital works priorities and allocate funds. Infrastructure projects which satisfied a government election commitment, urgent enrolment need, and work health and safety issues were treated as highest priority.

In 2012, the Department restructured the Asset Management Directorate to create a planning unit. The restructure has led to the creation of a separate demography team to focus on

student population projections for the Department, a service planning team, a property section responsible for disposal and acquisition of assets, and a procurement unit.

In the same year, the Department adopted a life cycle costing system to provide an evidence-based approach to asset management. The system records asset condition and functionality so that maintenance, asset renewal and functional upgrades can be better planned, costed and prioritised.

The 2012 State Infrastructure Strategy proposed a new approach to accommodate the projected student population growth, including:

- accommodating more students through greater use of existing assets
- increasing the average size of schools
- developing a new classroom design for technology driven teaching methods and learning
- working with developers to expand school infrastructure
- increasing joint and share use of facilities
- joint school infrastructure planning with the non-government school sector.

The State Infrastructure Strategy Update in 2014 recommended the Department accelerate the finalisation of the school asset strategic plan to manage the projected capital expenditure requirements for teaching spaces up to 2031 and realign the Department's asset portfolio to better manage demands. The strategic asset plan was to explore new approaches to the provision of learning spaces, leverage partnerships and optimise existing resources.

New school assets strategy is evidence-based and has been reviewed extensively

In December 2015 in response to the State Infrastructure Strategy, the Department developed a draft school asset strategic plan (hereafter referred to as the Strategic Plan). This is the first comprehensive long-term infrastructure strategy produced by the Department.

The Strategic Plan sets the direction and framework for lower level plans and delivery of sufficient fit-for-purpose places for students where and when required up to 2031. The Strategic Plan outlines the:

- predicted demand for future learning spaces
- extent and condition of existing infrastructure
- additional infrastructure and maintenance required
- new initiatives proposed to deliver the required infrastructure economically
- new cluster planning model proposed to determine priorities and the particular initiatives which will be implemented at the school level
- funding needed to provide appropriate learning spaces where and when needed.

It has been updated since then to reflect the latest population projections, changes to the approach to meet the growing demands, and movements in costs for land and buildings.

The Strategic Plan is based on best available information and extensive research. It was prepared by experts and has been subjected to extensive external review and independent quality assurance. This has included verification and endorsement of the:

- forecast demand for future learning spaces
- analysis of the infrastructure required to meet demand
- proposed implementation model
- estimate of funding needed.

In April 2016, a review group was established to ensure the robustness of the Strategic Plan. The group was chaired by NSW Treasury and had representatives from the Department of Education, the Department of Premier and Cabinet, and the Department of Planning and Environment provided technical advice. As part of the review:

- the Department of Planning and Environment validated the robustness of enrolment projections
- the Department of Planning and Environment identified how the NSW planning system could be aligned with and better enable the delivery of the Strategic plan
- Infrastructure NSW conducted a Gateway review of school asset strategic plan cluster planning and an infrastructure capability assessment of the Department of Education
- an independent expert validated initiatives outlined in the Strategic Plan to deliver more efficient and effective asset solutions and identified additional options
- an independent expert assessed the Department's approach to asset maintenance
- NSW Treasury estimated the additional recurrent cost to meet forecast enrolment demand.

Following the review, the Strategic Plan was updated and its revised costs estimates were validated by an independent expert.

The review and verification process has increased assurance that the Strategic Plan is based on good information and sound analysis. It has also led to a reduction in the number of new and redeveloped schools proposed from 100 to 67, and greater use of modular classrooms than in the early draft. The estimated funding gap has remained approximately the same because the updated version has increased maintenance and land cost estimates.

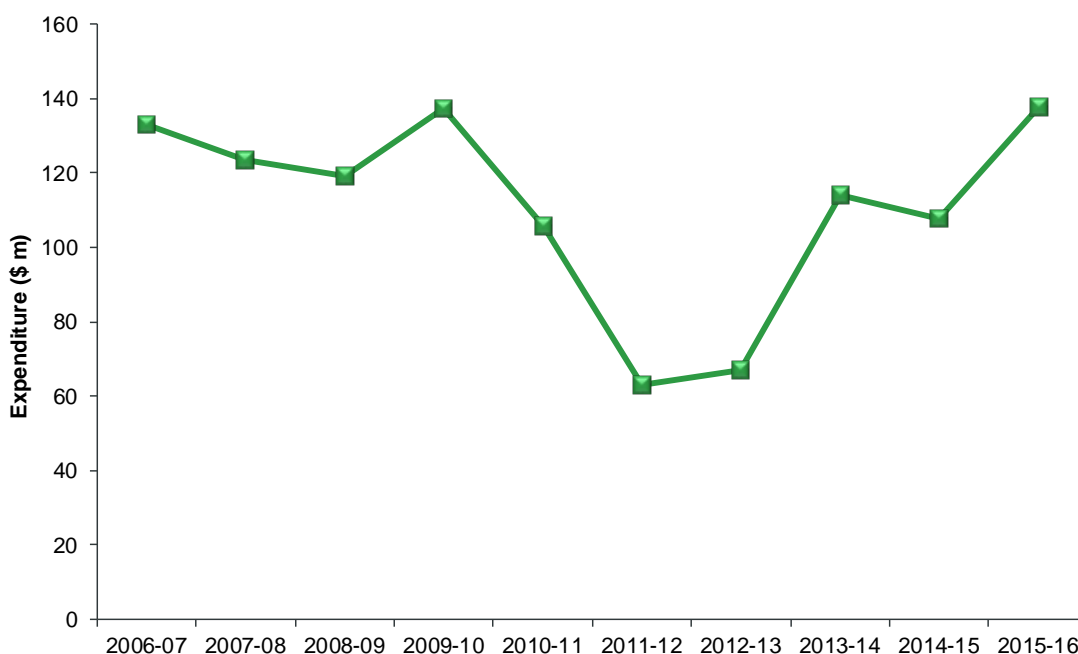
The review process delayed implementation by approximately a year so far.

1.2 Historical funding for school infrastructure

Over the last 10 years, there has been chronic underfunding of school infrastructure

The Department has been required to make savings from both major and minor works and to make difficult choices when prioritising projects to remain within the budget allocated. Consequently, critical infrastructure projects have constantly been delayed, creating an under-investment over several years. This resulted in critical infrastructure, particularly to cater for growth, being routinely deferred.

**Exhibit 3: Major capital works expenditure for government school infrastructure
2006–07 to 2015–16**



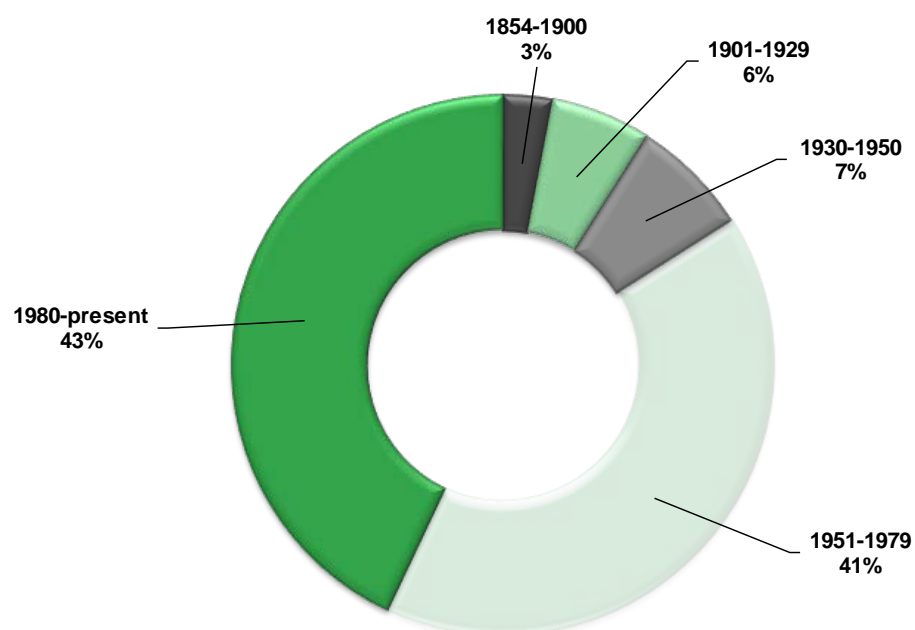
Source: Department of Education, 2016.

More planned maintenance and renewals needed

The Department will need to invest significantly more in planned maintenance of existing schools than in the past. In October 2016, the Department's backlog maintenance liability was estimated at \$775 million.

The average age of government school buildings in NSW is 46 years. Over coming years, a number of these assets will require renewal (replacement with like assets) as they reach the end of their life cycle.

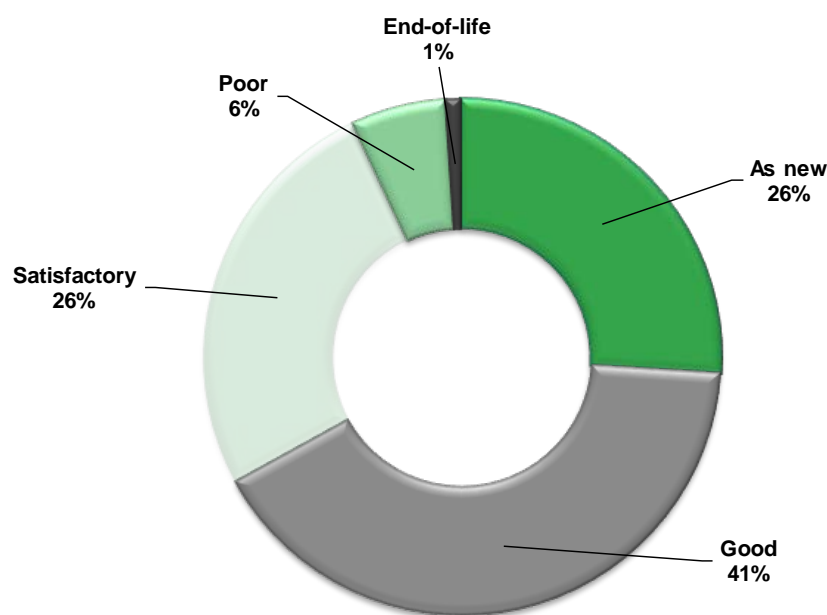
Exhibit 4: Eras of existing school buildings



Source: Department of Education, 2016.

Currently, seven per cent of school buildings are rated as poor or end-of life condition. The Department estimated that if maintenance funding levels are not increased, more than 40 per cent of government school buildings will be in poor or end-of life condition by 2031. School buildings that are in poor or end-of-life condition are safe but not fit-for-purpose.

Exhibit 5: Condition of school buildings, 2015



Source: Department of Education, 2016.

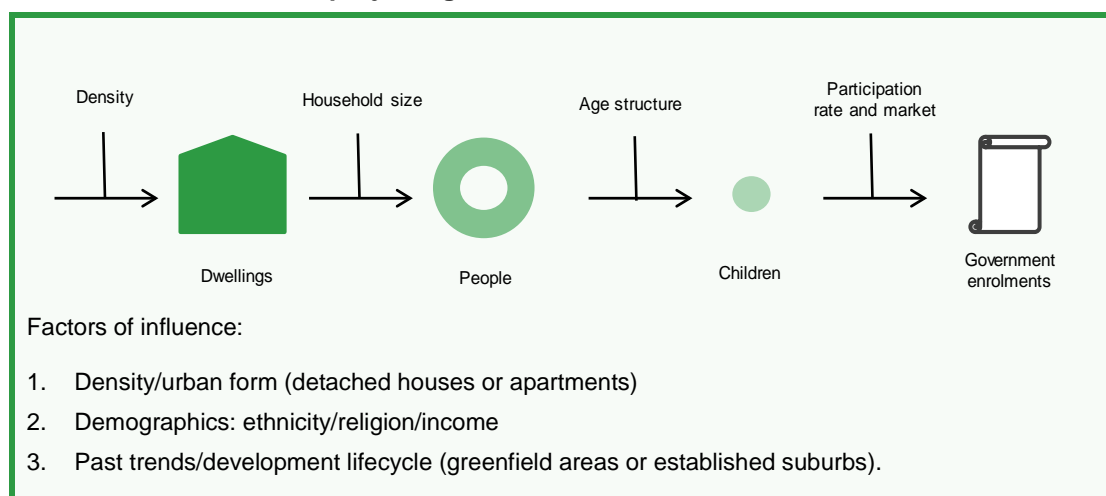
Based on expert advice, NSW Treasury recently agreed that the Department should target a long-term average benchmark for backlog liability at the current level of three per cent of the asset replacement value.

1.3 Student population projections

Robust, evidence-based student population projections are essential building blocks to support school infrastructure planning. Forecasting school enrolments can be challenging because enrolments are driven by a range of demographic and other factors.

Exhibit 6 shows a framework for projecting school enrolments. It highlights four key steps in translating data on a given housing development area into population, children and enrolments.

Exhibit 6: Framework for projecting school enrolments



Source: SGS Economic and Planning, 2014.

Several factors can influence one or more of these steps and impact the number of enrolments. For example, two areas with a similar number of dwellings could have significantly different urban forms (detached houses versus apartments). Different urban forms can impact directly on the type of occupants, producing different enrolment demands.

The Department has a good methodology for student population projections

Changes in population profiles, particularly in the Sydney metropolitan area, are more dynamic now than in the past. To ensure assumptions and methodologies used in the modelling process are appropriate, the Department regularly evaluates its student population projections. The latest evaluations have shown that the new methodologies provide more accurate projections.

In 2016, the Department of Planning and Environment validated and confirmed that the Department of Education uses an appropriate method, including assumptions, to produce student population projections. This independent review found the Department's method of producing enrolment projections to be highly accurate.

The recent NSW Upper House report on 'Inner city public primary school enrolment capacity and redevelopment of Ultimo Public School' recommended that 'the Department subject its demographic projections to a regular third party review process.'

In developing projections, the Department uses the following sources of data:

- the Department of Planning and Environment population and dwelling projections, and housing supply forecast for the next 15 years
- Australian Bureau of Statistics data
- Medicare data on children aged zero to five years old
- government school enrolment data
- non-government school enrolment data.

The sources of data are similar to those used in Queensland and Victoria to forecast government school enrolments.

For the purpose of school infrastructure planning, the Department has aligned its districts and regions with the Department of Planning and Environment districts and regions.

The Department has also undertaken research to identify the impact of the increase of medium to high density housing on the student population.

To further improve the accuracy of the projections, the Department is:

- working closely with the Department of Planning and Environment, Greater Sydney Commission, non-government school sector and Data Analytics Centre
- developing a new population projection modelling tool
- planning to review its data sets every two years
- planning to obtain more information on non-government school assets and their utilisation rate
- supporting a leading demographic academic to apply for an Australian Government Research council grant to evaluate the Department's demography processes and ensure that they meet international best practice.

The reliability of the Department's student population projections depends on the accuracy and timeliness of population and dwelling projections provided by the Department of Planning and Environment and the Greater Sydney Commission. The Department has communicated to these agencies the potential efficiencies arising from scheduled provision of more accurate data. Frequent and unscheduled changes in population or dwelling projections require the Department to redo its analysis.

The NSW Upper House report on 'Inner city public primary school enrolment capacity and redevelopment of Ultimo Public School' commented on the need for:

A more coordinated approach to education and planning strategies that ensures that school building programs are determined with the most up-to-date and accurate information on development pressures.

The Department advised that now it takes a 'place based' approach to schools planning so that its staff are in touch with local demographic and development trends. School asset planners are in regular contact with Urban Growth NSW, Landcom, the Greater Sydney Commission, NSW Land and Housing Corporation, the Department of Planning and Environment, Transport for NSW and local councils to obtain information on local growth issues to supplement the latest population forecasts from the Department of Planning and Environment. The Department prioritises its approach to schools planning according to the Districts and Regions under the greatest development pressure.

Over 80 per cent of enrolment growth is expected in the Sydney Metropolitan area

The Department has projected that by 2031 the student population in government schools will increase by 21 per cent.

Exhibit 7: NSW Government student population in 2016–2031

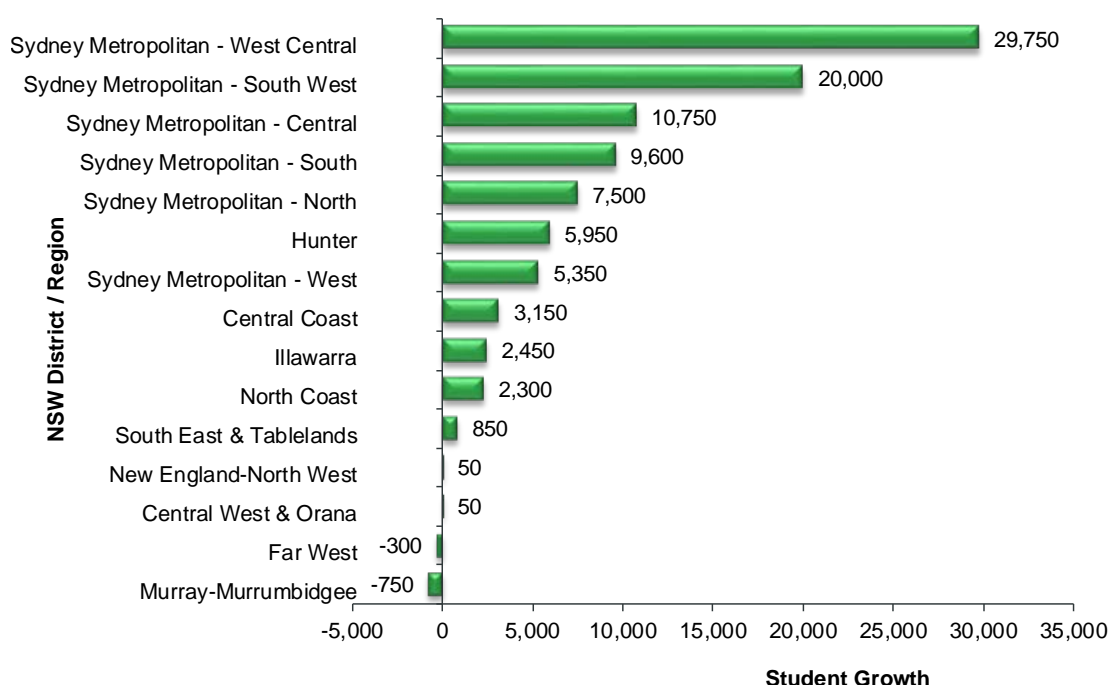
	2016	2031 forecast	Change 2016-31	Change 2016-31
	Number	Number	Number	%
Primary school students	472,317	569,000	96,500	20
Secondary school students	308,271	375,500	67,500	22
Total students	780,588	944,500	164,000	21

Source: Department of Education, 2016.

Over 80 per cent of the growth is expected to occur in the Sydney Metropolitan area. The West Central and South West Sydney districts are likely to have the strongest growth. Outside of Sydney, the highest growth is expected in the Hunter Region. The location of districts and regions are shown in Appendix 3.

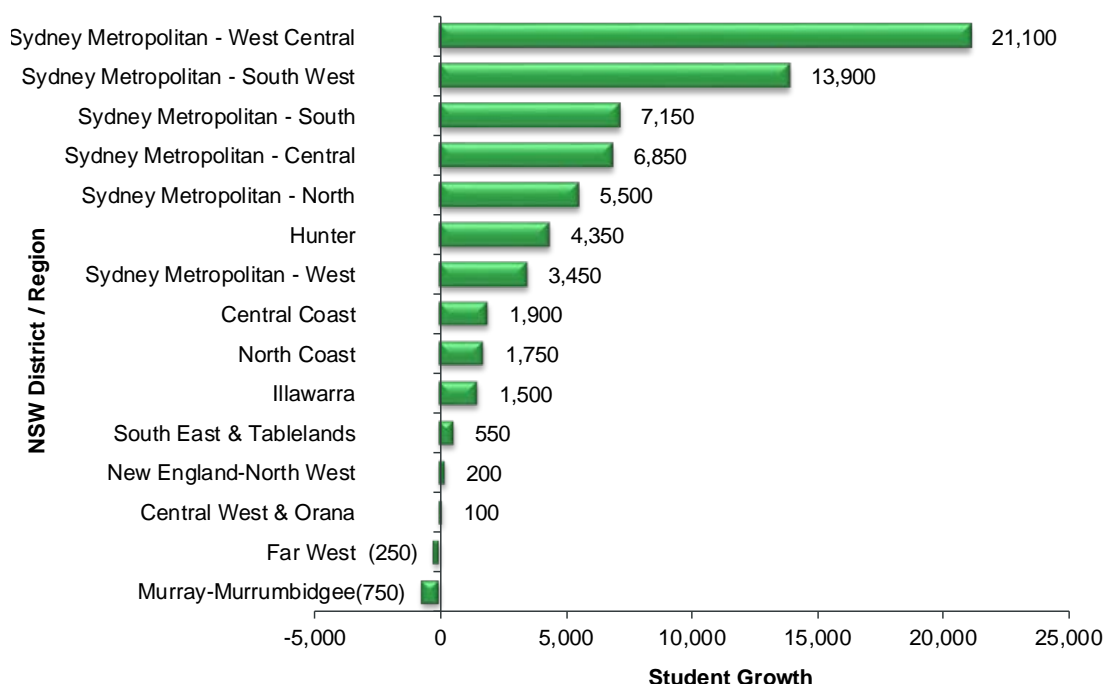
The projected changes in the number of enrolments in primary and secondary schools by district/region are shown in Exhibits 8 and 9 respectively.

Exhibit 8: Government primary students change 2016–2031



Source: Department of Education, 2016.

Exhibit 9: Government secondary students change 2016–2013



Source: Department of Education, 2016.

1.4 Current assets and their utilisation

The Department has robust and timely data on school assets

The Department regularly assesses the condition of school assets using industry standards, and functionality against internationally recognised factors impacting education outcomes. This information is stored in the Department's asset management system and is used for life cycle costing.

The asset management system is a primary repository for all school infrastructure data. The system holds data and spatial information on sites, facilities, programs of capital and maintenance works, facilities management data and compliance, and demountable accommodation.

This system allows assets to be viewed spatially at a local level with site and building plans, and at a strategic level in relation to other features including school transport networks, school catchment areas and demographic data on population, housing development, education, industry and occupation. It provides support for the planning, funding and prioritisation of decisions across all asset categories.

The asset management system is regularly updated and enhanced to improve the depth and accessibility of asset information.

An independent, expert review confirmed that the Department uses good practice asset management systems and processes, and the life cycle costing approach is detailed and data driven. Infrastructure NSW also found the Department's asset management framework was comprehensive and supported the life cycle costing approach.

The Department manages a large number of assets

The Department provides teaching and learning spaces to over 780,000 students in 2,211 schools across the State. The distribution of classrooms by type of school is shown in Exhibit 10. Demountables constitute 9.5 per cent of classrooms (13 per cent of primary school classrooms and five per cent of secondary school classrooms).

Exhibit 10: Government school classrooms, 2016

Classrooms	Primary schools	Secondary schools	Total
	Number	Number	Number
Permanent	21,181	19,259	40,440
Demountables	3,144	1,089	4,233
Total	24,325	20,348	44,673

Source: Department of Education, 2016

Over a third of government schools operate at or over capacity

Classroom utilisation depends on several factors including the age group of students as well as the availability of permanent classrooms and their geographic location. Classroom utilisation in schools is also affected by the number of students that present for enrolment at the beginning of the year and the required student to teacher ratios.

The classroom utilisation rate in New South Wales Government schools has been increasing since 2012. In 2015 across the state and all school categories, government schools had 93 per cent utilisation of permanent classrooms. The utilisation rate was 85 per cent across all categories when demountables were included.

The utilisation rate varies between school categories as presented in Exhibit 11.

Exhibit 11: Permanent classrooms utilisation rate, by school category, by calendar year 2011–2015

School category	2011	2012	2013	2014	2015
Infants	1	1.03	1.07	1.07	1.08
Primary	0.98	0.97	0.97	0.99	1
Central	0.78	0.77	0.76	0.75	0.75
High	0.87	0.86	0.86	0.87	0.85
Specific Purposes	1.18	1.16	1.18	1.1	1.07
Total	0.92	0.91	0.92	0.93	0.93

Note: Infants schools provide education for children from Kindergarten to Year 2.

Central schools provide a comprehensive education for children from Kindergarten to Year 12.

Schools for Specific Purposes are for students from Pre-school to Year 12 who require intensive levels of support.

1 means permanent classrooms are fully utilised.

Source: Department of Education, 2016.

Currently, the majority of government schools have sufficient short-term capacity in permanent and demountable accommodation to meet immediate education needs. However, permanent classrooms in 37 per cent of government schools are fully utilised, and 180 schools are operating beyond their permanent classroom capacity. The utilisation rates vary between regions and districts (see Appendix 4). For example, in the Sydney Metropolitan region's North District over 75 per cent of primary schools are operating at or over capacity of their permanent classrooms. Also, in this District all primary schools in Manly, North Sydney, Pittwater and Willoughby local government area are at or over capacity which impacts on the Department's ability to manage demands. On the other hand, only five per cent of primary schools in the Far West Region are operating at or over capacity of their permanent classrooms and the student population is expected to decline.

Demountable accommodation in government schools is designed to be short-term and to meet changes in enrolment demand, emergency accommodation needs and temporary relocation requirements. Demountables were originally meant to be used for periods no longer than seven years, but in practice they have been used for much longer periods. A significant increase in the number of demountables at some schools has resulted in decreased access for students to amenities and open play spaces.

Exhibit 12: Schools operating over capacity

Cammeray Public School

Cammeray Public School contained 37 teaching spaces to accommodate its 967 students in 2016, made up of 27 permanent and 10 demountable classrooms. Based on the nominal class size of 23 students, the permanent accommodation capacity comprises 621 students.

The demountable classrooms are placed on the school playground area reducing access to free play space for students. The school is positioned on a site of 1.34 hectares, which is irregular in shape, further impacting on the useful nature for positioning of buildings and designated play space.

All the neighbouring schools within five kilometres are also beyond permanent capacity. These schools are Neutral Bay PS, North Sydney PS, Northbridge PS, Middle Harbour PS, Willoughby PS, Artarmon PS, Greenwich PS and Mosman PS.

Source: Department of Education, 2016.

1.5 Infrastructure gap

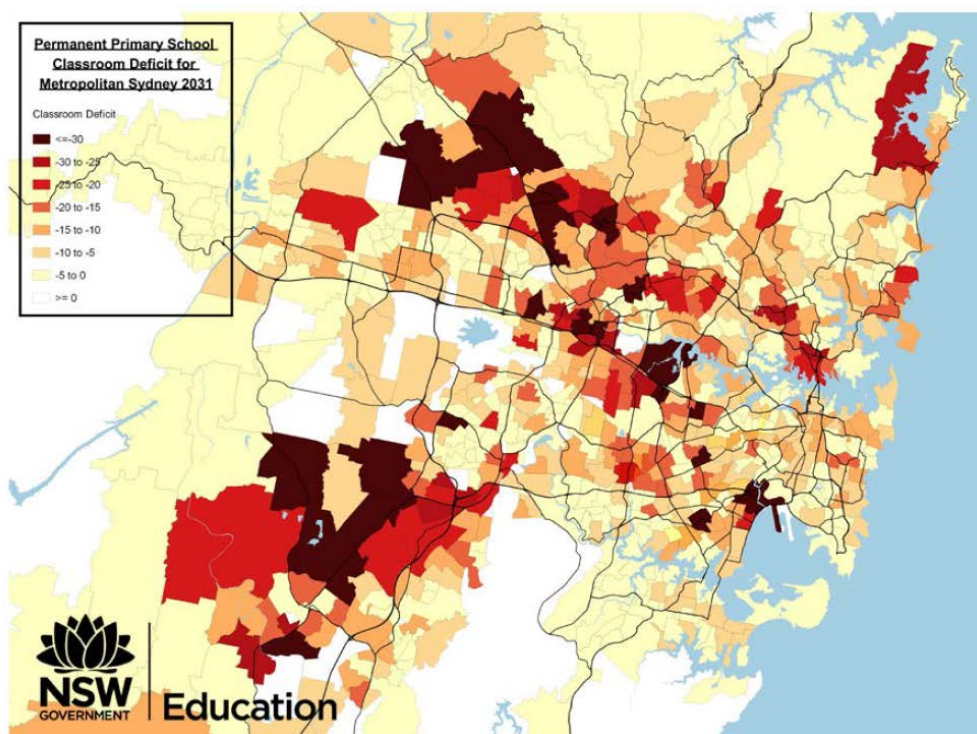
Many more classrooms will be needed, with many others requiring functional upgrades

To meet the projected student population growth by 2031, the Department has estimated it will need:

- 7,200 additional classrooms in total
- 3,682 additional classrooms in primary schools
- 3,518 additional classrooms in secondary schools.

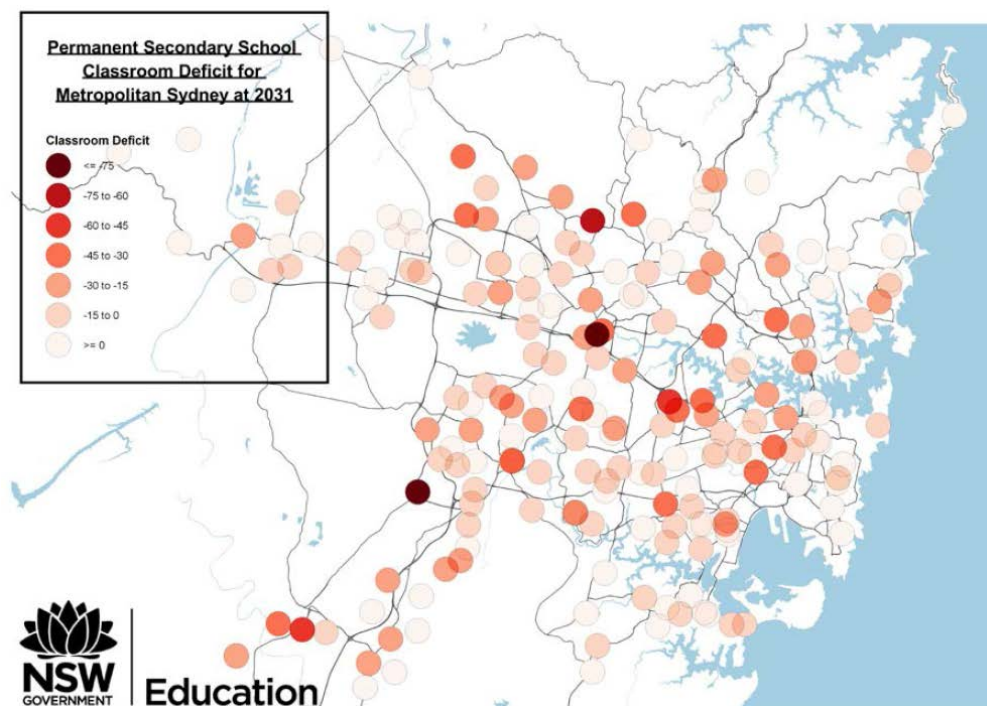
In the Sydney metropolitan area, the highest classroom deficit is expected along the Parramatta Road corridor and in the North West and South West growth centres. See Exhibits 13 and 14.

Exhibit 13: Forecast permanent primary classroom deficit at 2031



Source: Department of Education, 2016.

Exhibit 14: Forecast permanent secondary classroom deficit at 2031



Source: Department of Education, 2016.

Future learning will require new and innovative school and classroom design. Existing and future schools will need to include connected teaching and learning spaces that enable flexible, collaborative and problem-based teaching and learning.

The Department has over 41,000 permanent classrooms and learning spaces, such as libraries, across 2,211 government schools. The majority of these were built in the 19th and 20th centuries. The Department needs to upgrade many of them to provide flexible and technology rich environments that will adapt to future teaching and learning needs.

Exhibit 15: Future learning



Features of future learning spaces include:

- mobile, touch sensitive screens, allowing students to engage with learning materials
- Wifi and software allowing all devices in a room, including tablets and laptops, to interact
- writable walls and surfaces encouraging students to investigate and collaborate
- lightweight, flexible furniture that can be easily moved around by teachers and students, creating functional spaces for individual and team work.

Source: <http://www.nsw.gov.au/innovative-education>.

2. Addressing needs

The Department proposes a significant change in approach to planning and delivering school infrastructure to provide sufficient, appropriate learning spaces up to 2031 economically. While based on evidence and reviewed extensively, the approach may be controversial for school communities and will require extensive, effective collaboration.

Given the need for substantial additional infrastructure and maintenance, and underfunding over the last decade, the Department has sought to minimise costs while maintaining quality.

Initiatives proposed include an increase in the maximum number of students in new and redeveloped schools; a stronger emphasis on redeveloping existing schools; smaller, more intensely developed school sites; greater involvement of the private sector in planning, building and ongoing management of schools; and school consolidation and sale of surplus land to reinvest in better facilities. We did not identify any additional options that could be proposed to make further cost saving under current operational policy settings.

The Department proposes to implement cluster planning to determine which of the various initiatives should be implemented in schools within a cluster. It recognises that solving enrolment trends in one school requires consideration of surrounding schools and seeks the optimum asset solution for identified schools. Up to now, decisions have been made on a school-by-school basis.

The proposed reforms and cluster planning, if implemented effectively, will be more economical than past approaches. They have been validated by independent experts engaged by NSW Treasury and the Department of Premier and Cabinet.

The Department has estimated that it will take five years to develop plans for all clusters. The plans will refine the infrastructure requirements and costs, which will need to be reflected in the Department's Total Asset Management Planning.

The strategy embodied in the Plan may be confronting for the community, and implementation will be a major challenge. Effective implementation will require good collaboration with other government agencies, non-government schools, the private sector and the community. The Department has been improving its consultation with other government agencies and the non-government school sector, and has developed models for collaborating with the community and private sector. The Strategic Plan proposes open access to information, which will be important for effective collaboration and partnerships.

Recommendations

The Department should:

- work with NSW Treasury to develop a framework for partnering with the private sector
- align Total Asset Management plans with cluster plans as they are developed
- closely consult and collaborate with communities on implementation of the Strategic Plan
- continue to collaborate with key government agencies, local government, the non-government school sector and the private sector on implementation of the Strategic Plan
- publish detailed information on the status of assets, current and projected enrolments, and planned school projects to support effective consultation and collaboration.

2.1 Proposed reforms

A significant change in approach to delivering school facilities

The Strategic Plan proposes a new and more economical approach to reduce the need for additional schools and address the need for functional upgrades, maintenance and renewals.

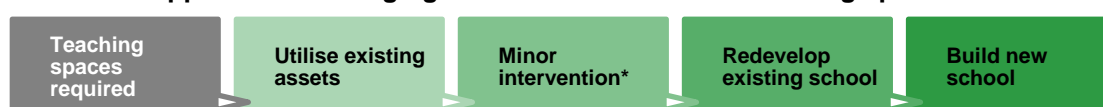
This involves more flexible use of school assets, increased use of modular classroom buildings, the provision of larger schools on existing sites, the clustering of schools and freeing up assets to fund essential infrastructure elsewhere.

The initiatives included in the Strategic Plan are research and evidence-based. They support government reform directions, including improving property asset utilisation, commissioning and contestability, collaboration, and partnerships. Several of these initiatives are already being implemented in other Australian jurisdictions.

NSW Treasury, the Department of Premier and Cabinet, and the Department engaged a major international consultancy firm to assess options for meeting the Department's infrastructure needs. The initiatives in the Plan reflect its advice.

The successful implementation of the approach depends on the Department's ability to prioritise interventions based on risks and select appropriate initiatives for individual locations. Also, the Department needs to work with key stakeholders to make some of the initiatives feasible.

Exhibit 16: Approach to managing demands for additional teaching spaces



* Minor intervention includes installing demountables and modular buildings.

Source: Department of Education, 2016.

Under the new approach, a significant proportion of enrolment growth will be absorbed by replanning and redeveloping existing sites. The approach also includes a suite of other initiatives designed to better manage changes in student population, including:

- improving classroom utilisation
- increasing the use of modular classroom buildings
- increasing the maximum number of students that can be enrolled in each new and redeveloped school
- building larger schools on smaller sites
- consolidating existing assets
- increasing partnerships with the private sector on a site-specific basis where mutual benefit can be achieved
- increasing joint and shared use of facilities.

This new approach is expected to reduce the need for new and redeveloped schools by 2031 to the equivalent of 67 schools. If this approach is not adopted the Department would need to build 215 new schools in the next 15 years. The majority of these schools would be in Sydney where the cost of land is high and suitable new school sites are scarce.

Greater utilisation of existing classrooms

As the first step in managing demand, the Strategic Plan proposes adjusting and enforcing catchment boundaries to improve classroom utilisation rates.

While this is a very cost-effective method to manage growing demands, it may not apply to some high growth areas where neighbouring schools are already at their capacity. Also, some old schools have classrooms with small capacities and cannot safely accommodate additional students, such as classrooms in Manly Village Public School shown in Exhibit 17.

Exhibit 17: Examples of small classrooms



Source: Audit Office of NSW, 2016.

Increasing the use of modular classroom buildings

To manage short-term surges in demand, the Department will continue to use demountable classrooms. Where growth is expected to continue beyond seven years, a modular classroom solution will be used. Modular classroom buildings are:

- more cost effective and quicker to deliver than traditional classrooms
- designed as permanent solutions
- space efficient
- designed to support future learning
- environmentally sustainable
- accessible for people with disabilities.

A four-classroom block modularised in two stories offers the same capacity as four demountable buildings but uses less space and has a higher quality finish.

Modular classrooms are already being used in some government schools in New South Wales.

Exhibit 18: Modular classroom buildings Artarmon and Chatswood Public Schools



Source: <http://fleetwood04.businesscatalyst.com/education-products>

Redeveloping existing sites

In Victoria, there is no specified limit on the use of demountable and modular classroom buildings in a government school. The Victorian Department of Education and Training is already using three-storey modular buildings.

Managing demands using demountables and modular buildings will constitute minor intervention.

Where enrolment growth at particular schools requires increases in the number of teaching spaces and modification of core facilities (libraries, toilets, gymnasiums, halls, offices) or

where demountable and modular buildings will restrict play space excessively – the Department will implement different solutions.

Redeveloping existing schools

The Strategic Plan proposes to redevelop some existing school sites, particularly in Sydney, to increase their capacity and reduce the need for new schools. The redevelopment will also address maintenance backlogs and improve functionality, including provision of future learning spaces.

The redevelopment may require demolishing existing small schools and building new, larger schools especially where schools have grown over time with poor usage of available space.

Building larger schools on smaller sites

The Strategic Plan proposes to increase the enrolment capacity of new and redeveloped schools to 1,000 students for primary schools and to 2,000 students for secondary schools. It also proposes to reduce the school site sizes:

- to 1.5 hectares for primary schools and 2.5 hectares for secondary schools in highly urbanised areas
- to two hectares for primary schools and four hectares for secondary schools in Sydney greenfield and regional areas.

Exhibit 19: Concept designs of vertical schools



Source: <http://www.nsw.gov.au/innovative-education>.



Source: <https://urban.melbourne/development/2016/08/10/victorias-first-vertical-school-rise-south-melbourne>.

To ensure that schools can provide an adequate learning environment, the Department has developed school site planning standards. For example, the standards set the minimum play space at 10m² per student to inhibit the over-development of school sites. Schools on small sites will be provided with access to free play space in adjoining play fields and parks through joint use agreements. Also, vertical schools will have built in play spaces and play spaces on rooftops.

Vertical schools on smaller school sites are also being introduced in Victoria and Queensland.

The Department has advised that in 2017 it operated 13 primary schools with over 1,000 students, but these schools have not been designed to meet the requirements of the new school site planning standards.

Consolidation of existing school assets

The Department's land holdings exceed 8,800 hectares across the State and are currently valued at \$7.5 billion. It is planning to manage these holdings to reduce costs and optimise returns.

In some cases, the Department will consolidate schools where student numbers are in decline and utilisation rates are low.

The Department is planning to reinvest money from the sale of surplus assets to upgrade functionality of the consolidated schools and/or to build new schools. It is planning to allocate these funds to meet school requirements within the regions and district from which the funds were generated.

Greater involvement of the private sector in provision of school facilities is proposed

Typically, government buys new land for a school once developers have added significant value and the intention to build a school is announced. This lifts the value of surrounding land, which in turn increases what the Department pays for a school site. The Department proposes to work with the Office of Strategic Lands to purchase and hold land for future school sites well in advance of plans to build a school. This is likely to save it money.

Recognising that schools can add value to surrounding developments, the Department is talking to the Department of Planning and Environment about application of levies in priority growth precincts so developers contribute towards the costs of schools.

The Department is also working with NSW Treasury to establish a framework for direct negotiation with private sector developers in subdivisions where a new school is warranted and the developer has sole control of the development. In such a case, a school may be built earlier than planned if the developer contributes land and capital. The school could be staged over time so that its core facilities are built early to support the school's future capacity and classrooms added in stages as the surrounding population grows. At present, the only way for a developer to engage with the government on these types of opportunities is through an unsolicited proposal.

The inherent land value of some schools could be used to upgrade and modernise facilities. This model may involve a subdivision of land, strata or stratum separation of the ownership of the school and private sector facilities. It may seek to capture the value a private partner can create from their facilities to fund capital costs for a school.

Previously, NSW school Public Private Partnerships (PPPs) contracted school design, construction and facilities maintenance to private sector partners. The State accepted the additional cost of private finance in return for the discipline it would bring to manage budget and construction risk. In these traditional PPPs, the State provided the private sector with detailed input specifications about the size, fitout, condition and quality of the asset. This level of specification limited the opportunity for the private sector to adopt innovative approaches. The Department advises that the previous school PPP approach was not economical over the longer term.

Joint and shared use of facilities must increase

Providing facilities economically will also require greater joint or shared use of school and community facilities. Joint use involves a school sharing and funding facilities with a partner organisation, such as managing a sports ground with a local council. Shared use is where a school controls a facility on its grounds but allows related community use during out-of-school hours.

Through these arrangements, there is an opportunity to minimise duplication of facilities and maximise use of valuable community assets. Facilities that the Department considers for joint and shared use include:

- sports ovals
- game court spaces
- libraries
- halls.

There are already several examples of government schools benefiting from joint and shared use agreements.

2.2 Implementation planning and prioritisation

Implementation model good in design

The Department is implementing a cluster planning model to manage growing demands for school assets. Cluster planning represents an improvement over the previous model which addressed infrastructure needs on a school-by-school basis.

Infrastructure NSW concluded in June 2016 that:

The current cluster planning approach provides a sound methodology for identifying the optimum solutions for new school buildings to meet forecast increased public school enrolments.

A review conducted in August 2016 by an independent NSW Government agency endorsed the cluster planning approach and progress to that time.

Also, the recently published NSW Upper House report on the 'Inner city public primary school enrolment capacity and redevelopment of Ultimo Public School' concluded that:

A cluster model is plainly more efficient and offers the Department great flexibility in managing fluctuating demand, which is particularly important in an area as densely populated as inner city Sydney.

The report also acknowledged that local schools provide a sense of community, and it was important that the cluster model places an emphasis on connecting schools with their immediate neighbourhood and community.

Cluster planning begins with a place-based approach which aligns school asset planning with the regions and districts used by the Greater Sydney Commission and the Department of Planning and Environment. Each of the 15 regions/districts will have between six and 31 clusters. Each cluster will have between five and 15 schools.

Cluster planning will then assess schools to identify the best way to deliver school assets for a cluster as a whole. The Department intends to prioritise plans in areas of highest need, overseen by a senior officer Education Assets Steering Group.

Cluster planning will include a review of the cluster demographic trends, asset condition, available school site sizes, redevelopment and consolidation opportunities, traffic issues, and joint use agreement and property development opportunities. It will also consider the location of non-government schools and any consequential opportunities for partnerships.

School cluster planning will focus on establishing and managing a day-to-day planning framework which will produce evidence-based plans. Six core principles will guide cluster planning:

1. supporting NSW Government reforms
2. supporting educational policy and operating settings
3. implementing minimum standards (school site planning standards)
4. prioritising planning and funding
5. applying consistent methods and tools
6. strengthening reporting and transparency.

A key challenge the Department faces is that areas under most enrolment pressure are those with high property values, where schools are often on smaller sites with heritage buildings. To meet this challenge, cluster planning will consider solutions such as:

- changing boundaries
- using school space more efficiently
- building some modular classroom buildings

- adapting existing schools
- developing schools near open space
- improving school designs
- building some high-rise schools
- changing land zoning practices
- reusing surplus land
- partnering with other organisations
- identifying opportunities for private sector involvement
- combining some schools
- learning from other jurisdictions.

These options and issues will be built into the Department's asset management system and a sophisticated school planning tool. The Department has asked Infrastructure NSW to undertake a health check review of the school planning tool to provide independent assurance that it will be effective.

Clusters will absorb as much growth as possible by redeveloping existing school sites. This is more complex to achieve than building a new school, but the Department's analysis shows that cluster planning will help to save around 30 per cent of costs compared to a business as usual approach for individual projects.

Funding allocated for growth-related projects will be prioritised at a district and regional level reflecting the relative percentage of growth aggregated at a local government level.

While responding to growth will be the funding priority, the Department is planning to allocate a baseline level of funding for renewal or upgrade programs across all regions and districts, even in areas with negative growth. This funding will be based on square metres of built assets and student enrolment numbers.

Cluster planning is at an early stage

School cluster planning is a new concept in New South Wales. The Department intends to evaluate cluster plans and school asset projects regularly. It has already developed performance metrics for this purpose.

Cluster planning is at a relatively early stage of implementation. To this point, the Department has prepared a few cluster plans to address the most pressing needs. It estimated that it will take five years to develop plans for all clusters. Plans for clusters with highest needs will be developed first. Cluster plans will have a 15-year horizon. They will refine the number and the cost of new and redeveloped schools needed and reflect this in the Department's Total Asset Management plan.

Strong governance arrangements will be needed to minimise risk and obtain the full potential benefits of cluster planning as quickly as possible. The Department has established an Education Asset Steering Group to oversee and ratify decisions across high priority and high risk cluster plans, capital works and maintenance activities. The Group members include relevant deputy secretaries and executive directors.

Also, the Department has commissioned an expert consultant to review cluster planning governance arrangements and identify areas for improvement.

The Department is working with NSW Treasury and Infrastructure NSW to develop a new assessment method and assurance process suitable for cluster planning. There is an argument that independent assurance should be on a cluster basis rather than the project-by-project basis as at present.

The Department has been allocated \$10 million to implement cluster planning and develop cluster plans over the next two years. To stay contemporary, cluster plans will need to be updated annually but the Department has not yet been allocated funding for this purpose.

2.3 Consultation, partnership and collaboration

The different approach to design and delivery may be confronting for the community

The proposed approach to design and delivery outlined above represents a significant departure from current practice.

There is a risk that some communities may not support such an approach. This could delay or stop implementation at some schools which is likely to increase costs, given the traditional approach to delivery is more expensive than the proposed approach.

Exhibit 20: Case study - Community opposition at Ultimo Public School

In 2012, following the revitalisation of the Pyrmont and Ultimo areas, the Ultimo Public School community was asked to consider a high-rise development as a potential solution to pressures created by surging enrolments. The proposal was for a four-storey school with residential units above it and a separate neighbouring residential unit tower.

The sharing of the site would have enabled private sector involvement and facilitated a cost neutral solution to enrolment pressures.

As the proposal was potentially controversial, there was extensive community consultation and an engagement plan early in the process. However, there remained fierce opposition and considerable community backlash.

The government reassured the community that the development would not go ahead without community approval. Following unanimous rejection by the school's Parents and Citizens group, it was abandoned.

Source: Paxton Group, 2015.

The proposed approach to consultation with the community represents good practice

Effective implementation will require community engagement to communicate the problem and the need for change. To support this process, the Department is planning to:

- develop a consultation and communication methodology to engage communities
- develop an internet cluster planning portal with open access to data, such as enrolment trends, school use rates, asset condition and planning expenditure
- use independent facilitators for cluster plans considered as high risk to ensure it responds to views of school directors, principals, parents and citizens' committees and broader school communities during the planning process.

The Department has developed a communication and consultation framework to engage school communities. The framework adopts a best practice approach developed for consultation practitioners by the International Association of Public Participation. When implemented, it will:

- help participants to understand, assess and make more informed decisions
- enable community input into the school cluster planning process
- set clear parameters around the intent of consultations, including what is and what is not consulted on
- provide clear information about how information and feedback is considered in planning and decision-making.

Queensland and Victoria are also facing significant growth in student population. To better engage their respective communities, the Departments of Education and Training in Victoria and Queensland increased the level of information publicly available on the infrastructure needs and their approach to address it.

Exhibit 21: Community engagement in Victoria and Queensland

Victoria	<p>School Building Authority</p> <p>To improve on community consultation, the Victorian School Building Authority:</p> <ul style="list-style-type: none">• has a dedicated web site which provides information on local projects across the state (http://www.schoolbuildings.vic.gov.au/)• uses Facebook and Twitter to inform communities about the latest developments in delivering school projects• is recruiting qualified staff to develop and implement community engagement and communications strategies.
Queensland	<p>Dynamic demand map</p> <p>Queensland has developed dynamic 'demand maps' showing the areas where new school places will be required over both a ten-year and twenty-year timeframe.</p> <p>The maps and associated data have been publicly available since 2015. This information helps the Queensland Department of Education and Training negotiate with the local communities on new schools provision.</p>

Source: Audit Office research, 2016.

The Department has been strengthening collaboration with key stakeholders

Collaboration is the essence of cluster planning, bringing together government agencies, non-government schools, local government, the private sector and the community. Partnerships with a range of organisations will increase the Department's abilities to:

- better predict future trends and infrastructure needs
- leverage assets
- better use resources
- reduce costs
- develop cost-effective procurement methods.

In developing the Strategic Plan, the Department has already strengthened collaboration with other NSW agencies and closely consulted with private sector stakeholders.

Many initiatives proposed in the Strategic Plan require changes to policies and legislation which are outside the Department's control. The Department has worked closely with the Department of Planning and Environment to promote the development of an Education State Environment Planning Policy to support education establishments meeting growth in school enrolments.

To optimise school asset solutions, the Department is planning to:

- work closely with the Department of Planning and Environment to coordinate infrastructure planning as part of regional plans across the state
- coordinate district planning in metropolitan Sydney with the Greater Sydney Commission and the Department of Planning and Environment
- liaise with the Office of Strategic Lands and Property NSW to reduce the cost by purchasing land earlier in the precinct development process
- liaise with Transport for NSW on transport issues associated with new, larger schools
- work with NSW Treasury and the private sector to develop new approaches to school delivery
- continue to work closely with the non-government school sector to better plan and implement integrated solution to address school asset provision
- work collaboratively with NSW Treasury to develop new funding and financing model.

3. Funding needs

The Department's Strategic Plan would cost less than a business-as-usual approach, but significantly more than historical funding levels. The funding gap may be conservative because it is sensitive to a range of factors, some of which the Department can only influence. The Government has yet to agree to fund the Department's Strategic Plan.¹

The Strategic Plan estimates significantly more money than the Department has been receiving to date to provide the necessary number of fit-for-purpose student places when and where needed up until 2031 under the new approach to planning and delivery. The new approach is significantly more economical than current practice. Without the proposed reforms, the Department will need much more again.

Actual costs could be higher than estimated for several reasons including community opposition to the new approach, a fall in the proportion of students attending non-government schools, unexpected increases in land and construction costs, failure to sufficiently streamline the planning approval system adequately or a blow-out in renovation costs in older schools.

The Strategic Plan envisages a significant increase in spending on maintenance and renewal, and total costs will be higher in time if this is delayed or does not happen. The estimate does not include the recurrent cost of projected enrolment growth on school transport, early childhood education and out of school care.

The current school infrastructure funding arrangement does not support effective long term planning. A four-year commitment to education infrastructure funding does not provide the flexibility needed for the Department to manage its allocations and respond to changes in priorities or emerging challenges. The Health and Transport clusters receive a ten-year funding commitment, known as a capital planning limit.

Further significant cost savings beyond those proposed by the Department are only likely if it changes some operational policies and practices.

Recommendation

The Department of Education should:

- seek a ten-year capital planning limit from NSW Treasury
- advise the government on options to change operational policies to reduce infrastructure requirements.

3.1 Funding estimate

Significant funding gap

The Strategic Plan estimates¹ that significantly more money will be required to provide the necessary number of fit-for-purpose student places when and where needed up until 2031. This is required to fund the building of new schools, adding classrooms to existing sites and upgrading existing schools to acceptable standards.

The government has yet to agree to fund the Department's Strategic Plan.

To help develop the Strategic Plan, the Department engaged a major international accounting and consultancy firm to refine and validate the methodology, assumptions and conclusions in the Strategic Plan, and to analyse the funding gap and identify options to reduce it.

¹ The estimated costs and funding gap are not included in this report because they are Cabinet-in-confidence.

The estimate was also reviewed by NSW Treasury, the Department of Premier and Cabinet and Infrastructure NSW to identify saving opportunities under current policy settings. Any such opportunities have been included in the Strategic Plan and estimate.

The traditional approach to planning and delivering schools would cost significantly more and further increase the funding gap significantly.

The Department's estimate assumes that the following quantified initiatives proposed in the Strategic Plan will be implemented:

- increasing use of minor interventions (demountables and modular classroom buildings)
- redeveloping existing sites
- building larger schools on smaller sites.

A number of other initiatives could further reduce the funding gap. These include the optimisation of classroom utilisation through changing school boundaries and demand management; sale of surplus land; and partnerships with the private sector. The Strategic Plan does not quantify these.

While the financial model has been found by experts to be reasonably good, like all models it has limitations and its results are sensitive to underlying assumptions. For example, the model:

- does not take account of the lag time in delivering school assets
- analyses trends at a regional and district level but does not account for local factors.

The model is also sensitive to factors such as:

- government to non-government school ratio
- classroom utilisation rates
- size of school sites
- the cost of land
- the consumer price index.

Actual funding required will also depend heavily on the outcomes of cluster planning, the distribution of enrolment growth in specific geographic areas, the extent to which alternative strategies can be successfully implemented to increase asset utilisation, and key sensitivities, such as the government to non-government enrolment ratio or classroom utilisation rates.

Estimated cost does not include operating or supporting infrastructure costs

The total cost in the Strategic Plan, and the estimated funding gap, are only for the provision of school infrastructure.

In addition to enhancing the original estimates produced for the Strategic Plan, NSW Treasury partnered with the Department to estimate the potential recurrent funding implications of projected student enrolment growth to 2031, particularly on school based salaries and non-government school funding.

The broader impacts across the education sector, including the recurrent cost of projected enrolment growth on school transport, early childhood education and out of school care have also not been assessed.

3.2 Factors which could increase actual costs

The estimate is conservative due to optimistic assumptions

There are several risks that could prevent successful implementation of the Strategic Plan and increase the cost of delivering the necessary infrastructure. In addition to the potential for community opposition to the new approach discussed earlier, key risks include:

- a fall in the proportion of students attending non-government schools
- planning policy and zoning

- increase in land and construction costs
- funding commitment which is not long enough to allow efficient and effective planning and delivery.

Non-government schools may not take as many students as assumed

The cost estimate is based on the non-government school sector maintaining its share of student enrolments at 35 per cent.

The estimated cost is highly sensitive to any variation in this proportion.

There are several reasons to doubt that the current proportion can be maintained. Non-government school sector representatives indicated to the Department, the government and to us that to maintain this proportion they will need more government funding and changes to planning policy and regulation to reduce red tape.

Much of the recent growth in private schools has been in regional areas where land is more readily available and affordable. The capacity of private schools to redevelop existing or afford additional land in those parts of Sydney where extra schools and classrooms will be needed may be limited. Since 2008, while the proportion of students attending non-government schools in NSW increased, it actually fell in metropolitan regions.

Any downturn in economic conditions could also present a risk to private schools in Sydney maintaining their existing share of enrolments. The proportion of students enrolled in non-government schools usually falls when economic conditions are unfavourable.

Planning and zoning reforms may not have the effect assumed

The Department of Planning and Environment is currently reviewing the State Environmental Planning Policy to reduce complexity and simplify the NSW planning system.

The Strategic Plan assumes significant streamlining of the planning approval process for new schools and school redevelopment, flexible land use zoning, and reforms to developer contribution policies.

Even if the planning processes are changed, there will be a risk that they may not be reformed to the extent assumed by the Department and that in practice they may not generate the time and cost savings assumed.

Problems with existing arrangements include:

- disagreements with local councils about how schools should be built
- delays in the determination of development applications
- zoning which restricts opportunities for joint use development or public private partnership
- planning requirements which hinder the disposal of excess land
- height and floor space controls that will not accommodate new school models
- developer contributions being limited to provision of land for schools, and cannot be spent on school capital works.

Some of the school planning problems faced by the Department are less evident in Victoria, for example.

Exhibit 22: Case study – Land use planning in Victoria

Some elements of the Victorian land use planning system which assist school planning include:

- Land for future government schools is identified in advance as part of the planning process for new developments
- Land for strategically justified future non-government schools can also be identified in advance as part of the planning process for new developments, and purchased later at market rates, and there is a process to allow alternative uses should the land ultimately not be used for a school
- Plans for new developments co-locate government schools with open spaces and community facilities to increase shared use opportunities
- government and non-government schools are generally exempt from state and local infrastructure contributions
- government schools are not subjected to zoning requirements because planning schemes are not binding on the use and development of land carried out by the Minister for Education
- The planning approval process for schools (including non-government school sector) is streamlined compared to many other types of development.

Source: Audit Office research, 2016.

Land and construction costs, and population growth, could be higher than assumed

The cost of land and construction could be higher than anticipated. In recent years, there have been significant increases in the cost of land and building construction year on year.

The plan foreshadows the need to renovate some existing classrooms and schools in order to provide sufficient suitable learning spaces. The Department has not yet identified precisely the number of classrooms and schools requiring renovation to make them suitable for contemporary learning practices. The costs associated with renovations are also inevitably less predictable than those for new works. The uncertainty over the extent and potential cost of renovation introduces a material risk to cost estimates.

The Department now has a much better understanding of likely population growth than in the past, but there remains a risk that estimates are conservative or that increased demand does not occur in the predicted areas. In recent years, there have been significant changes in the Department of Planning's population estimates in relatively short periods.

Funding commitment too short for effective long-term planning

Currently, the Department has a rolling four-year capital planning limit. Therefore, it only has control and certainty of funding for four years into the future at any time. This arrangement reduces the Department's ability to undertake effective long-term planning and flexibility to re-arrange priorities to adapt to changing circumstances.

Planning and building a school can take more than four years, so there is a risk in starting planning for a school without certainty of the funding to build it. The four-year funding commitment also means capital maintenance and renewal funding are not considered holistically, and infrastructure funding forecasts are out of step with actual needs.

Aligning the Department's capital planning limits to a 10-year horizon would:

- improve certainty for long-term cluster planning
- enable flexibility in the way schools are planned
- strengthen third-party negotiations
- help to resource and manage the significant funding increase
- better inform the community on the government's funding commitment
- encourage industry investments or create a specialised industry in school building.

Infrastructure NSW supports this arrangement. Also, the 10-year capital planning limit is not a new approach. It has been used by the Health and Transport clusters.

3.3 Further savings opportunities

Further significant cost savings are only likely if operational policies changed

The Department, working with other agencies and experts, has done a good job in identifying saving opportunities and incorporating these in the Strategic Plan. As a result, there is limited scope to reduce costs further under the current operational policy settings.

The pros and cons of changing some key operational policy settings are currently being assessed by the Department of Education, NSW Treasury and the Department of Premier and Cabinet. These are ultimately decisions for the government and have implications beyond infrastructure provision.

Changing some operational policies and practices could reduce costs. These include:

- increasing maximum class sizes
- introducing double-shift and staggered-shifts in some schools
- converting single-sex schools into co-educational schools
- converting selective schools into comprehensive schools with selective streams.

A sensitivity analysis prepared for the Department shows that increasing the maximum class size by one student could reduce the funding gap significantly.

Exhibit 23: Staggered shifts school in Queensland

Mountain Creek State High School on the Sunshine Coast, with nearly 2000 students, is the first school in Queensland that has staggered shifts. The staggered shift approach has been championed by the school principal with teachers' support. The school is using a split shift time table with approximately a 2.5 hours overlap.

Senior school students (years 10, 11 and 12) attend school from 7.30am to 12.55pm and junior students (years 7, 8 and 9) attend school from 10.25am to 4.05pm.

This arrangement allows more efficient use of scarce and expensive resources. It also allows students to pursue athletics, apprenticeship, or employment outside dedicated shifts.

Source: Audit Office research, 2016.

There is potential for greater utilisation of classrooms in some types of high schools. Overall there are:

- 242 empty classrooms in 19 boys only comprehensive high schools
- 155 empty classrooms in 24 girls only comprehensive high schools
- 164 empty classrooms in 21 fully selective high schools
- 153 empty classrooms in 15 sports and arts specialist high schools.

In New South Wales, there are 21 fully selective secondary government schools. The majority of these are in parts of Sydney where there is high demand for comprehensive secondary school places. (See map at Appendix 5). These selective schools are not fully utilised.

Victoria has six and Queensland has three fully selective secondary government schools.

New South Wales has 43 single-sex government schools. The boy-only schools, in particular, are heavily underutilised. In 2016 on average, 27 per cent of classrooms in boy-only schools were empty and eight schools had over 35 per cent classrooms empty.

Queensland does not have any single-sex government schools and Victoria has eight.

The following exhibit indicates the potential for greater utilisation of classrooms in some high schools. Many of these schools are in areas of high demand.

Exhibit 24: Empty classrooms in single-sex, selective and specialist high schools

School	Number of empty classrooms
Boys single-sex	
Belmore Boys High School	21
Birrong Boys High School	20
Blacktown Boys High School	18
Canterbury Boys High School	18
Georges River College Hurstville Boys Campus	25
James Cook Boys High School	28
Punchbowl Boys High School	17
Randwick Boys High School	21
Girls single-sex	
Blacktown Girls High School	14
Moorefield Girls High School	15
Wiley Park Girls High School	15
Fully selective	
Fort Street High School	17
Penrith High School	12
Smith's Hill High School	13
Sydney Technical High School	13
Sports and Arts Specialist High Schools	
Hunter School of Performing Arts	16
Hunter Sports High School	18
Illawarra Sports High School	16
Matraville Sports High School	29
Narrabeen Sports High School	19

Note: Empty classrooms may include demountables.

The Department advises that Hunter Sports High School, Illawarra Sports High School, Matraville Sports High School, and Narrabeen Sports High School are comprehensive schools with specialist sports streams.

Permanent classrooms in some single-sex schools are fully utilised, but not those in the schools mentioned in this table.

Source: Audit Office research, 2016.

Appendices

Appendix 1: Response from the agency



Ms Margaret Crawford
Auditor-General of NSW
GPO Box 12
SYDNEY NSW 2001

DGL17/339

Dear Ms Crawford

I refer to your letter of 3 April 2017 inviting a response to the final Performance Audit Report on Planning for School Infrastructure (your reference: PA6583).

The Department of Education welcomes the NSW Auditor General's report as an opportunity to highlight the development of the School Assets Strategic Plan, which you have supported as a good plan to meet the challenge of enrolment growth in New South Wales. I look forward to building on our foundation to further improve value outcomes for the department and the NSW Government.

I note the constructive suggestions made in the recommendations of the report and attach a formal response from the department to be incorporated into the published report.

I am pleased to inform you that the department accepts all of the report's recommendations and work is already underway to address them.

Once again, I would like to thank the review team of the Audit Office for working with the officers of the department to make this audit a worthwhile and constructive exercise.

Yours sincerely

A handwritten signature in black ink, appearing to read "Mark Scott".

Mr Mark Scott
SECRETARY
DEPARTMENT OF EDUCATION
2 May 2017

NSW Department of Education
35 Bridge Street Sydney NSW 2000 GPO Box 33 Sydney NSW 2001 T 02 9561 8000 F 02 9561 8465
www.det.nsw.edu.au

The NSW Department of Education welcomes the NSW Auditor General's report *Performance Audit – Planning for School Infrastructure*

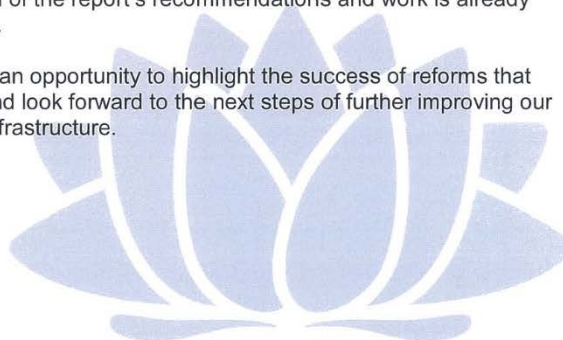
The report is an opportunity to highlight the department's approach to accommodating the expected student population up to 2031. In particular, we welcome the opportunity to highlight the development of the School Assets Strategic Plan, which you have supported as a good plan to meet the challenge of enrolment growth in NSW.

The department welcomes the audit findings that:-

- School asset planning is improving;
- New school assets strategy is evidence-based and has been reviewed extensively;
- The department has a robust methodology for student population projections;
- The department has robust and timely data on school assets;
- Many more classrooms will be needed, with many others requiring functional upgrades;
- The department has initiated a significant change in the approach to delivering school facilities, amounting to a new and more economical approach to reducing the need for additional schools and addressing the need for functional upgrades, maintenance and renewals;
- The implementation model is good in design and that the department is implementing a cluster planning model to manage growing demands for school assets;
- Cluster planning represents an improvement over the previous model which addressed infrastructure needs on a school by school basis;
- The proposed approach to consultation with the community represents good practice;
- The department has been strengthening collaboration with key stakeholders.

The department accepts all of the report's recommendations and work is already underway to address them.

We welcome the report as an opportunity to highlight the success of reforms that have been implemented and look forward to the next steps of further improving our approach to planning for infrastructure.



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Recommendation 1 :- Regularly revisit and evaluate the Strategic Plan to keep it contemporary, refine it based on learnings, update cost estimates to reflect actual results, and respond to available funding

The Strategic Plan will be kept up to date and regularly reviewed. The next review will be updated to align to the revised State Infrastructure Strategy in 2017 with a 2036 demographic horizon.

Recommendation 2:- Work with Treasury NSW to develop a framework for partnering with the private sector

A joint working party is being established with NSW Treasury and other agencies to identify appropriate methodologies for partnering with the private sector. Two pilot projects are being identified and will be tested before the framework is finalised.

Recommendation 3:- Align Total Asset Management plans with cluster plans as they are developed

Negotiations are underway with NSW Treasury to identify how this is best achieved.

Recommendation 4:- Closely consult and collaborate with communities on implementation of the Strategic Plan

The department is developing a number of communication strategies relating to the Strategic Plan including the creation of a new website for cluster planning. Communication plans will be developed for each school cluster plan.

Recommendation 5:- Continue to collaborate with key government agencies, local government, the non-government school sector and the private sector on implementation of the Strategic Plan

The department engaged and collaborated with these sectors in the development of the Strategic Plan and will continue to do so as it is implemented.

Recommendation 6:- Publish detailed information on the status of assets, current and projected enrolments, and planned school projects to support effective consultation and collaboration

The department will do this (as it relates to the school cluster plans that it is conducting) on its cluster planning website.

Recommendation 7:- Seek a ten-year capital planning limit from NSW Treasury

Negotiations are underway with NSW Treasury to implement a 10 Year Capital Planning Limit.

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www.det.nsw.edu.au

Recommendation 8:- Advise the Government on options to change operational policies and practices to reduce infrastructure requirements.

The department will review and consider options to change operational policies and practices to reduce infrastructure requirements.

Appendix 2: About the audit

Audit objective

The audit assessed whether the Department of Education (Department) has a strategy and implementation model to ensure it has sufficient fit-for-purpose student learning spaces when and where needed.

Audit scope and focus

The audit focused on:

- the Department's strategy and plans for delivering public school facilities up to 2031
- any opportunities to implement government reform directions, including commissioning, collaboration and coordination, and partnerships.

The audit also looked at whether the Department has analysed how the current challenging situation has occurred and adjusted its practices accordingly.

Audit criteria

The audit assessed whether the Department has:

- identified the demand for future learning spaces.
- determined the infrastructure required to meet demand.
- developed a model to provide learning spaces when and where needed and to implement it economically.
- secured the funding needed to provide required learning spaces.

Audit exclusions

The audit has not:

- assessed specific planning or delivery decisions for individual schools
- examined recurrent operating costs such as teachers' salaries, IT or corporate services
- challenged the design of required future learning spaces.

Audit approach

The audit team acquired subject matter expertise through:

- examination of relevant data and documents, including legislation, policies, guidelines, reports, strategies, reviews
- discussions with key staff in the Department of Education
- consultation with key stakeholders, including NSW Treasury, the Department of Planning and Environment, Infrastructure NSW, Greater Sydney Commission, Transport for NSW, non-government school representatives
- limited site visits for 'case studies', with a focus on good practice and current sites problem
- research into better practices
- a comparison with approaches in other jurisdictions.

The audit approach was complemented by quality assurance processes within the Audit Office to ensure compliance with professional standards.

Audit methodology

Our performance audit methodology is designed to satisfy Australian Audit Standards ASAE 3500 on performance auditing. The Standard requires the audit team to comply with relevant ethical requirements and plan and perform the audit to obtain reasonable assurance and draw

a conclusion on the audit objective. Our processes have also been designed to comply with the auditing requirements specified in the *Public Finance and Audit Act 1983*.

Acknowledgements

We gratefully acknowledge the co-operation and assistance provided by the Department of Education. In particular, we wish to thank our liaison officer and staff who participated in interviews and provided material relevant to the audit.

We would also like to thank other stakeholders that spoke to us and provided material during the audit.

Audit team

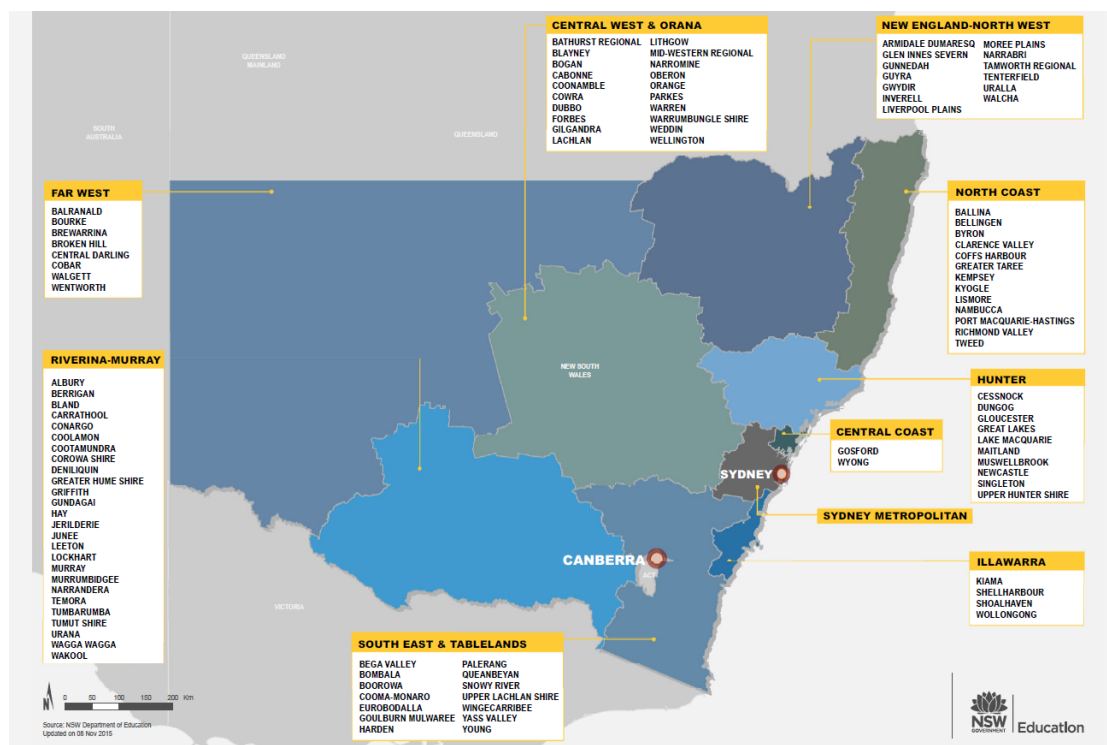
Bettina Ocias and Francois Chee conducted the performance audit. Rod Longford provided direction and quality assurance. Sally Bond acted as the Engagement Reviewer.

Audit cost

Including staff costs, travel and overheads, the estimated cost of the audit is \$277,000.

Appendix 3: NSW school regions and districts

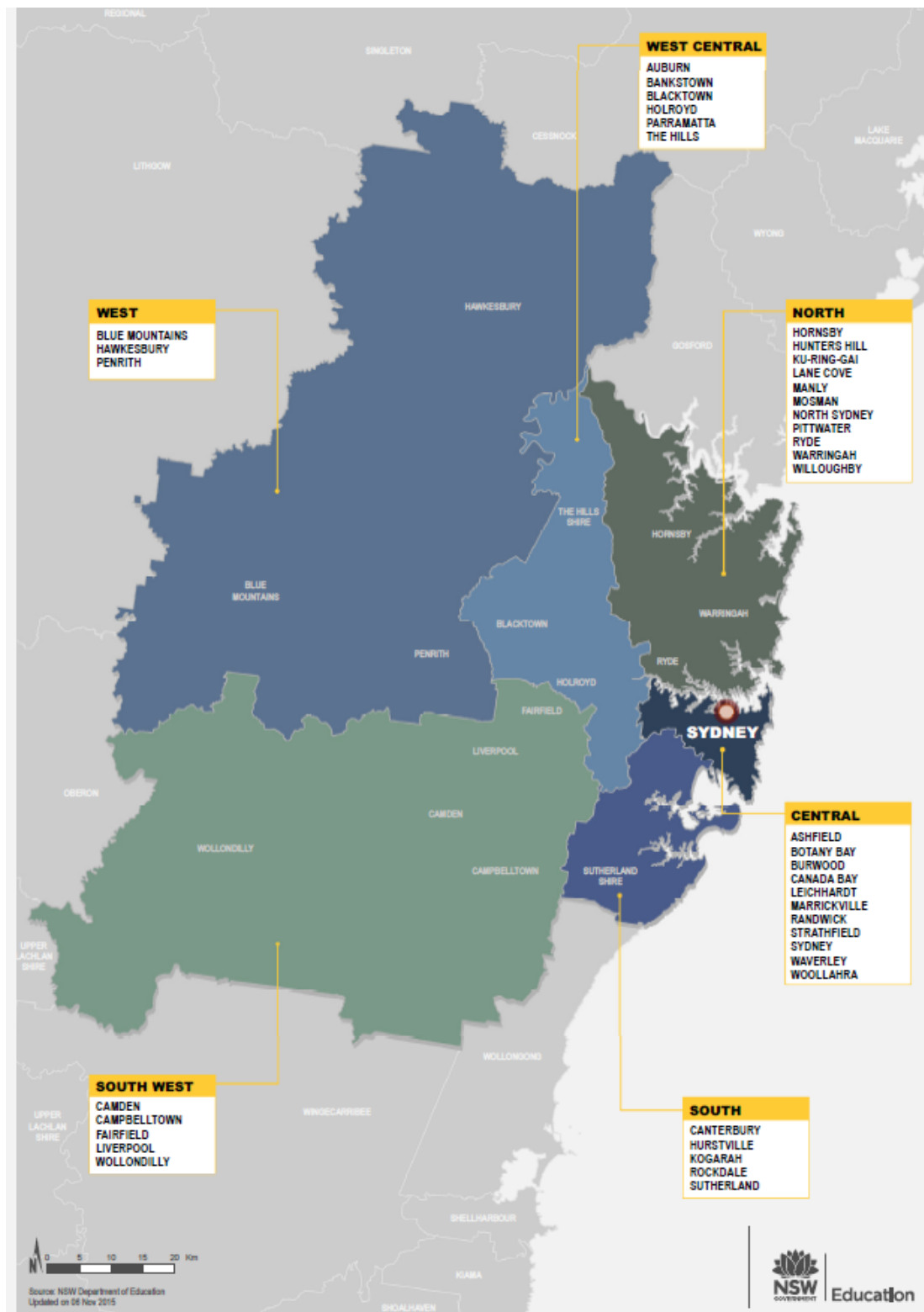
NSW Regions



Note: For the school infrastructure planning purposes Riverina-Murray region is called Murray-Murrumbidgee region.

Source: Department of Education, 2016.

Districts in Sydney Metropolitan Region



Source: Department of Education, 2016.

Appendix 4: School utilisation rate by district/region

Primary schools – permanent classrooms

District/Region	Percentage of schools at or over capacity
Sydney Metropolitan Region	
North District	75
West Central District	58
Central District	50
South West District	50
South District	44
West District	31
Other Regions	
Central Coast Region	41
Illawarra-Shoalhaven Region	41
Hunter Region	35
South East and Tablelands Region	33
North Coast Region	27
Central West and Orana Region	24
Murray-Murrumbidgee Region	15
New England – North West Region	15
Far West Region	5

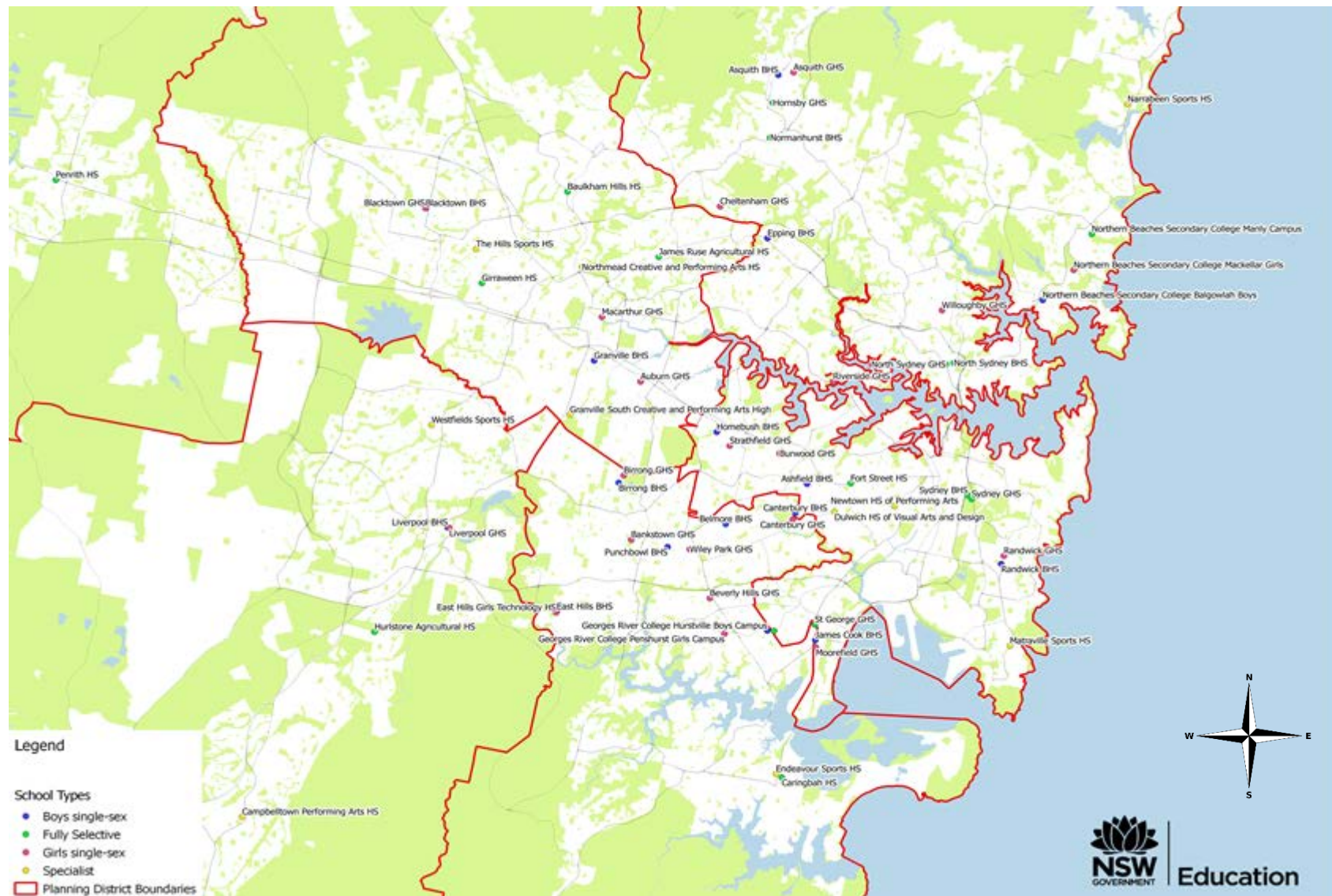
Source: Department of Education, 2016.

Secondary schools – permanent classrooms

District/Region	Percentage of schools at or over capacity
Sydney Region	
South West District	37
North District	29
West Central District	27
Central District	26
South District	15
West District	5
Other Regions	
Hunter Region	41
South East and Tablelands Region	40
Illawarra-Shoalhaven Region	18
Central Coast Region	17
New England – North West Region	14
Murray-Murrumbidgee Region	14
Central West and Orana Region	14
North Coast Region	12
Far West Region	7

Source: Department of Education, 2016.

Appendix 5: Single-sex, selective and specialist high schools in Sydney Region



Performance auditing

What are performance audits?

Performance audits determine whether an agency is carrying out its activities effectively, and doing so economically and efficiently and in compliance with all relevant laws.

The activities examined by a performance audit may include a government program, all or part of a government agency or consider particular issues which affect the whole public sector. They cannot question the merits of government policy objectives.

The Auditor-General's mandate to undertake performance audits is set out in the *Public Finance and Audit Act 1983*.

Why do we conduct performance audits?

Performance audits provide independent assurance to parliament and the public.

Through their recommendations, performance audits seek to improve the efficiency and effectiveness of government agencies so that the community receives value for money from government services.

Performance audits also focus on assisting accountability processes by holding managers to account for agency performance.

Performance audits are selected at the discretion of the Auditor-General who seeks input from parliamentarians, the public, agencies and Audit Office research.

What happens during the phases of a performance audit?

Performance audits have three key phases: planning, fieldwork and report writing. They can take up to nine months to complete, depending on the audit's scope.

During the planning phase the audit team develops an understanding of agency activities and defines the objective and scope of the audit.

The planning phase also identifies the audit criteria. These are standards of performance against which the agency or program activities are assessed. Criteria may be based on best practice, government targets, benchmarks or published guidelines.

At the completion of fieldwork the audit team meets with agency management to discuss all significant matters arising out of the audit. Following this, a draft performance audit report is prepared.

The audit team then meets with agency management to check that facts presented in the draft report are accurate and that recommendations are practical and appropriate.

A final report is then provided to the CEO for comment. The relevant minister and the Treasurer are also provided with a copy of the final report. The report tabled in parliament includes a response from the CEO on the report's conclusion and recommendations. In multiple agency performance audits there may be responses from more than one agency or from a nominated coordinating agency.

Do we check to see if recommendations have been implemented?

Following the tabling of the report in parliament, agencies are requested to advise the Audit Office on action taken, or proposed, against each of the report's recommendations. It is usual for agency audit committees to monitor progress with the implementation of recommendations.

In addition, it is the practice of Parliament's Public Accounts Committee (PAC) to conduct reviews or hold inquiries into matters raised in performance audit reports. The reviews and inquiries are usually held 12 months after the report is tabled. These reports are available on the parliamentary website.

Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian and international standards.

Internal quality control review of each audit ensures compliance with Australian assurance standards. Periodic review by other Audit Offices tests our activities against best practice.

The PAC is also responsible for overseeing the performance of the Audit Office and conducts a review of our operations every four years. The review's report is tabled in parliament and available on its website.

Who pays for performance audits?

No fee is charged for performance audits. Our performance audit services are funded by the NSW Parliament.

Further information and copies of reports

For further information, including copies of performance audit reports and a list of audits currently in progress, please see our website www.audit.nsw.gov.au or contact us on 9275 7100.

Our vision

Making a difference through audit excellence.

Our mission

To help parliament hold government accountable for its use of public resources.

Our values

Purpose – we have an impact, are accountable, and work as a team.

People – we trust and respect others and have a balanced approach to work.

Professionalism – we are recognised for our independence and integrity and the value we deliver.

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Making a difference through audit excellence.

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