



TECHNICAL REPORT

Part 1: Primary and secondary schools provision projection

Key findings and methodology

*Prepared for
Infrastructure Victoria
14 August 2024*

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Glossary

DE	Department of Education
FUA	Functional Urban Areas (Inner Melbourne, Middle Melbourne, Outer Melbourne, Melbourne New Growth Areas, Regional City, and Rest of Regional Victoria)
Greenfield	Development of land that is not currently urban for urban purposes. This can include land in Melbourne’s New Growth Areas and in other areas.
PSP	Precinct structure plan. A high-level strategic plan for a defined ‘precinct’ area that sets out the preferred location of land uses and infrastructure to guide development, subdivision and building permits which is incorporated into the local Planning Scheme through a Planning Scheme Amendment.
Permanent capacity	Capacity in permanent school building buildings
Relocatable capacity	Capacity in relocatable buildings on school sites (i.e., portables)
SA3	ABS Statistical Areas Level 3
SA2	ABS Statistical Areas Level 2
UGB	Urban growth boundary
VIF23	Victoria in Future 2023. Population projections prepared by the Department of Transport and Planning.

The Task

The CIE was commissioned to provide estimates of the number and cost of Victorian government-operated primary and secondary schools at an SA3¹ level for Infrastructure Victoria in 2036 and 2056.

The following technical report summarises the key results of the analysis and methodology applied. The CIE also provided more detailed data to Infrastructure Victoria, which included:

- an estimate of primary and secondary school demand and provision forecasts at an SA3 level for five different scenarios and a sensitivity analysis including higher government provision.
 - the model allows the user to adjust the future government market share as well as the capacity response to additional growth²
- an estimate of the total cost of providing and maintaining portables, construction and maintenance of additional permanent buildings, and new schools.
- an estimate of the total land cost for new schools.

Disclaimer: Note that this analysis is intended as a high-level overview. The assumptions made in this study are broad to facilitate a simplified model of infrastructure responses and their associated costs. Real-world assessments might differ, considering various complex inputs and decisions. It is important to acknowledge that the Department of Education may have alternative methods of addressing growth that have not been considered in this analysis. In addition, this analysis has been conducted at a less localised regional level (SA3) compared to the Department of Education’s provision planning.

Therefore, the findings presented here may not necessarily reflect the planning approach of the Department of Education.

¹ Statistical Areas Level 3 (SA3) are geographical areas used by the ABS. SA3s are designed to provide a regional breakdown of Australia. They generally have a population of between 30,000 and 130,000 people. In regional areas, SA3s represent the area serviced by regional cities that have a population over 20,000 people. In the major cities, SA3s represent the area serviced by a major transport and commercial hub. They often closely align to large urban Local Government Areas (e.g. Gladstone, Geelong). In outer regional and remote areas, SA3s represent areas which are widely recognised as having a distinct identity and similar social and economic characteristics.

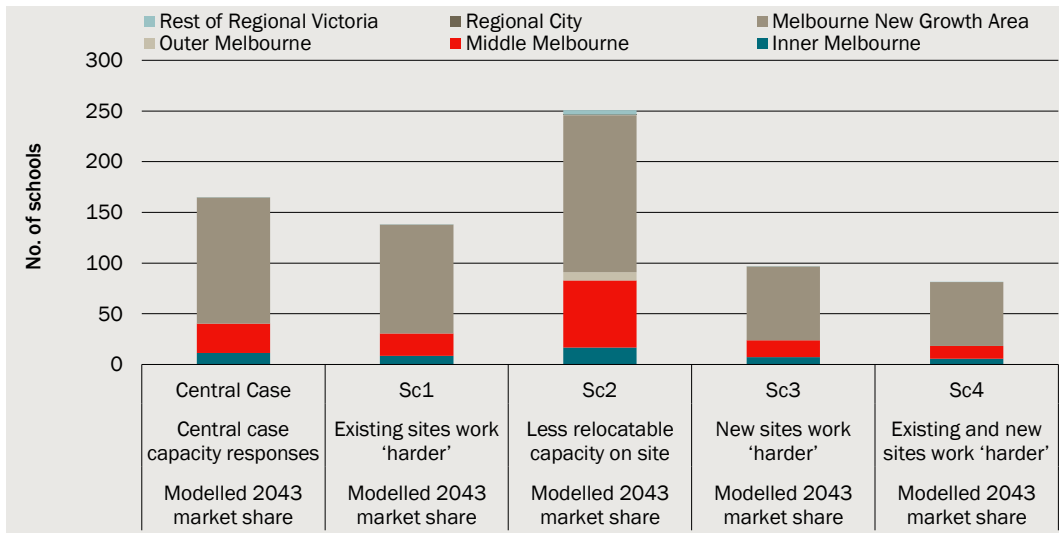
² This is the government school share of total school enrolments.

1 Key findings

- The need for additional education infrastructure is estimated for primary and secondary schools based on existing capacity and a range of priority responses to meet additional enrolments until 2036 and 2056.
 - The Department of Education can meet additional enrolments by utilising the permanent and relocatable capacity of existing schools, by adding more relocatable and permanent buildings on existing school sites or constructing new schools.
- This report evaluates a central case (business-as-usual responses) and a range of scenarios that test different responses to accommodate growth. These responses vary from making existing school sites work less intensively or more intensively compared to the central case, to having new school sites handle larger school sizes, as well as a hybrid approach. This is particularly relevant for areas where land availability is limited, or acquisition costs are high.
- To meet additional primary school enrolments between 2024 and 2056 (chart 1.1):
 - Under the central case, 165 new primary schools are needed to meet the additional enrolments. The majority of those (75 per cent) will be required in Melbourne's New Growth Areas.
 - Under the tested scenarios, the total number of new schools required can be reduced by 16 to 51 per cent. This would see existing school sites taking on more students and/or having larger new schools. Restricting existing relocatables could lead to an increase of up to 52 per cent in the number of new schools required.
- To meet additional secondary school enrolments between 2024 and 2056 (chart 1.2):
 - Under the central case, 40 new secondary schools are needed to meet the additional enrolments. A large share of those (74 per cent) will be required in Melbourne's New Growth Areas.
 - Under the tested scenarios, the total number of new schools required can be reduced by 40 to 73 per cent. This would see existing school sites taking on more students and/or having larger new schools. Restricting the use of relocatables could lead to an increase of up to 40 per cent in the number of new schools required.
- These estimates are *in addition to* approximately 24 committed and funded primary schools and over 7 secondary schools being delivered in the coming years.

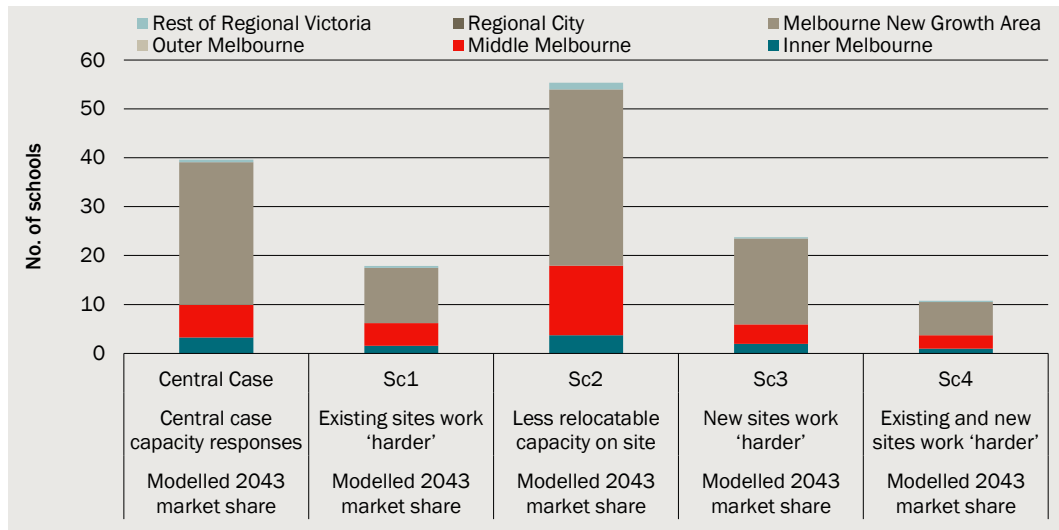
- Total capital and infrastructure operating costs of providing additional school infrastructure is \$31.4 billion (2024 dollars) under the central case.
 - The total cost across the assessed scenarios varies significantly, ranging from \$25.9 billion for Scenario 3, which involves constructing larger new schools, to \$27.7 billion for Scenario 1, emphasising the utilisation of more relocatables and permanent buildings on existing school sites, and up to \$45.2 billion for Scenario 2, which focuses on reducing the reliance on relocatables on existing school sites.
 - Scenario 4, with the lowest cost across all scenarios (\$23.3 billion), proposes a hybrid approach combining elements from both Scenario 1 and Scenario 3. This approach optimises the use of existing school sites while capitalising on the cost efficiencies associated with building larger new schools. While this reduces costs, impacts from reduced space per student would need to be considered.

1.1 New primary schools by Functional Urban Area and scenario, 2024-2056



Data source: CIE - IVIC School Provision Model_v1.7_Base

1.2 New secondary schools by Functional Urban Area and scenario, 2024-2056



Data source: CIE - IVIC School Provision Model_v1.7_Base

The following chapter presents a high-level methodology, the key findings in terms of the need for additional school infrastructure and the associated costs.

High-level approach

Additional school infrastructure need in this analysis is assessed by an iterative process of matching additional expected enrolments on an SA3 level to a variety of priority responses that can be utilised to meet growth. Priority responses have been developed in consultation with Infrastructure Victoria and the Department of Education and vary by Functional Urban Area (FUA) (see below for a concordance map 1.3 between FUAs and Local Government Areas (LGAs)).

We note that, in reality, the Department of Education plans at a more localised level, with responses differing based on location and specific local needs.

In summary, on a high level:

- Additional enrolments are calculated by SA3 until 2036 and 2056:
 - Additional enrolments are based on Victoria in Future 2023 (VIF23) and market share assumptions by Functional Urban Area provided to the CIE. The market share represents the share of enrolments attending government schools.
- Additional enrolments are accommodated using a suite of capacity responses:
 - First, utilising existing capacity (already available classrooms) on site;
 - Second, using additional relocatable capacity on site (up to an *adopted*³ provision level);

³ 'adopted' relates to response assumptions that have been developed as part of the consultation of Infrastructure Victoria with the Department of Education and do not reflect state government policy. For example, existing schools might already have a higher existing relocatable capacity than indicated by the response assumptions. For areas outside of Inner

- Third, constructing additional permanent buildings on site (up to an *adopted* provision level); and
 - Lastly, constructing new schools on new sites.
- New infrastructure provided is costed using cost benchmarks which differ depending on the type or required size of the capacity response.

Modelled demand and supply responses are subject to a scenario analysis to identify how different capacity responses will impact the need and cost of additional infrastructure compared to the Central Case capacity responses. This includes, for example, a change to how much additional capacity can be provided on existing school sites or a change to the size of schools on new sites.

In addition, we have conducted a sensitivity analysis with a higher government provision share that assumes more students attend government school over time. We assumed a 4-percentage point shift away from non-government schools to government schools, consistent with historical trends, across all FUAs. More details can be found in Chapter 2.

Functional Urban areas

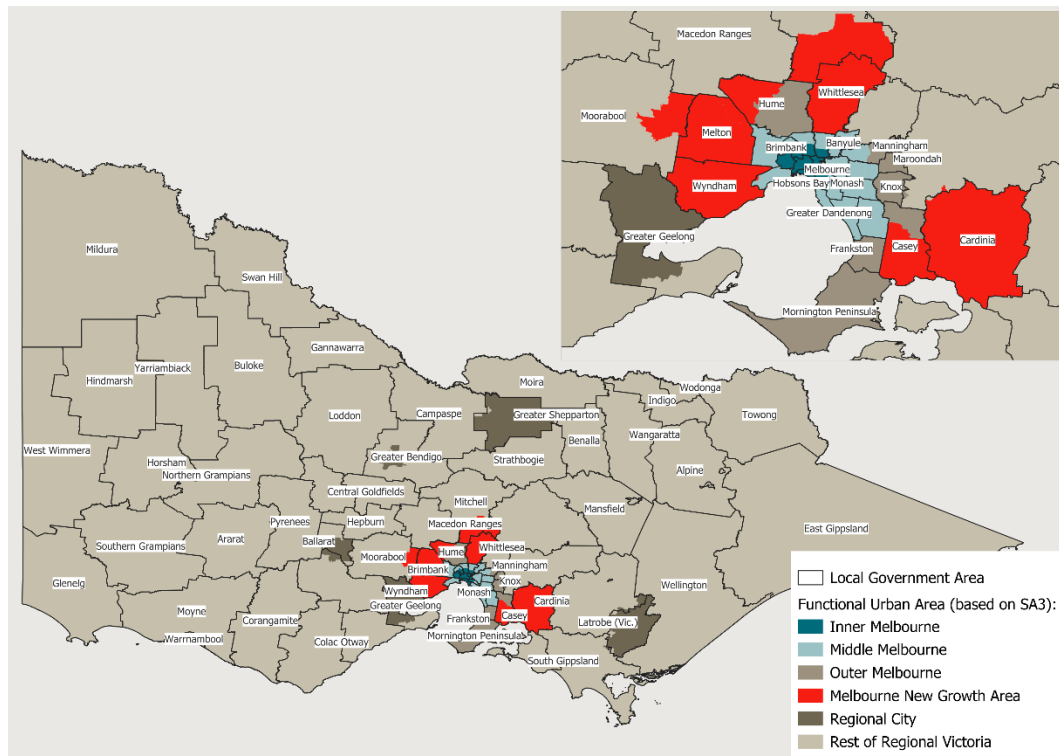
Functional urban areas are custom geography to distinguish between areas with different built forms, with inner areas being more built up than outer areas of metropolitan Melbourne.

- **Inner Melbourne:** This is a combination of tram network coverage and an eight-kilometre radius from the CBD. It does not include the full extent of the 86 tram to Bundoora and extends further out to the west where the tram network is limited.
- **Middle Melbourne:** Areas within the Western Ring Road and other areas between Inner and Outer Melbourne.
- **Outer Melbourne:** Established outer suburbs within the urban growth boundary (UGB).
- **Melbourne New Growth Areas:** Areas covered by Precinct Structure Plans (PSPs).
- **Regional City:** Major regional centres in regional Victoria.
- **Rest of Regional Victoria:** Areas outside the metropolitan Melbourne UGB and outside established areas of regional cities in regional and rural Victoria.

Melbourne's new growth areas include areas covered by Precinct Structure Plans in the 6 growth area LGAs (Wyndham, Melton, Hume, Whittlesea, Casey and Cardinia) and parts of Mitchell LGA. Older established areas in these LGAs are not included in the Melbourne new growth areas FUA.

Melbourne adopted relocatable capacity is assumed to be 20 per cent of the total permanent capacity. More details can be found in chapter 2.

1.3 Map of Functional Urban Areas (FUA) and Local Government Areas (LGA)



Data source: CIE

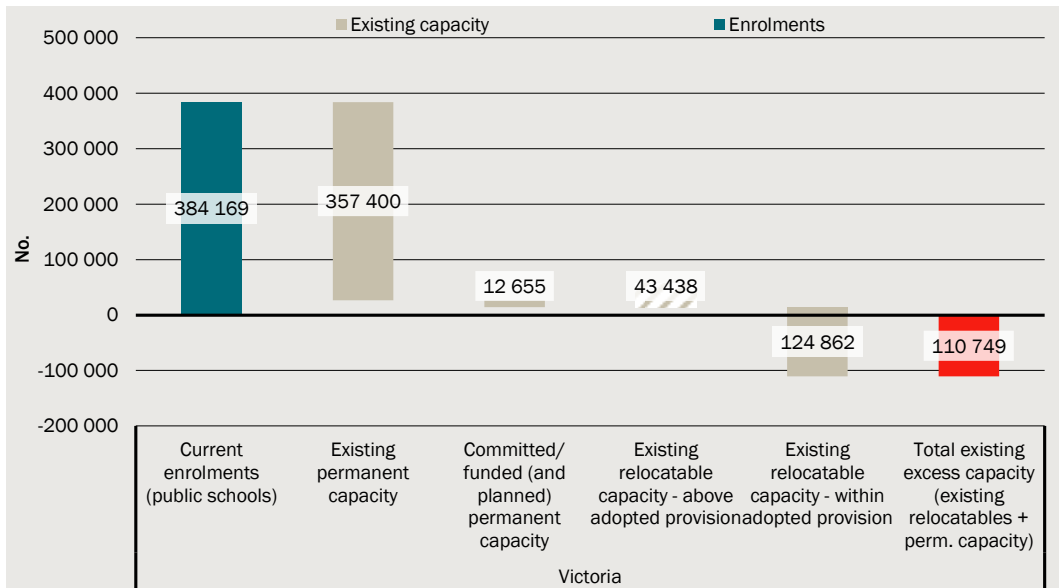
Assessing excess capacity in Victoria's school infrastructure

Data on primary and secondary school enrolments and existing government school capacity by region (SA3) for April 2024 have been provided to the CIE by the Department of Education. At a high level (aggregated by region) the data indicates, when considered at an SA3 level, with the modelling assumptions adopted that:

- Primary and secondary schools in Inner Melbourne and outside Greater Melbourne have some existing permanent surplus capacity. In contrast, Middle and Outer Melbourne and Melbourne New Growth Areas have no surplus permanent capacity and manage current enrolments with relocatable capacity.
 - All regions have some existing relocatable capacities above the *adopted* provision. This is particularly high in the Melbourne New Growth Areas and Middle and Outer Melbourne.
- Overall, the capacity for additional enrolments from existing permanent surplus and relocatable capacity within the *adopted* provision is (charts 1.4 and 1.5)
 - approximately 111,000 enrolments within the government primary school system, and
 - approximately 83,000 enrolments within the government secondary school system, respectively.

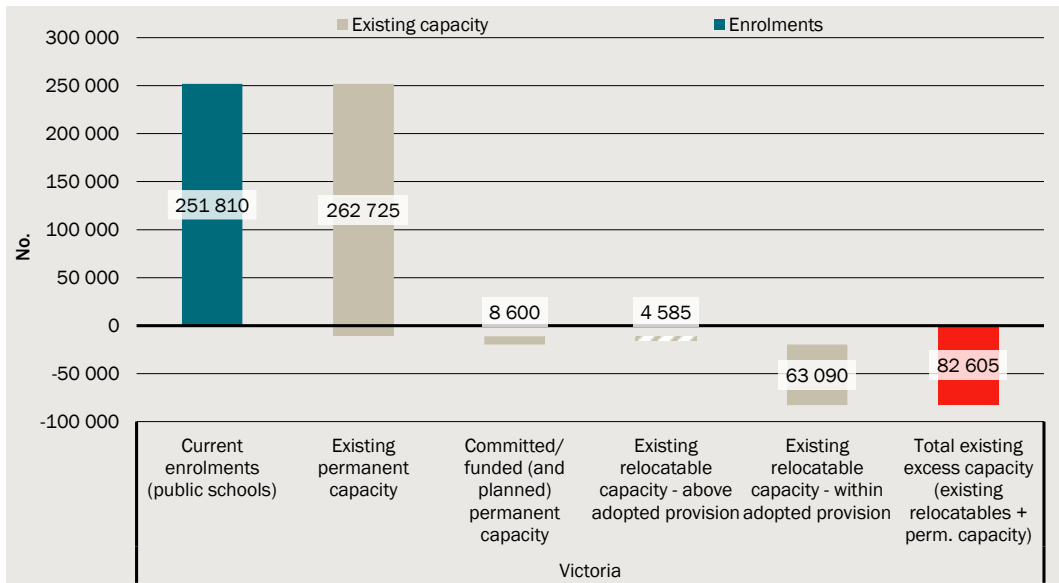
Note that we have aggregated the data, and this pattern does not hold for every region (SA3) within Victoria.

1.4 Government primary school enrolments and capacity, 2024



Source: CIE in consultation with Infrastructure Victoria and the Department of Education

1.5 Government secondary school enrolments and capacity, 2024



Source: CIE in consultation with Infrastructure Victoria and the Department of Education

Additional enrolments by 2036 and 2056

Population growth

Infrastructure Victoria has provided the most up-to-date population projections by SA2 region for age groups 5 to 11 and 12 to 17.

We used Victoria in Future projections released in 2023 by the Department of Transport and Planning. The projections show what is likely to happen if current trends continue. Uncertainty about the future increases over longer projection horizons and with smaller disaggregations, geographic or sectoral. Different policy settings and changes in the economy could result in changes to the expected size, distribution and characteristics of the population.

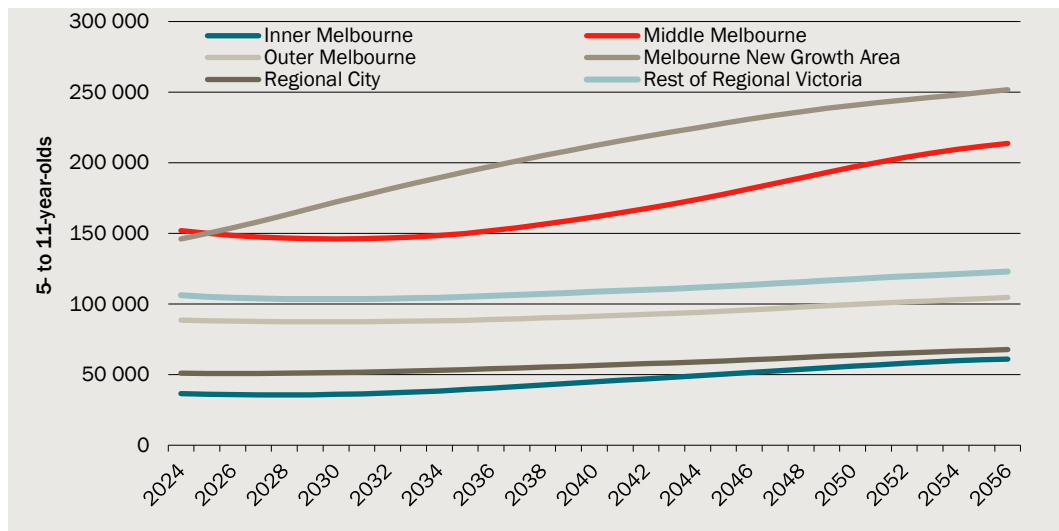
In the short to medium term, much of the population growth will continue on current trends and will largely be in Melbourne’s growth areas. In the longer term by 2056, there may be a shift in the trajectory as announced in the government’s Housing Statement⁴, with more development occurring in Melbourne’s middle suburbs.

The Victoria in Future 2023 projections include consideration of the government’s aspiration to achieve 70 per cent of growth in established areas of Melbourne and 30 per cent in new growth areas. These projections make assumptions about the likely rate of annual housing development that could be reasonably forecast to be achieved in areas designated for higher density housing. Places like Fisherman’s Bend and Arden are currently included. Places that have not yet been rezoned for increased density (such as the 10 selected activity centres identified in the recent Housing Statement) have not yet been considered. Overall, we observe (charts 1.6 and 1.7):

- until 2036, stable population figures across all FUAs except for the Melbourne New Growth Areas for both primary and secondary school-aged children; and
- until 2056, more accelerated growth in established and growth areas across Victoria.

Note that within these broad geographical classifications, there will be localised areas of population change and growth.

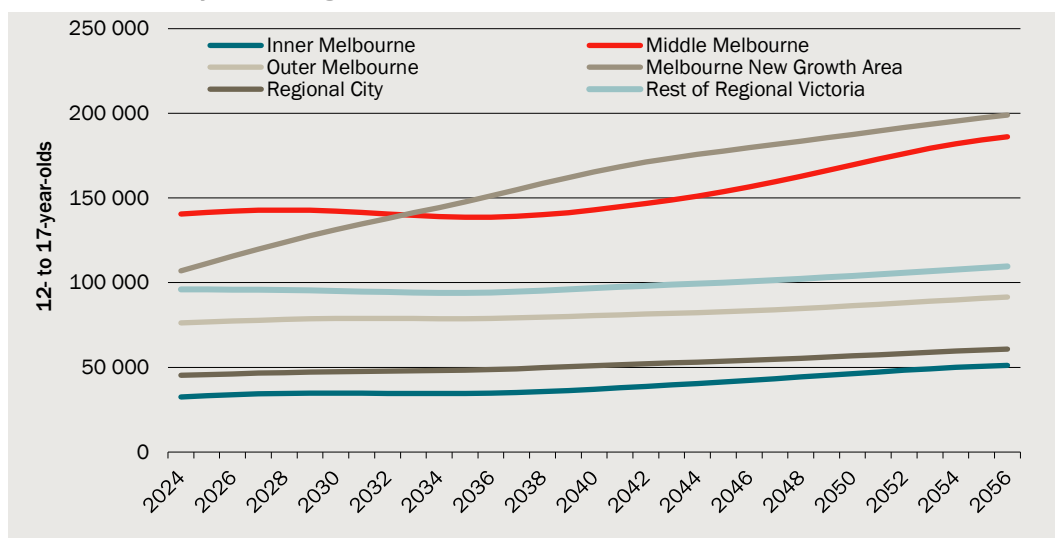
1.6 Primary school-aged population, 2024 to 2056



Data source: Victoria in Future 2023, Department of Transport and Planning

⁴ <https://www.vic.gov.au/housing-statement>

1.7 Secondary school-aged population, 2024 to 2056



Data source: Victoria in Future 2023, Department of Transport and Planning

Additional enrolments in government schools

For this analysis, only enrolments in government schools are considered. Future enrolments are based on the projected population and the projected share of government provision.

Generally, the government's share of total school enrolments varies by region and type of school. Data provided to CIE by the Department of Education shows that in 2023, the government accounted for a significantly larger share of primary school enrolments (68 per cent) compared to secondary school enrolments (57 per cent).⁵

The table below shows the current and projected shares of government provision by functional urban area.

1.8 Government school provision, current and projected share

School type	Functional urban area	Current share	Projected share
		Per cent	Per cent
Primary schools	Inner Melbourne	66	69
	Middle Melbourne	69	69
	Outer Melbourne	68	68
	Melbourne New Growth Area	70	70
	Regional City	64	64
	Rest of Regional Victoria	71	71
Secondary schools	Inner Melbourne	45	49
	Middle Melbourne	63	62

⁵ <https://www.education.vic.gov.au/Documents/about/department/summarystatssnapshot.pdf>

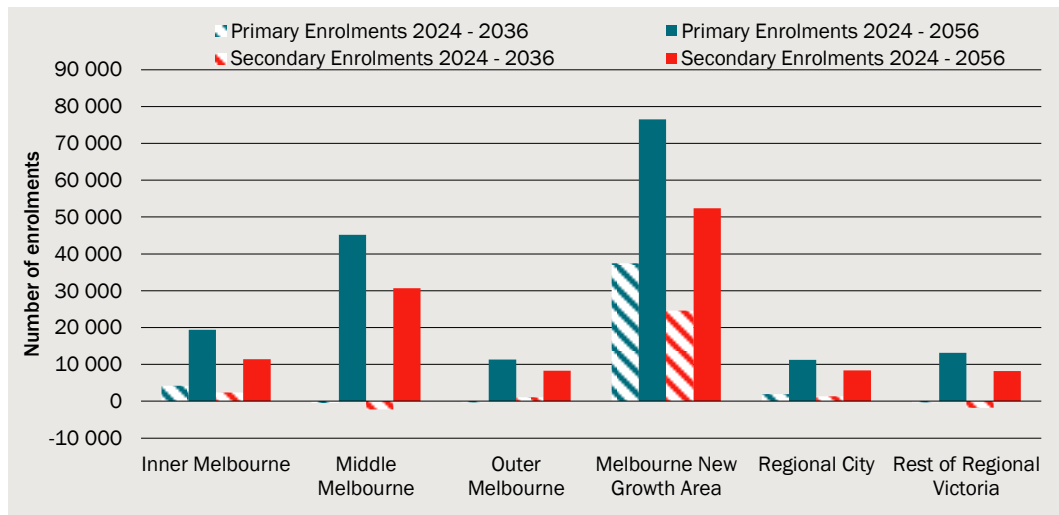
School type	Functional urban area	Current share	Projected share for 2036 and 2056
		Per cent	Per cent
	Outer Melbourne	54	54
	Melbourne New Growth Area	57	55
	Regional City	56	54
	Rest of Regional Victoria	63	63

Source: Current year market shares were sourced from the Department of Education (DE). Future years were developed in consultation with DE.

Chart 1.9 shows that:

- By 2036:
 - A projection of over 42,000 additional primary school enrolments is anticipated, with the Melbourne New Growth Areas contributing 88 per cent of this figure.
 - Likewise, there's an anticipation of over 25,000 additional secondary school enrolments, with the Melbourne New Growth Areas accounting for 94 per cent of this increase.
- By 2056:
 - Expectations increase with projections of over 176,000 additional primary school enrolments and over 119,000 additional secondary school enrolments. These increases are almost evenly split between established and growth areas.

1.9 Additional enrolments in primary and secondary schools, 2024 to 2036 and 2056



Data source: CIE - IVIC School Provision Model_v1.7_Base

Additional provision to accommodate growth

Additional enrolments until 2036 and 2056 are met with the priority responses developed in consultation with Infrastructure Victoria and the Department of Education (see table 1.10 and more detail in Chapter 2). For the scenario analysis, we tested different

approaches to accommodate future growth and varied the priority responses outlined below.

The following sections summarise the total number of new schools required to accommodate this growth and provide detailed infrastructure responses to the expected increase in enrolments under the central case and various scenarios.

- Note that this analysis is based on generalised modelling at an aggregated SA3 level. SA3 regions within Melbourne's New Growth Areas are relatively large. Typically, secondary schools in the older more established areas within the SA3 are disconnected from where the new housing is occurring. For instance, the Cardinia SA3 region is approximately the size of all Inner and Middle Melbourne SA3s combined. This aggregation implies that existing schools in one part of the SA3 may have excess capacity or the potential to expand capacity, which could be utilised by other areas within the same SA3. This issue is particularly pronounced for secondary schools, as they historically have more existing capacity in established areas (of the Melbourne New Growth Areas) and rely less on relocatable buildings compared to primary schools.
 - Therefore, we have assumed that for secondary schools in Melbourne's New Growth Areas, no additional relocatable or permanent buildings can be added to existing school sites in the Central Case.

1.10 Central Case – Priority responses for additional primary and secondary school enrolments

Geographic Setting	Priority Responses (left to right)				
	Absorb existing surplus	Additional relocatable buildings	Additional permanent buildings	New primary school	New secondary school
Inner Melbourne (high density)		No	No	Yes – for up to 650 enrolments ^a	
Inner Melbourne (other)			Yes – up to 25% of existing permanent capacity,		
Middle and Outer Melbourne	Yes – excess existing permanent capacity + excess existing relocatable capacity (up to 40%)	Yes – up to 20% of existing permanent capacity, and 0% for secondary schools in Melbourne New Growth Areas	and 0% for secondary schools in Melbourne New Growth Areas	Yes – for up to 525 enrolments ^a	Yes – for up to 1200 enrolments ^a
Regional (cities and major towns)			Yes – up to 50% of existing permanent capacity		
Rest of Victoria					

^a New school capacity is a mix of permanent and relocatable and can be adjusted to local requirements.

Note: Although 525 and 1200 capacity is assumed for new schools, DE may deliver new schools to different sizes, and these sizes may not be representative of what is ultimately delivered.

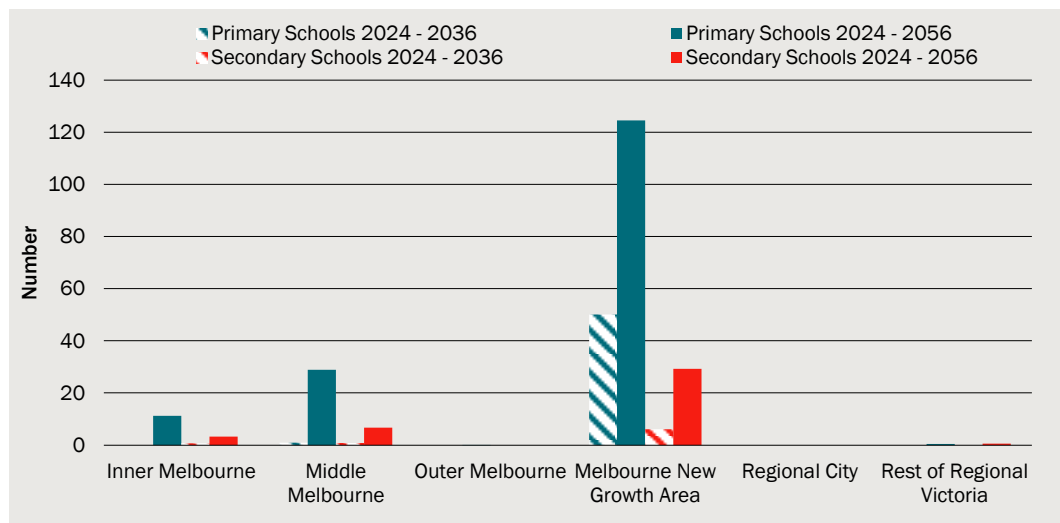
Source: CIE in consultation with Infrastructure Victoria and the Department of Education

New schools required under the central case

All additional enrolments that cannot be accommodated on existing school sites require new schools. Under the central case, this amounts to (chart 1.11):

- 51 new primary schools and 8 new secondary schools until 2036; and
 - 98 per cent of new primary schools and 75 per cent of new secondary schools are required in the Melbourne New Growth Areas and no additional schools are required outside of Greater Melbourne.
 - ... Note that this is *in addition to* approximately 24 committed and funded primary schools and over 7 secondary schools being delivered in the coming years.⁶
- 165 new primary schools and 40 new secondary schools until 2056.
 - 75 per cent of new primary schools and 74 per cent of new secondary schools are required in the Melbourne New Growth Areas, while the remainder is needed in Melbourne’s established areas.
 - ... Note that this is *in addition to* approximately 24 committed and funded primary schools and over 7 secondary schools being delivered in the coming years.

1.11 No. of new primary and secondary schools by region, 2024 to 2036 and 2056



Data source: CIE - IVIC School Provision Model_v1.7_Base

It is important to note that:

- **This is in addition to the schools announced in the Victorian Budget and planned school expansions or new schools included as ‘planned additional capacity’ in the data provided to the CIE.⁷**

⁶ The Department of Education have provided planned additional capacity (number of enrollments) for each SA3, which includes the schools announced as part of the Victorian Budget 2024-25 and planned expansions of existing schools. We have converted these capacity figures into the number of schools using the BAU assumptions outlined in the table above.

⁷ Committed and funded capacity as advised by Department of Education and announced in the Budget. 2024-25 State Capital Program, page 10

- This assumes the most efficient possible allocation of existing and new resources to accommodate new growth. We also note that this analysis has been conducted on a SA3 level. The Department of Education can manage demand for schools within and across SA3 areas through the application of school zones.⁸ For example, the delivery of a new school will be a more localised response than SA3, i.e. localised growth may trigger the need for a new school to add the capacity where it is needed to improve school accessibility for a local community. We have not undertaken local area planning. In some places within SA3s there may be more enrolment pressures than others which could affect how many schools are needed to meet very localised demand.

New schools required under different scenarios

A range of scenarios have been tested to assess how varying the priority responses impacts the total number of new schools required. This is particularly relevant for areas where less land is available or costly to acquire.

The following scenarios were assessed:

- **Central Case** — Projected market share, and central case capacity response to additional growth. This represents a business-as-usual response.
- **Sc1 – Existing sites work ‘harder’** — this would use the projected market share assumption but allow for higher shares of additional relocatable and permanent capacity, and different types of relocatables can be utilised in Greater Melbourne. In detail:
 - For all regions except Inner Melbourne (high density), where land is highly constrained, we assume **more relocatables** on existing sites. This would increase the adopted provision from 20 to 40 per cent (as a share of permanent capacity) in areas where needed.
 - ... To achieve this, we assume that double (Mod10) or triple (Mod15) storey portable units can be used instead of the standard single-storey (Mod5) units.
 - For all regions except Inner Melbourne (high density) we assume **more additional permanent buildings** on existing sites. This would increase the adopted provision from 25 to 35 per cent (as a share of permanent capacity) in Inner, Middle, and Outer Melbourne and an increase from 20 (primary) and 0 (secondary) to 50 per cent in Melbourne's New Growth Areas. We allow for a higher share in the latter, as there is more land available compared to the established areas of Melbourne.
- **Sc2 – Less relocatable capacity on site** — this would use the projected market share assumption but restricts the *adopted* provision for relocatables to be capped to an ‘80% permanent - 20% relocatable’ split.
- **Sc3 – New sites work ‘harder’** — this would use the projected market share assumption but allow for larger school sizes and vertical schools in Melbourne. In detail:

⁸ <https://www2.education.vic.gov.au/pal/enrolment/guidance/placement-policy>

- For all regions we assume larger school sizes of 900 enrolments for primary schools and 2,000 enrolments for secondary schools. To achieve this, we assume that vertical schools are constructed in Melbourne’s established areas.
 - ... This is based on examples from NSW with school enrolments exceeding 1,000 and 2,000 for primary and secondary schools, respectively.⁹ The NSW Department of Education publishes education facilities standards and guidelines for primary schools with an intended capacity of up to 1,000 students¹⁰ and secondary schools with an intended capacity of up to 2,020 students.¹¹
- **Sc4 – Existing and New sites work ‘harder’** — this would combine scenarios Sc1 and Sc3.

For primary schools, we estimate that (chart 1.12):

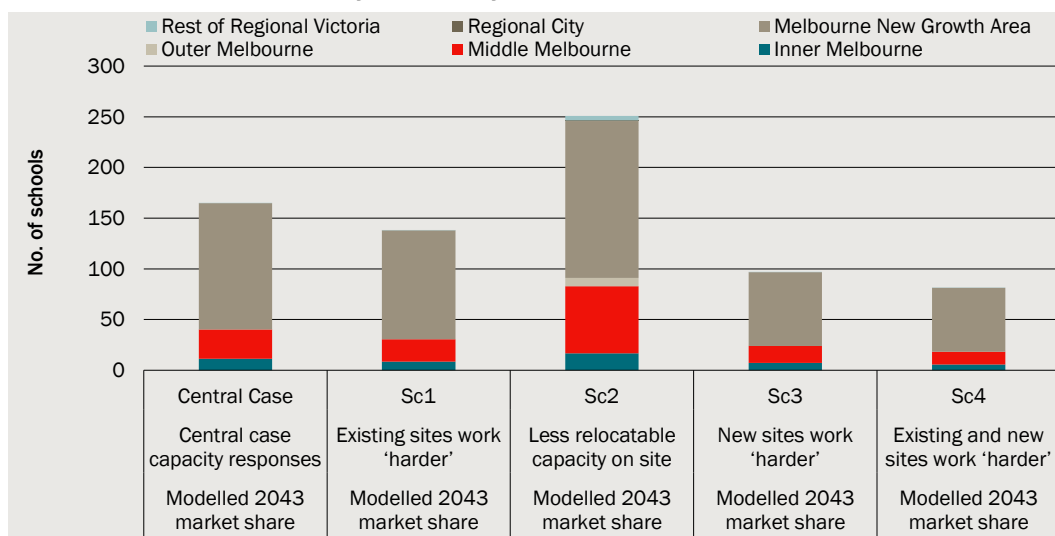
- For scenarios where existing (Sc1) or new sites (Sc3) work ‘harder’, the total number of required schools can be reduced by 16 per cent (allowing more relocatables and permanent buildings on existing school sites) and 41 per cent (allowing larger school sizes).
 - Notably, all regions benefit from either measure, i.e., the relative reduction in required schools is similar across all regions.
- Combining both measures (Sc4) leads to a 51 per cent reduction in the number of primary schools required, while Middle Melbourne would see the largest reduction of 56 per cent.
- For the scenario where there are fewer relocatables on existing school sites (Sc2), the total number of required primary schools increases by 52 per cent. This increase is mostly driven by established areas in Inner, Middle and Outer Melbourne. Those areas rely on a significant amount on relocatables.

⁹ <https://data.cese.nsw.gov.au/data/dataset/nsw-public-schools-master-dataset>

¹⁰ <https://education.nsw.gov.au/about-us/efsg/design-components/new-primary-school-builds/large>

¹¹ <https://education.nsw.gov.au/about-us/efsg/design-components/new-secondary-school-builds/large>

1.12 Number of new primary schools by FUA and scenario, 2024 to 2056

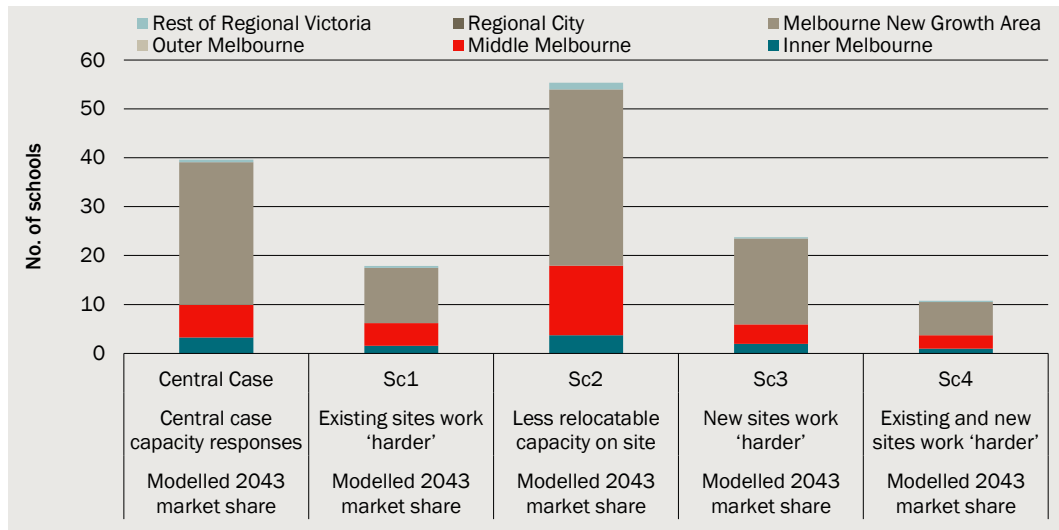


Data source: CIE - IVIC School Provision Model_v1.7_Base

For secondary schools we observe that (chart 1.13):

- For scenarios where existing (Sc1) or new sites (Sc3) work 'harder', the total number of required schools can be reduced by approximately 55 and 40 per cent, respectively.
 - Notably, Melbourne New Growth Areas would see a large reduction (61 per cent) in new secondary schools needed when existing schools were to work 'harder.' On the other hand, increasing the school size has a relatively similar impact across all regions.
- Combining both measures (Sc4) leads to a 73 per cent reduction in the number of secondary schools required, while Melbourne New Growth Areas would see the largest reduction of 77 per cent.
- For the scenario where there are fewer relocatables on existing school sites (Sc2), the total number of required secondary schools increases by 40 per cent. This increase is mostly driven by Middle Melbourne (+115 per cent) and Melbourne New Growth Areas (+ 23 per cent).

1.13 Number of new secondary schools by FUA and scenario, 2024 to 2056



Data source: CIE - IVIC School Provision Model_v1.7_Base

Detailed summary of priority responses to additional enrolments

Table 1.14 describes in detail the various indicators reported in the following result tables.

1.14 Description of indicators for result tables

Indicator	Description
2023	
Current enrolments (public schools)	Total school enrolments in 2024 (primary/secondary schools)
Existing permanent capacity	Existing school capacity in permanent buildings of all school campuses.
Committed/ funded permanent capacity	Committed and funded capacity as advised by the Department of Education and announced in the Budget. ¹²
Existing relocatable capacity	Existing school capacity in relocatable buildings (i.e., portables) of all school campuses
Existing relocatable capacity - within the adopted provision	Existing school capacity in relocatable buildings (i.e., portables) of all school campuses where students based in relocatable buildings is lower or equal to 40 per cent of permanent capacity.
Existing relocatable capacity - beyond the adopted provision	Existing school capacity in relocatable buildings (i.e., portables) of all school campuses where students based in relocatable buildings is higher than 40 per cent of permanent capacity.
Excess existing permanent capacity	Existing permanent capacity less of current enrolments.

¹² 2024-25 State Capital Program, page 10

Indicator	Description
Total existing excess capacity (existing relocatables + perm. capacity)	The sum of excess existing permanent and relocatable capacity.
2024 to 2056	
Additional enrolments	Additional enrolments need to be accommodated by 2056 based on population data. This figure matches the sum of: <i>'Additional enrolments met by excess capacity (within adopted provision)'</i> + <i>'Additional enrolments in relocatable building (within adopted provision)'</i> + <i>'Additional enrolments in new schools'</i>
Additional enrolments met by excess capacity	Number of additional enrolments that can be accommodated by the existing excess capacity.
Additional enrolments in new relocatable buildings	Number of additional enrolments that can be accommodated by providing additional relocatable buildings on existing school sites. For the great majority of SA3 areas, this is 0 as most SA3 areas have already a higher relocatable building provision than our adopted provision.
Existing enrolments moved from existing relocatable into new permanent buildings	Number of existing enrolments which are moved from existing relocatable buildings into new permanent buildings on the same school site, where the share of students based in relocatable buildings is higher than 40 per cent of total enrolments.
Additional enrolments in new permanent buildings	Number of additional enrolments which are accommodated in new permanent buildings on existing school sites.
Additional enrolments in new schools	Number of additional enrolments that cannot be accommodated in existing capacity, new relocatable or permanent buildings. Those enrolments require new schools.

Note: Allocation of additional enrolments follows the *adopted* provision outlined in Chapter 2. Under the CENTRAL CASE, for new relocatable buildings, this is up to 20 per cent of the existing permanent capacity and for new permanent buildings 0 up to 50 per cent of the existing permanent capacity.

Source: CIE.

Tables 1.15 and 1.16 summarise the adopted existing permanent and relocatable capacity that can be utilised in 2024 and the additional primary and secondary school infrastructure needed from 2024 to 2056:

- Primary schools have existing capacity in terms of relocatables and permanent buildings; however, the use of this capacity is limited due to a mismatch of where additional enrolments occur and where capacity exists.
 - Primary schools can accommodate 39 per cent of additional enrolments on existing school sites under all scenarios except for Sc2. Under Sc2, which would see a reduction in the limit of relocatables permissible on site, this share drops to 15 per cent.
 - ... This reduction would mostly impact Middle and Outer Melbourne and the Melbourne New Growth Areas which have some of the highest shares of relocatable capacity.
 - Under the central case assumptions, no additional enrolments are met with new relocatables. Allowing existing sites to work 'harder' would allow up to 3 per cent of additional enrolments to be accommodated in new relocatables.
 - ... This measure would in particular allow established areas to add additional portables.

- A larger share of additional enrolments (10 to 17 per cent) can be met in additional permanent buildings.
 - ... Allowing existing sites to add more permanent buildings would in particular benefit the Melbourne New Growth Areas.
- Beyond this, 81 to 251 new government primary schools are needed to meet the remainder of additional enrolments.
- Secondary schools have more existing capacity and overall, a lower share of relocatable capacity compared to primary schools:
 - Secondary schools can accommodate 44 per cent of additional enrolments on existing school sites under all scenarios except for Sc2. Under Sc2, which would see a reduction in the limit of relocatables permissible on site, this share drops to 29 per cent.
 - ... This reduction would mostly impact Middle Melbourne and the Melbourne New Growth Areas.
 - Under the central case assumptions, a small share (3 per cent) of additional enrolments are met with new relocatables. Allowing existing sites to work ‘harder’ would allow up to 12 per cent of additional enrolments to be accommodated in new relocatables.
 - ... This measure would in particular allow established areas to add additional portables.
 - A larger share of additional enrolments (13 to 26 per cent) can be met in additional permanent buildings.
 - ... Allowing existing sites to add more permanent buildings would in particular benefit the Melbourne New Growth Areas. The central case assumption is that no additional permanent or relocatable buildings are placed on existing school sites for Melbourne New Growth Areas, to reflect the large distances between new population growth areas and existing school sites.
 - Beyond this, 11 to 55 new government secondary schools are needed to meet the remainder of additional enrolments.

1.15 Additional school infrastructure for primary schools, 2024 to 2056

Year	Central Case	Sc1	Sc2	Sc3	Sc4
	Central Case capacity responses	Existing sites work ‘harder’	Less relocatable capacity on-site	New sites work ‘harder’	Existing and new sites work ‘harder’
	No.	No.	No.	No.	No.
2024					
Current enrolments (public schools)	384 169	384 169	384 169	384 169	384 169
Existing permanent capacity	357 400	357 400	357 400	357 400	357 400
Committed/ funded permanent capacity	12 655	12 655	12 655	12 655	12 655
Existing relocatable capacity	168 300	168 300	168 300	168 300	168 300

Year	Central Case	Sc1	Sc2	Sc3	Sc4
	Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
	No.	No.	No.	No.	No.
Existing relocatable capacity - within the limit	124 862	124 862	72 636	124 862	124 862
Existing relocatable capacity - beyond the limit	43 438	43 438	95 664	43 438	43 438
Excess existing permanent capacity	-14 114	-14 114	-14 114	-14 114	-14 114
Total existing excess capacity (existing relocatables + perm. capacity)	110 749	110 749	58 523	110 749	110 749
2024 to 2056					
Additional enrolments	176 904	176 904	176 904	176 904	176 904
Additional enrolments met by existing capacity	68 911	68 911	27 367	68 911	68 911
Additional enrolments met by new relocatables	0	4 756	0	0	4 756
Additional permanent (converted relocatables)	29 906	38 756	46 294	29 906	38 756
Additional enrolments met by new permanent buildings	20 765	30 144	17 330	20 765	30 144
Additional enrolments met by new schools	87 228	73 093	132 207	87 228	73 093
New schools required	165	138	251	97	81

Note: The sum of 'Additional enrolments met by existing capacity', 'Additional enrolments met by new relocatables', 'Additional enrolments met by new permanent buildings', and 'Additional enrolments met by new schools' equals 'Additional enrolments.'

Data source: CIE - IVIC School Provision Model_v1.7_Base, Current enrolments and existing and committed/ funded capacity provided by DE.

1.16 Additional school infrastructure for secondary schools, 2024 to 2056

Year	Central Case	Sc1	Sc2	Sc3	Sc4
	Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
	No.	No.	No.	No.	No.
2024					
Current enrolments (public schools)	251 810	251 810	251 810	251 810	251 810
Existing permanent capacity	262 725	262 725	262 725	262 725	262 725
Committed/ funded permanent capacity	8 600	8 600	8 600	8 600	8 600
Existing relocatable capacity	67 675	67 675	67 675	67 675	67 675
Existing relocatable capacity - within the limit	63 090	63 090	41 545	63 090	63 090
Existing relocatable capacity - beyond the limit	4 585	4 585	26 130	4 585	4 585
Excess existing permanent capacity	19 515	19 515	19 515	19 515	19 515
Total existing excess capacity (existing relocatables + perm. capacity)	82 605	82 605	61 060	82 605	82 605

Year	Central Case	Sc1	Sc2	Sc3	Sc4
	Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
	No.	No.	No.	No.	No.
2024 to 2056					
Additional enrolments	119 291	119 291	119 291	119 291	119 291
Additional enrolments met by existing capacity	52 617	52 617	34 368	52 617	52 617
Additional enrolments met by new relocatables	3 052	14 583	3 052	3 052	14 583
Additional permanent (converted relocatables)	1 523	3 475	7 694	1 523	3 475
Additional enrolments met by new permanent buildings	16 080	30 640	15 483	16 080	30 640
Additional enrolments met by new schools	47 542	21 451	66 387	47 542	21 451
New schools required	40	18	55	24	11

Note: The sum of 'Additional enrolments met by existing capacity', 'Additional enrolments met by new relocatables', 'Additional enrolments met by new permanent buildings', and 'Additional enrolments met by new schools' equals 'Additional enrolments.'

Data source: CIE - IVIC School Provision Model_v1.7_Base, Current enrolments and existing and committed/ funded capacity provided by DE.

Cost summary

We model the cost of providing additional education infrastructure through managing enrolment and capacity at a regional area level (SA3). Costs are presented in 2024 dollars, i.e., in today's dollars excluding inflation. This means that the actual costs will be higher depending on when construction starts, as they will need to account for inflation over time.

The cost of providing additional school infrastructure equals **\$31.4 billion** for the additional required school infrastructure under the central case (charts 1.17 and 1.19, table 1.21):

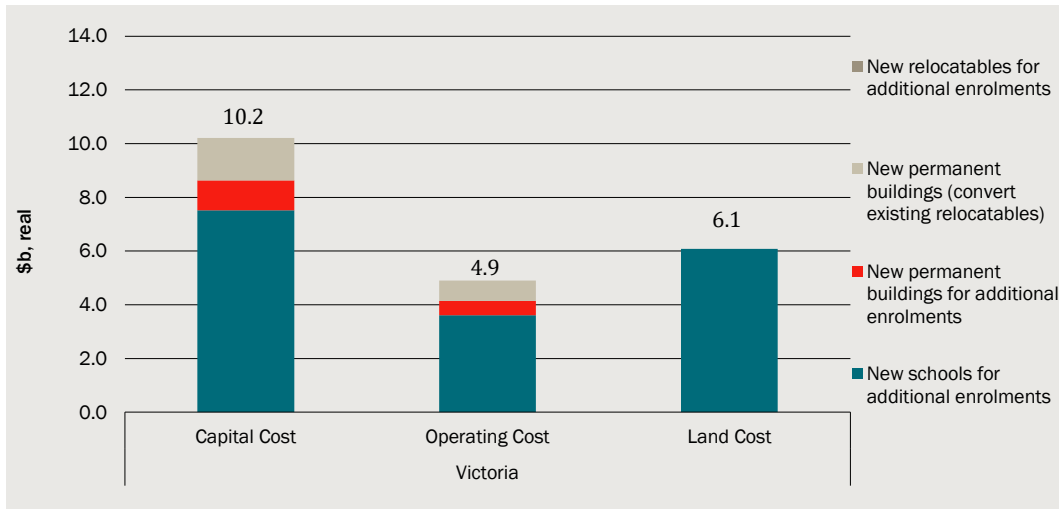
- Additional primary school infrastructure cost makes up the majority with \$21.2 billion. This is in particular driven by the cost of new schools (\$17.2 billion).
- Additional secondary school infrastructure cost makes up less than half compared to primary schools (\$10.2 billion). While the majority of costs are related to new school infrastructure (\$8.1 billion), this is significantly lower compared to primary schools in relative terms.

Charts 1.18 and 1.20 show the costs across the assessed scenarios.

The total cost across the assessed scenarios varies, ranging from \$25.9 billion for Scenario 3, which involves constructing larger new schools, to \$27.7 billion for Scenario 1, emphasising the utilisation of more relocatables and permanent buildings on existing school sites, and up to \$45.2 billion for Scenario 2, which focuses on reducing the reliance on relocatables on existing school sites.

Scenario 4 has the lowest total cost of \$23.3 billion, which proposes a hybrid approach combining elements from both Scenario 1 and Scenario 3. This approach optimises the use of existing school sites while capitalising on the cost efficiencies associated with building larger new schools.

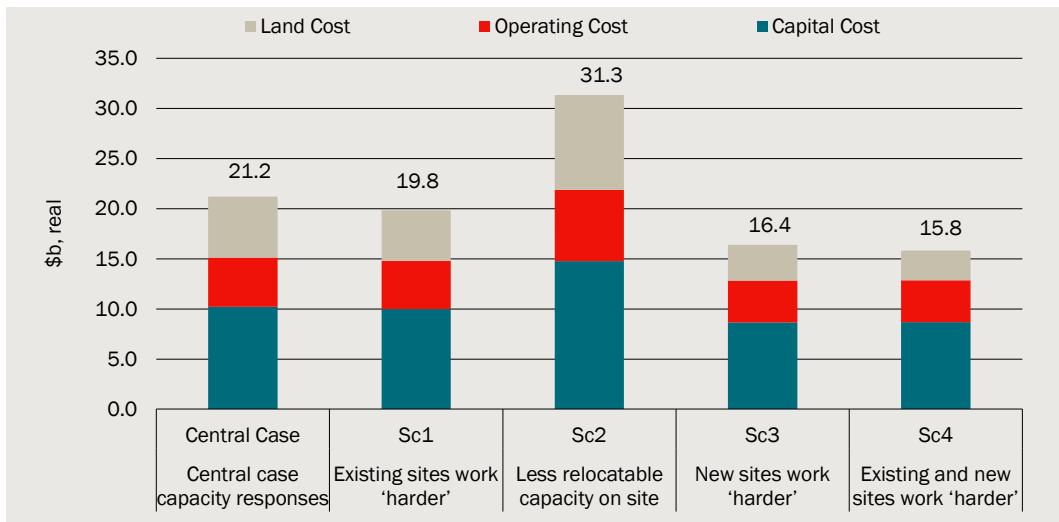
1.17 Central case - primary schools cost infrastructure cost (\$2024), 2024 to 2056



Note: Operating costs include only the cost of physical infrastructure maintenance and not the cost of delivering educational services such as teaching and ICT software and devices.

Data source: CIE - IVIC School Provision Model_v1.7_Base

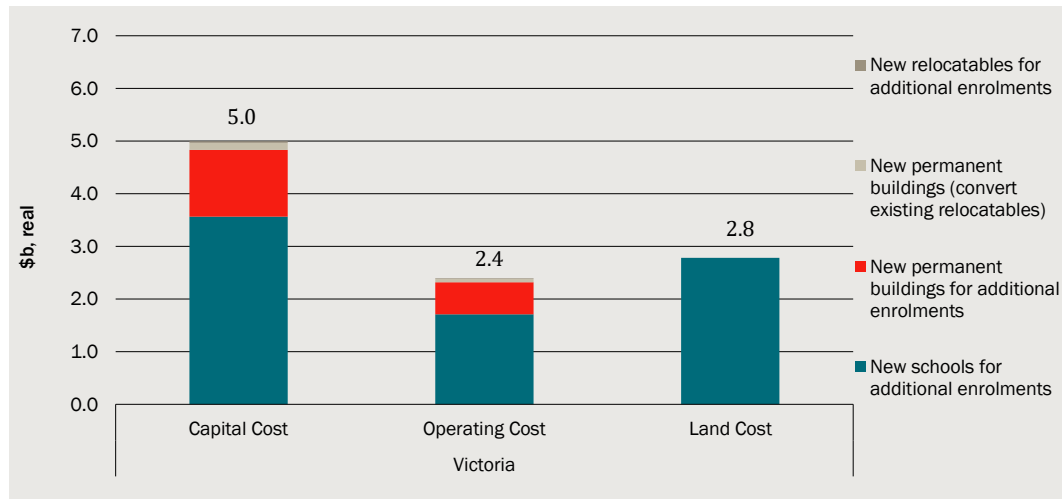
1.18 Primary school infrastructure cost (\$2024), 2024 to 2056



Note: Operating costs include only the cost of physical infrastructure maintenance and not the cost of delivering educational services such as teaching and ICT software and devices.

Data source: CIE - IVIC School Provision Model_v1.7_Base

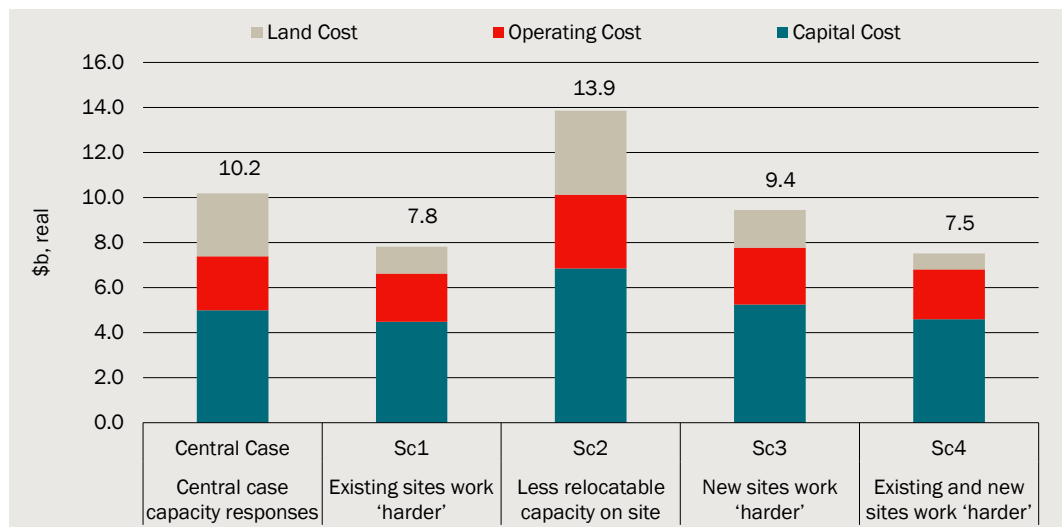
1.19 Central case - secondary schools cost infrastructure cost (\$2024), 2024 to 2056



Note: Operating costs include only the cost of physical infrastructure maintenance and not the cost of delivering educational services such as teaching and ICT software and devices.

Data source: CIE - IVIC School Provision Model_v1.7_Base

1.20 Secondary school infrastructure cost (\$2024), 2024 to 2056



Note: Operating costs include only the cost of physical infrastructure maintenance and not the cost of delivering educational services such as teaching and ICT software and devices.

Data source: CIE - IVIC School Provision Model_v1.7_Base

1.21 School infrastructure cost across scenarios (\$2024), 2024 to 2056

Cost	Type of cost	Central Case	Sc1	Sc2	Sc3	Sc4
		Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
		\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars
Primary Schools						
Capital Cost	Additional relocatable	0.0	0.1	0.0	0.0	0.1
	Additional permanent (converting relocatables)	1.6	2.1	2.4	1.6	2.1
	Additional permanent	1.1	1.6	0.9	1.1	1.6
	New school	7.5	6.3	11.4	6.0	5.0
Operating Cost	Additional relocatable	0.0	0.0	0.0	0.0	0.0
	Additional permanent (converting relocatables)	0.8	1.0	1.2	0.8	1.0
	Additional permanent	0.5	0.8	0.4	0.5	0.8
	New school	3.6	3.0	5.5	2.9	2.4
Land Cost	New school	6.1	5.0	9.5	3.6	3.0
Total		21.2	19.8	31.3	16.4	15.8
Secondary Schools						
Capital Cost	Additional relocatable	0.0	0.2	0.0	0.0	0.2
	Additional permanent (converting relocatables)	0.1	0.3	0.6	0.1	0.3
	Additional permanent	1.3	2.4	1.2	1.3	2.4
	New school	3.6	1.6	5.0	3.8	1.7
Operating Cost	Additional relocatable	0.0	0.1	0.0	0.0	0.1
	Additional permanent (converting relocatables)	0.1	0.1	0.3	0.1	0.1
	Additional permanent	0.6	1.2	0.6	0.6	1.2
	New school	1.7	0.8	2.4	1.8	0.8
Land Cost	New school	2.8	1.2	3.7	1.7	0.7
Total		10.2	7.8	13.9	9.4	7.5
All infrastructure						
Capital Cost	Additional relocatable	0.0	0.2	0.0	0.0	0.2
	Additional permanent (converting relocatables)	1.7	2.3	3.1	1.7	2.3
	Additional permanent	2.4	4.0	2.1	2.4	4.0
	New school	11.1	7.9	16.4	9.8	6.7
Operating Cost	Additional relocatable	0.0	0.1	0.0	0.0	0.1
	Additional permanent (converting relocatables)	0.8	1.1	1.5	0.8	1.1
	Additional permanent	1.1	1.9	1.0	1.1	1.9

Cost	Type of cost	Central Case	Sc1	Sc2	Sc3	Sc4
		Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
		\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars
	New school	5.3	3.8	7.9	4.7	3.2
Land Cost	New school	8.9	6.2	13.2	5.3	3.7
Grand Total		31.4	27.7	45.2	25.9	23.3

Note: Totals may not sum up due to rounding.

Data source: CIE - IVIC School Provision Model_v1.7_Base. Input cost benchmarks provided by Victorian School Building Authority (VSBA).

Sensitivity analysis

The estimates of school infrastructure requirements and costs are based on Victoria in Future population projections for 2023. In a previous exercise for Infrastructure Victoria, the CIE examined education costs for different urban growth scenarios across Victoria.¹³ This analysis found education infrastructure costs ranged from \$37 billion to \$55 billion to 2056 and were highest for the Compact City scenario. The previous work included costs for kindergarten enrolments, which are not included in the costs presented in this report. This report also updates assumptions about capacity responses and costs and population projections.

We have also conducted a sensitivity analysis to assess the impact of an increased government provision share that assumes more students attend government school over time. Based on historical trends we assumed a 4-percentage point shift away from non-government schools to government schools across all FUA's.

Comparing it to the central case, this entails the following changes until 2056:

- Instead of projecting 177,000 additional primary school enrolments, the number rises to over 212,000.
- Similarly, the projection for secondary school enrolments increases from 119,000 to over 152,000.

A heightened level of future government provision would have a significant influence on the necessary school infrastructure (tables 1.22 and 1.23):

- In the central scenario, the projection entails a need for 203 new primary schools by 2056, marking an increase of 38 schools compared to the baseline market share. Additionally, this necessitates an extra 13 new secondary schools.
 - Such expansion translates to an added cost of \$8.5 billion – a notable 27 per cent increase.

¹³ <https://www.infrastructurevictoria.com.au/resources/choosing-victorias-future>

- Across the range of assessed scenarios, the shift mirrors the central case in relative terms. Consequently, the cost increase stemming from a heightened government share ranges from 24 to 28 per cent across the scenarios.

1.22 School infrastructure impact for a higher government provision

Government market share	Time period rent share	Central Case	Sc1	Sc2	Sc3	Sc4
		Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on- site	New sites work 'harder'	Existing and new sites work 'harder'
		No. of schools	No. of schools	No. of schools	No. of schools	No. of schools
Primary Schools						
Projected market share	2024-2036	51	36	87	30	21
Growth market share	2024-2036	69	51	105	40	30
Difference	2024-2036	+18	+15	+28	+10	+9
Projected market share	2024-2056	165	138	251	97	81
Growth market share	2024-2056	203	169	303	119	99
Difference	2024-2056	+38	+31	+52	+22	+18
Secondary Schools						
Projected market share	2024-2036	8	1	16	5	1
Growth market share	2024-2036	14	2	23	8	1
Difference	2024-2036	+6	+1	+7	+3	+0
Projected market share	2024-2056	40	18	55	24	11
Growth market share	2024-2056	53	27	73	32	16
Difference	2024-2056	+13	+9	+18	+8	+5

Note: Totals may not sum up due to rounding.

Data source: CIE - IVIC School Provision Model_v1.7_Base, CIE - IVIC School Provision Model_v1.7_Modelled Growth

1.23 School infrastructure cost for a higher government provision (\$2024)

Government market share	Time period	Central Case	Sc1	Sc2	Sc3	Sc4
		Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on- site	New sites work 'harder'	Existing and new sites work 'harder'
		\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars
Primary Schools						
Projected market share	2024-2036	5.7	5.4	9.0	4.3	4.5
Growth market share	2024-2036	7.3	6.9	11.0	5.4	5.5
Difference	2024-2036	+1.6	+1.4	+2.0	+1.1	+1.0
Projected market share	2024-2056	21.2	19.8	31.3	16.4	15.8

Government market share	Time period	Central Case	Sc1	Sc2	Sc3	Sc4
		Central Case capacity responses	Existing sites work 'harder'	Less relocatable capacity on-site	New sites work 'harder'	Existing and new sites work 'harder'
		\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars	\$b, 2024 dollars
Growth market share	2024-2056	25.9	24.0	37.4	20.0	19.1
Difference	2024-2056	+4.7	+4.2	+6.1	+3.6	+3.3
Secondary Schools						
Projected market share	2024-2036	1.5	1.2	3.3	1.4	1.2
Growth market share	2024-2036	2.8	2.0	4.9	2.5	2.0
Difference	2024-2036	+1.3	+0.8	+1.5	+1.1	+0.8
Projected market share	2024-2056	10.2	7.8	13.9	9.4	7.5
Growth market share	2024-2056	14.0	10.9	18.6	13.1	10.4
Difference	2024-2056	+3.8	+3.1	+4.7	+3.6	+2.9
All infrastructure						
Projected market share	2024-2036	7.2	6.6	12.4	5.7	5.6
Growth market share	2024-2036	10.1	8.8	15.9	7.9	7.5
Difference	2024-2036	+2.9	+2.2	+3.6	+2.2	+1.8
Projected market share	2024-2056	31.4	27.7	45.2	25.9	23.3
Growth market share	2024-2056	39.9	34.9	56.0	33.1	29.5
Difference	2024-2056	+8.5	+7.3	+10.8	+7.2	+6.1

Note: Totals may not sum up due to rounding.

Data source: CIE - IVIC School Provision Model_v1.7_Base, CIE - IVIC School Provision Model_v1.7_Modelled Growth.

2 Methodology

Approach to measure additional school infrastructure need

Broad assumptions have been made to support a simplified model of infrastructure responses and associated costs. Real-world assessments might differ, considering various complex inputs and decisions. Our high-level approach to estimating additional school infrastructure provision follows a three-step process:

- 1 Calculate additional enrolments for primary and secondary schools for each region (SA3) by 2036 and 2056.
 - a) This is based on enrolment data at an SA3 level provided by DE and Victoria in Future (VIF 2023) population projections provided on a regional level (SA2) and by age groups 5-11 and 12-17.
 - b) Additional enrolment in government schools is modelled for a base and growth scenario provided by DE.
 - i. This assumption is subject to scenario testing.
- 2 Calculate the current school capacity in terms of existing capacity in permanent buildings and in relocatable units (i.e., portables)
 - a) For primary and secondary schools existing relocatable capacity has been capped. This means that existing enrolments are moved from existing relocatable buildings into new permanent buildings on the same school site, where the share of students based in relocatable buildings is higher than 40 per cent of total enrolments.
 - i. This assumption is subject to scenario testing.
- 3 Calculate additional infrastructure needed to accommodate additional enrolments.
 - a) This is based on an iterative process of increasing capacity at existing school sites with *adopted*¹⁴ additional relocatable and additional permanent capacity.¹⁵
 - b) Once the existing school site has no expansion capacity within the *adopted* provision, new schools are required.
 - i. This assumption is subject to scenario testing.

In consultation with the Victorian Department of Education and Infrastructure Victoria, we have developed a methodology to calculate existing capacity and business-as-usual

¹⁴ 'adopted' relates to response assumptions which have been developed as part of the consultation of Infrastructure Victoria with the Department of Education and do not reflect state government policy. For example, existing schools might already have a higher existing relocatable capacity than indicated by the response assumptions. For areas outside of Inner Melbourne adopted relocatable capacity is assumed to be 20 per cent of the total permanent capacity.

¹⁵ In consultation with the Department of Education, Infrastructure Victoria has provided a methodology to calculate the recommended responses to additional enrolments.

priority responses for additional enrolments (table 2.11.3). Those priority responses are subject to a scenario analysis. Flow chart 2.2 shows the allocation process of additional enrolments beyond existing capacity:

- Additional enrolments are first absorbed by existing surplus capacity at a school. If possible, additional relocatable buildings are used to meet the additional enrolments. This, however, is not possible in every region (e.g., Inner Melbourne).
- After that, if ongoing demand is maintained and it is a practical solution¹⁶, additional permanent capacity is added. Note that some of the existing enrolments are moved from relocatables into new permanent buildings (within the adopted provision) where the share of students based in relocatable buildings is higher than 40 per cent of the total permanent capacity.
- Note that this analysis is based on generalised modelling at an aggregated SA3 level. SA3 regions within Melbourne's New Growth Areas are relatively large. For instance, the Cardinia SA3 region is approximately the size of all Inner and Middle Melbourne SA3s combined. This aggregation implies that existing schools in one part of the SA3 may have excess capacity or the potential to expand capacity, which could be utilized by other areas within the same SA3. This issue is particularly pronounced for secondary schools, as they historically have more existing capacity in established areas (of the Melbourne New Growth Areas) and rely less on relocatable buildings compared to primary schools.
 - Therefore, we have assumed that for secondary schools in Melbourne's New Growth Areas, no additional relocatable or permanent buildings can be added to existing school sites in the Central Case.
- After this allocation process, if ongoing demand is maintained and exceeds those measures, new schools are required.

Note that those represent high-level and broad assumptions, and this may not apply to every school or region.

2.1 Central Case – Priority responses for additional primary and secondary school enrolments

Geographic Setting	Priority Responses (left to right)				
	Absorb existing surplus	Additional relocatable buildings	Additional permanent buildings	New primary school	New secondary school
Inner Melbourne (high density)	Yes – excess existing permanent capacity + excess existing relocatable capacity (up to 40%)	No	No	Yes – for up to 650 enrolments ^a	Yes – for up to 1200 enrolments ^a
Inner Melbourne (other)	Yes – excess existing permanent capacity + excess existing relocatable capacity (up to 40%)	Yes –	Yes –	Yes – for up to 525 enrolments ^a	Yes – for up to 1200 enrolments ^a
Middle and Outer Melbourne	Yes – excess existing permanent capacity + excess existing relocatable capacity (up to 40%)	Yes –	Yes –	Yes – for up to 525 enrolments ^a	Yes – for up to 1200 enrolments ^a

¹⁶ For example, it may not be possible at every school within a region, despite embedded assumptions.

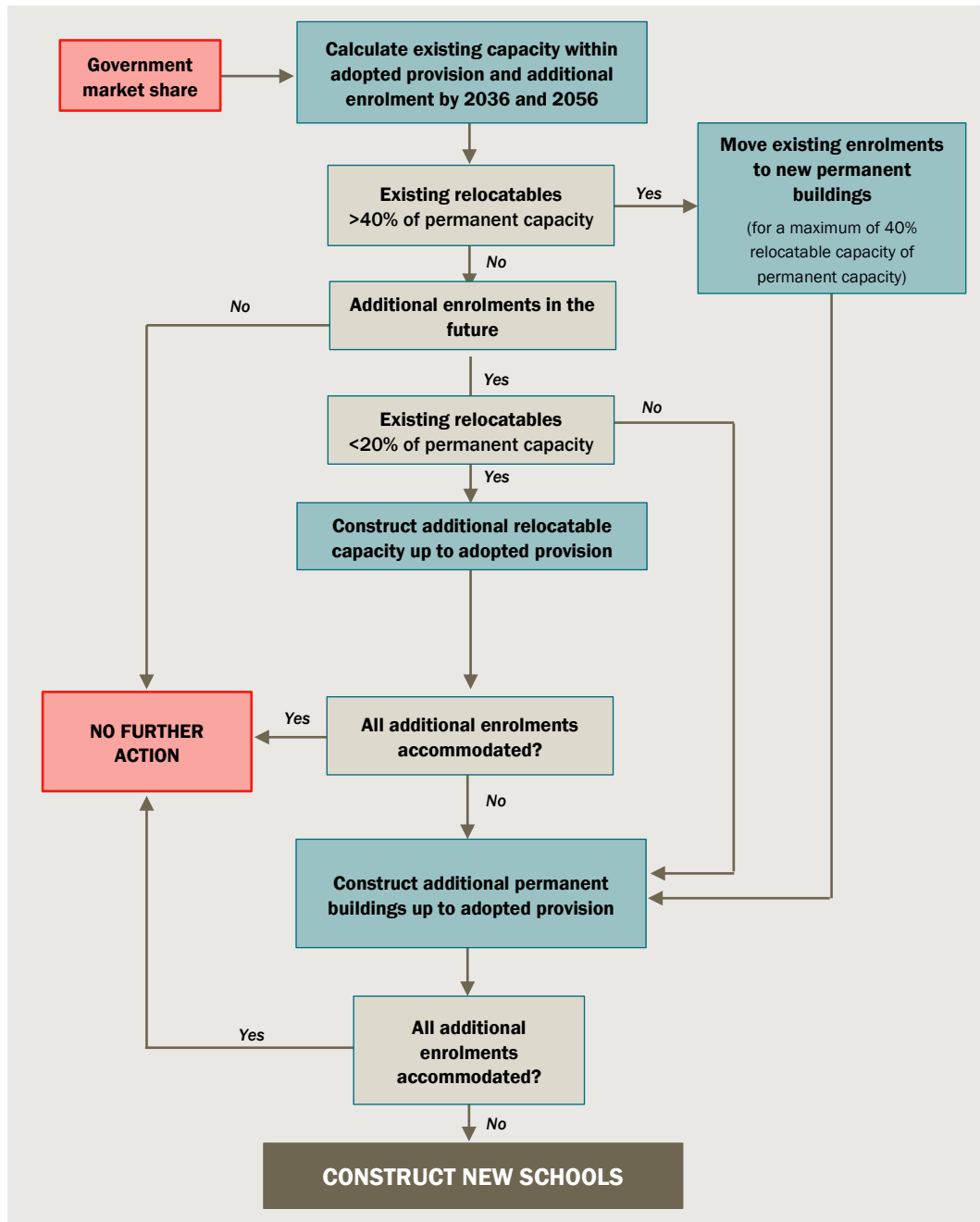
Priority Responses (left to right)					
Geographic Setting	Absorb existing surplus	Additional relocatable buildings	Additional permanent buildings	New primary school	New secondary school
Melbourne New Growth Areas		up to 20% of existing permanent capacity, and 0% for secondary schools in Melbourne New Growth Areas	up to 25% of existing permanent capacity, and 0% for secondary schools in Melbourne New Growth Areas		
Regional (cities and major towns)			Yes – up to 50% of existing permanent capacity		
Rest of Victoria					

^b New school capacity is a mix of permanent and relocatable and can be adjusted to local requirements.

Note: Although 525 and 1200 capacity is assumed for new schools, DE may deliver new schools to different sizes, and these sizes may not be representative of what is ultimately delivered.

Source: CIE in consultation with Infrastructure Victoria and the Department of Education

2.2 Flow chart of enrolment allocation beyond existing capacity (central case)



Data source: CIE.

Summary of assumptions

For this analysis, we have made a suite of general modelling assumptions summarised in table 2.3, which enables us to calculate infrastructure provision and cost to meet the objectives of this project. Broad assumptions have been made to support a simplified model of infrastructure responses and associated costs and that real-world assessment would likely be quite different considering multiple complex inputs and decisions.

We recognise the actual situation may vary across the state and might not be fully represented in our assumption.

2.3 General Assumptions

Metric	Description
Current government market share	Based on actual enrolments divided by current population. However, shares are slightly adjusted to match DE's figures.
Future government market share	Future market shares were provided by DE for a base and growth scenario.
Proportional costs	Yes. We calculate costs for new schools or additional buildings based on required capacity, not full capacity. For example, if a new school has a capacity of 525 but only 400 is needed, we assume 76% of the cost (400/525). This assumes DE efficiently manages growth by adjusting school boundaries or scaling infrastructure.
Committed and funded capacity	Already committed and funded capacity is included as 'existing' capacity. This includes 'planned' capacity as provided by DE and committed and funded schools announced in the 2024-25 Budget papers.
Conversion of relocatable capacity	Relocatable capacity is converted to permanent capacity on existing school sites if the currently installed relocatable capacity is above the defined limit, but only if there is additional population growth in the respective SA3.

Source: CIE.

Scenario analysis

The tables below outline the assumptions underpinning a central case and four scenarios based on consultation with Infrastructure Victoria and the Department of Education. Teal-coloured cells highlight where an assumption differs from the central case (table 2.4).

The following scenarios were assessed (table 2.5):

- **Central Case** — Projected market share, and central case capacity response to additional growth. This represents a business-as-usual response.
- **Sc1 – Existing sites work 'harder'** — this would use the projected market share assumption but allow for higher shares of additional relocatable and permanent capacity, and different types of relocatables can be utilised in Greater Melbourne. In detail:
 - For all regions except Inner Melbourne (high density), where land is highly constrained, we assume **more relocatables** on existing sites. This would increase the adopted provision from 20 to 40 per cent (as a share of permanent capacity) in areas where needed.
 - ... To achieve this, we assume that double (Mod10) or triple (Mod15) storey portable units can be used instead of the standard single-storey (Mod5) units.
 - For all regions except Inner Melbourne (high density) we assume **more additional permanent buildings** on existing sites. This would increase the adopted provision from 25 to 35 per cent (as a share of permanent capacity) in Inner, Middle, and Outer Melbourne, an increase from 20 (primary) and 0 (secondary) to 50 per cent

in Melbourne's New Growth Areas. We allow for a higher share in the latter, as there is more land available compared to the established areas of Melbourne.

- **Sc2 – Less relocatable capacity on site** — this would use the projected market share assumption but restricts the *adopted* provision for relocatables to be capped to an '80% permanent - 20% relocatable' split.
- **Sc3 – New sites work 'harder'** — this would use the projected market share assumption but allow for larger school sizes and vertical schools in Melbourne. In detail:
 - For all regions we assume larger school sizes of 900 enrolments for primary schools and 2,000 enrolments for secondary schools. To achieve this, we assume that vertical schools are constructed in Melbourne's established areas.
 - ... This is based on examples from NSW with school enrolments exceeding 1,000 and 2,000 for primary and secondary schools, respectively.¹⁷ The NSW Department of Education publishes education facilities standards and guidelines for primary schools with an intended capacity of up to 1,000 students¹⁸ and secondary schools with an intended capacity of up to 2,020 students.¹⁹
- **Sc4 – Existing and New sites work 'harder'** — this would combine scenarios Sc1 and Sc3.

In addition, we have conducted a sensitivity test with a higher government provision share.

2.4 General scenario description and high-level assumptions

	Central				Scenarios
	0	1	2	3	4
	Projected market share –	Projected market share –	Projected market share –	Projected market share –	Projected market share –
	Central case capacity responses	existing sites work 'harder'	less relocatable capacity on-site	new sites work 'harder'	existing and new sites work 'harder'
Market share assumption	Projected market share	Projected market share	Projected market share	Projected market share	Projected market share
Capacity responses	Central Case	A higher share of additional relocatables and permanent	Lower relocatable limit	Larger school sizes and Melbourne vertical schools	Sc1 and Sc3

Source: CIE

¹⁷ <https://data.cese.nsw.gov.au/data/dataset/nsw-public-schools-master-dataset>

¹⁸ <https://education.nsw.gov.au/about-us/efsg/design-components/new-primary-school-builds/large>

¹⁹ <https://education.nsw.gov.au/about-us/efsg/design-components/new-secondary-school-builds/large>

2.5 Capacity responses by scenario

FUA-Name	Central				Scenarios	
	0	1	2	3	4	
Projected market share –	Projected market share –	Projected market share –	Projected market share –	Projected market share –	Projected market share –	
Central case capacity responses	existing sites work 'harder'	less relocatable capacity on-site	new sites work 'harder'	existing and new sites work 'harder'		
Additional relocatables						
Inner Melbourne (High Density)	0	0	0	0	0	
Inner Melbourne (other)	0	40	0	0	40	
Middle and Outer Melbourne	20	40	20	20	40	
Melbourne New Growth Area	20 (primary) 0 (secondary)	40	20 (primary) 0 (secondary)	20 (primary) 0 (secondary)	40	
Regional City	20	40	20	20	40	
Rest of Regional Victoria	20	40	20	20	40	
Relocatables - Upper Limit						
Inner Melbourne (High Density)	40	40	20	40	40	
Inner Melbourne (other)	40	40	20	40	40	
Middle and Outer Melbourne	40	40	20	40	40	
Melbourne New Growth Area	40	40	20	40	40	
Regional City	40	40	20	40	40	
Rest of Regional Victoria	40	40	20	40	40	
Additional permanent						
Inner Melbourne (High Density)	0	0	0	0	0	
Inner Melbourne (other)	25	35	25	25	35	
Middle and Outer Melbourne	25	35	25	25	35	
Melbourne New Growth Area	20 (primary) 0 (secondary)	50	20 (primary) 0 (secondary)	20 (primary) 0 (secondary)	50	
Regional City	50	50	50	50	50	
Rest of Regional Victoria	50	50	50	50	50	
New primary school						
Inner Melbourne (High Density)	650	650	650	900	900	
Inner Melbourne (other)	525	525	525	900	900	
Middle and Outer Melbourne	525	525	525	900	900	
Melbourne New Growth Area	525	525	525	900	900	
Regional City	525	525	525	900	900	
Rest of Regional Victoria	525	525	525	900	900	
New secondary school						
Inner Melbourne (High Density)	1200	1200	1200	2000	2000	

FUA-Name	Central			Scenarios	
	0	1	2	3	4
	Projected market share – Central case capacity responses	Projected market share – existing sites work ‘harder’	Projected market share – less relocatable capacity on-site	Projected market share – new sites work ‘harder’	Projected market share – existing and new sites work ‘harder’
Inner Melbourne (other)	1200	1200	1200	2000	2000
Middle and Outer Melbourne	1200	1200	1200	2000	2000
Melbourne New Growth Area	1200	1200	1200	2000	2000
Regional City	1200	1200	1200	2000	2000
Rest of Regional Victoria	1200	1200	1200	2000	2000
Type of relocatables					
Inner Melbourne (High Density)	Mod5 only	All sizes	Mod5 only	Mod5 only	All sizes
Inner Melbourne (other)	Mod5 only	All sizes	Mod5 only	Mod5 only	All sizes
Middle and Outer Melbourne	Mod5 only	All sizes	Mod5 only	Mod5 only	All sizes
Melbourne New Growth Area	Mod5 only	All sizes	Mod5 only	Mod5 only	All sizes
Regional City	Mod5 only	Mod5 only	Mod5 only	Mod5 only	Mod5 only
Rest of Regional Victoria	Mod5 only	Mod5 only	Mod5 only	Mod5 only	Mod5 only
Type of new school					
Inner Melbourne (High Density)	Standard	Standard	Standard	Vertical	Vertical
Inner Melbourne (other)	Standard	Standard	Standard	Vertical	Vertical
Middle and Outer Melbourne	Standard	Standard	Standard	Vertical	Vertical
Melbourne New Growth Area	Standard	Standard	Standard	Standard	Standard
Regional City	Standard	Standard	Standard	Standard	Standard
Rest of Regional Victoria	Standard	Standard	Standard	Standard	Standard

Source: CIE

Cost of additional education infrastructure

The total cost of providing additional school infrastructure includes the land cost, capital and operating costs (only the cost of maintaining assets).

Land cost

The cost of land is only included for new schools. New schools differ in the amount of land they require by type of school and region. Table 2.6 summarises our assumed land requirements by school type and region in Victoria. The ‘Victorian Government School

Site Selection Criteria – Toolbox²⁰ describes land requirements for primary and secondary schools in greenfield, established and high-density areas:

- For the Melbourne New Growth Areas, Regional Cities, and the Rest of Regional Victoria we adopt the land requirements as recommended for greenfield areas;
- For Inner Melbourne we adopt the land requirements as recommended for high-density areas; and
- For Melbourne’s established areas smaller land sizes were adopted in line with historical averages and as supplied by DE.

2.6 Land requirement for new kindergarten and schools, by region in Victoria

School type	Inner Melbourne	Middle Melbourne	Outer Melbourne	Melbourne New Growth Area	Regional City	Rest of Regional Victoria
	ha	ha	ha	ha	ha	ha
Primary School	2.0	2.0	2.0	3.5	3.5	3.5
Secondary School	2.0	5.0	5.0	8.4	8.4	8.4

Source: Victorian Government School Site Selection Criteria – Toolbox <https://www.education.vic.gov.au/PAL/victorian-government-school-site-selection-criteria-toolbox.pdf> and as advised by the Department of Education.

Land cost per square metre of required land differs by region and the type of development area and is summarised in table 2.7.

2.7 Land cost for new schools (\$2024)

Functional Urban Area	Greenfield	Infill
	\$/sqm	\$/sqm
Inner Melbourne	NA	3 592
Middle Melbourne	NA	2 271
Outer Melbourne	1 030	1 552
Melbourne New Growth Area	907	1 201
Regional City	593	888
Rest of Regional Victoria	559	893

Note: Land cost values are based on a weighted average of number of sales, median price per area, and median block size by region in Victoria. Greenfield values are based on the weighted average of land uses classified as Vacant land, and Infill only on Residential Land.

Source: Valuer-General Victoria Property sales statistics (2021), <https://www.land.vic.gov.au/valuations/resources-and-reports/property-sales-statistics>; CIE Cost of land estimates - 01May.xlsx

Capital Cost

We have adopted the following capital costs based on information provided by Infrastructure Victoria (table 2.8 to 2.10):

²⁰ Victorian Government School Site Selection Criteria – Toolbox <https://www.education.vic.gov.au/PAL/victorian-government-school-site-selection-criteria-toolbox.pdf>

- For additional permanent capacity at primary schools the cost ranges from \$8.27 million to \$15.79 million for capacities of 150 to 300, and \$15.21 million to \$23.07 million for secondary schools, respectively.
- There are cost differences for 'new schools' depending on the type of school,
 - Vertical schools come usually at a price premium of around 50 per cent compared to standard schools.

2.8 Capital expenditure (excl. land cost) for additional permanent buildings (\$2024)

Student capacity	Capital cost	
	\$m	\$/student
Primary Schools		
150	8.27	55 148
200	11.38	56 901
250	13.72	54 876
300	15.79	52 627
Secondary Schools		
150	15.21	101 400
200	18.44	92 189
250	20.13	80 529
300	23.07	76 897

Note: The costs associated with adding new permanent capacity are suited to building new 'learning community' type buildings. This is based on approaches used in the growth areas where school sites are larger. In middle and inner Melbourne, the costs of adding permanent infrastructure are highly variable depending on the specifics of each site. In some specific cases where sites are very constrained the costs could be higher.

Source: Provided by Infrastructure Victoria.

2.9 Capital expenditure (excl. land cost) for primary schools (\$2024)

Student capacity	Capital cost	
	\$m	\$/student
Standard primary school		
525	45.37	86 427
650	52.12	80 188
900 ^a	57.18	63 532
Vertical primary school		
525	80.80	153 898
650	94.06	144 708
900 ^a	118.42	131 580

^a Vertical schools are only assumed to be provided in high density areas of inner Melbourne in the central case.

Note: These are assumed school sizes. DE may deliver new schools to different sizes, and these sizes may not be representative of what is ultimately delivered.

Source: Provided by Infrastructure Victoria.

2.10 Capital expenditure (excl. land cost) for secondary schools (\$2024)

Student capacity	Capital cost	
	\$m	\$/student
Standard secondary school		
1200	89.94	74 950
1600	126.20	78 874
2000 ^a	150.82	75 411
Vertical secondary school		
1200	161.38	134 483
1600	227.23	142 021
2000 ^a	271.89	135 943

^a Vertical schools are only assumed to be provided in high density areas of inner Melbourne in the central case.

Note: These are assumed school sizes. DE may deliver new schools to different sizes, and these sizes may not be representative of what is ultimately delivered.

Source: Provided by Infrastructure Victoria.

Operating cost

Annual operating costs have been estimated as a percentage of total capex at 3 per cent.²¹ This includes only the cost of physical infrastructure maintenance and not the cost of delivering educational services such as teaching and ICT software and devices. Operating costs are estimated from 2023 to 2036 and subsequent from 2036 to 2056 and divided by two. This assumes that on average additional infrastructure is provided halfway through both periods.

²¹ Infrastructure Victoria (2019), Infrastructure Provision in Different Development Settings, Metropolitan Melbourne Volume 2 Technical Appendix, p.67, available at https://www.infrastructurevictoria.com.au/wp-content/uploads/2019/08/IPIDDS-Metro-Melbourne-Vol-2-Technical-appendix_Aug-2019.pdf

A Geographical concordance

A.1 Concordance between different geographical areas

Functional Urban Area	Social Infrastructure Region	SA4 Code	SA4	SA3 Code	SA3
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20601	Brunswick - Coburg
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20602	Darebin - South
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20603	Essendon
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20604	Melbourne City
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20605	Port Phillip
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20606	Stonnington - West
Inner Melbourne	Inner Melbourne	206	Melbourne - Inner	20607	Yarra
Inner Melbourne	Inner Melbourne	213	Melbourne - West	21303	Maribyrnong
Melbourne New Growth Area	Growth Area North	209	Melbourne - North East	20904	Whittlesea - Wallan
Melbourne New Growth Area	Growth Area North	210	Melbourne - North West	21004	Sunbury
Melbourne New Growth Area	Growth Area South East	212	Melbourne - South East	21201	Cardinia
Melbourne New Growth Area	Growth Area South East	212	Melbourne - South East	21203	Casey - South
Melbourne New Growth Area	Growth Area West	213	Melbourne - West	21304	Melton - Bacchus Marsh
Melbourne New Growth Area	Growth Area West	213	Melbourne - West	21305	Wyndham
Middle Melbourne	Inner Melbourne	207	Melbourne - Inner East	20701	Boroondara
Middle Melbourne	Outer and Middle East	207	Melbourne - Inner East	20702	Manningham - West
Middle Melbourne	Outer and Middle East	207	Melbourne - Inner East	20703	Whitehorse - West
Middle Melbourne	Outer and Middle South East	208	Melbourne - Inner South	20801	Bayside
Middle Melbourne	Outer and Middle South East	208	Melbourne - Inner South	20802	Glen Eira
Middle Melbourne	Outer and Middle South East	208	Melbourne - Inner South	20803	Kingston

Functional Urban Area	Social Infrastructure Region	SA4 Code	SA4	SA3 Code	SA3
Middle Melbourne	Inner Melbourne	208	Melbourne - Inner South	20804	Stonnington - East
Middle Melbourne	Outer and Middle North	209	Melbourne - North East	20901	Banyule
Middle Melbourne	Outer and Middle North	209	Melbourne - North East	20902	Darebin - North
Middle Melbourne	Outer and Middle North	210	Melbourne - North West	21001	Keilor
Middle Melbourne	Outer and Middle North	210	Melbourne - North West	21003	Moreland - North
Middle Melbourne	Outer and Middle East	211	Melbourne - Outer East	21104	Whitehorse - East
Middle Melbourne	Outer and Middle South East	212	Melbourne - South East	21204	Dandenong
Middle Melbourne	Outer and Middle East	212	Melbourne - South East	21205	Monash
Middle Melbourne	Outer and Middle West	213	Melbourne - West	21301	Brimbank
Middle Melbourne	Outer and Middle West	213	Melbourne - West	21302	Hobsons Bay
Outer Melbourne	Outer and Middle North	210	Melbourne - North West	21005	Tullamarine - Broadmeadows
Outer Melbourne	Outer and Middle East	211	Melbourne - Outer East	21101	Knox
Outer Melbourne	Outer and Middle East	211	Melbourne - Outer East	21102	Manningham - East
Outer Melbourne	Outer and Middle East	211	Melbourne - Outer East	21103	Maroondah
Outer Melbourne	Outer and Middle South East	212	Melbourne - South East	21202	Casey - North
Outer Melbourne	Outer and Middle South East	214	Mornington Peninsula	21401	Frankston
Outer Melbourne	Outer and Middle South East	214	Mornington Peninsula	21402	Mornington Peninsula
Regional City	Central Highlands	201	Ballarat	20101	Ballarat
Regional City	Loddon Campaspe	202	Bendigo	20201	Bendigo
Regional City	Barwon	203	Geelong	20302	Geelong
Regional City	Gippsland	205	Latrobe - Gippsland	20504	Latrobe Valley
Regional City	Goulburn and Ovens Murray	216	Shepparton	21603	Shepparton

Functional Urban Area	Social Infrastructure Region	SA4 Code	SA4	SA3 Code	SA3
Rest of Regional Victoria	Central Highlands	201	Ballarat	20102	Creswick - Daylesford - Ballan
Rest of Regional Victoria	Central Highlands	201	Ballarat	20103	Maryborough - Pyrenees
Rest of Regional Victoria	Loddon Campaspe	202	Bendigo	20202	Heathcote - Castlemaine - Kyneton
Rest of Regional Victoria	Loddon Campaspe	202	Bendigo	20203	Loddon - Elmore
Rest of Regional Victoria	Barwon	203	Geelong	20301	Barwon - West
Rest of Regional Victoria	Barwon	203	Geelong	20303	Surf Coast - Bellarine Peninsula
Rest of Regional Victoria	Goulburn and Ovens Murray	204	Hume	20401	Upper Goulburn Valley
Rest of Regional Victoria	Goulburn and Ovens Murray	204	Hume	20402	Wangaratta - Benalla
Rest of Regional Victoria	Goulburn and Ovens Murray	204	Hume	20403	Wodonga - Alpine
Rest of Regional Victoria	Gippsland	205	Latrobe - Gippsland	20501	Baw Baw
Rest of Regional Victoria	Gippsland	205	Latrobe - Gippsland	20502	Gippsland - East
Rest of Regional Victoria	Gippsland	205	Latrobe - Gippsland	20503	Gippsland - South West
Rest of Regional Victoria	Gippsland	205	Latrobe - Gippsland	20505	Wellington
Rest of Regional Victoria	Outer and Middle North	209	Melbourne - North East	20903	Nillumbik - Kinglake
Rest of Regional Victoria	Loddon Campaspe	210	Melbourne - North West	21002	Macedon Ranges
Rest of Regional Victoria	Outer and Middle East	211	Melbourne - Outer East	21105	Yarra Ranges
Rest of Regional Victoria	Wimmera Southern Mallee and Mallee	215	North West	21501	Grampians
Rest of Regional Victoria	Wimmera Southern Mallee and Mallee	215	North West	21502	Mildura
Rest of Regional Victoria	Wimmera Southern Mallee and Mallee	215	North West	21503	Murray River - Swan Hill
Rest of Regional Victoria	Loddon Campaspe	216	Shepparton	21601	Campaspe

Functional Urban Area	Social Infrastructure Region	SA4 Code	SA4	SA3 Code	SA3
Rest of Regional Victoria	Goulburn and Ovens Murray	216	Shepparton	21602	Moira
Rest of Regional Victoria	Great South Coast	217	Warrnambool and South West	21701	Glenside - Southern Grampians
Rest of Regional Victoria	Barwon	217	Warrnambool and South West	21703	Colac - Corangamite
Rest of Regional Victoria	Great South Coast	217	Warrnambool and South West	21704	Warrnambool

Source: Data Provided by Infrastructure Victoria