Modelling Demand for Early Education and Care in the City of Port Phillip

Prepared February 2022

Introduction

There are many uncertainties and complex factors influencing the supply and demand for early education and care.

The following augments work undertaken in partnership with the Victorian Government to develop a Kindergarten Infrastructure and Service Plan (KISP) in 2021. This plan represents a shared understanding between the City of Port Phillip and the Department of Education and Training regarding kindergarten provision and capacity to support all children to participate in two years of kindergarten for a minimum of 15 hours per week by 2029. This modelling was undertaken in March 2021 and is scheduled for review in 2024.

Council has recently reviewed and enhanced the modelling undertaken during the development of the KISP to ensure that it is informed by the most current information and sufficiently considers demand and supply for long day care as well as kindergarten.

Continued monitoring of local usage, national trends and new data sources as well as future development applications for childcare centres on a regular basis must be undertaken to further enhance modelling and understand potential changes to supply and demand.

What do we know about demand and supply of early education and care in the City of Port Phillip?

Data published in the Australian Government's quarterly *Child Care in Australia* reports indicate that in between September 2019 and March 2020, there were more than 3,250 children enrolled in a long day care service[1] in the City of Port Phillip. As a proportion of the population this represents about 50% of children forecast to reside in the City of Port Phillip aged 0-5 years old at that time. These figures will also include children who do not reside in the City of Port Phillip.

Enrolments dropped by almost 20 per cent in September 2020 with only 2,880 children aged 0-5 enrolled in formal care. It is likely that this was the result of changed behaviour during the COVID-19 pandemic as the latest data available suggests demand recovered somewhat with 3,130 children enrolled in formal care in March 2021.

[1] These figures include children who are accessing kindergarten in a long-day care setting but exclude children who attending sessional kindergarten and not accessing the Federal Government Child Care Subsidy.

Table 1: Enrolments in formal childcare in the City of Port Phillip (adapted from Child Care in Australia and forecast id)

Time period	Number of children aged 0-5 years old enrolled in formal childcare in City of Port Phillip	Adjusted enrolments[2]	Proportion of forecast population	Forecast population 0-5 years old
September 2019	3,460	3,342	51%	6,598
December 2019	3,370	3,252	49%	6,598
March 2020	3,370	3,255	49%	6,628
June 2020	NA	NA	NA	6,628
September 2020	2,880	2,782	42%	6,628
December 2020	2,980	2,878	43%	6,628
March 2021	3,130	3,023	45%	6,651

It is also worth noting that in April 2021 supply of licensed places increased by 100 places (roughly equivalent to potential 150 enrolments) following the opening of the Elwood Nest in 2021.

Scope

This modelling considers supply and demand of kindergarten and long day-care in the City of Port Phillip to better understand how Council can deliver on its commitments outlined in the *Every Child, Our Future: Children's Services Policy*.

The model classifies long day care (often referred to as childcare or early education and care) as any quality education and care delivered by accredited providers and staff with approved degree, diploma and certificate qualifications. Families and care-givers enrol children for the number of hours they require based on their circumstances and preferences.

The model classifies kindergarten as any of the universal funded early education that is delivered by accredited providers and degree qualified teachers regardless of the setting.

Kindergarten can be delivered in different settings including both stand-alone kindergartens and long day care services. The majority (68%) of children in the City of Port Phillip access kindergarten in long day care settings rather than stand-alone kindergarten services. This is a higher proportion than the Victorian average. Whether children attend kindergarten in a stand-alone kindergarten, or long-day care is largely influenced by family preferences and circumstances. For example, in general, the fee structure of standalone kindergarten services is less than the cost of attending long day care however long day care offers more flexibility for attending additional days or longer hours. Depending on family requirements, children can access both kindergarten and long day care in the same service or a different service.

Currently all children can access 15 hours per week of funded kindergarten in the year before school (commonly referred to as four-year-old kindergarten). In 2022, the Victorian

[2] The adjusted figures remove an estimated 3.5% of children who are attending out of school hours care rather than long day care. This estimation is based on the proportion of Australian children aged 0-5 attending out of school hours care as reported in the March 2021 Childcare in Australia report.

Government commenced funding an additional year of universal funded kindergarten (commonly referred to as three-year-old kindergarten). It is intended that this will be fully rolled-out in the City of Port Phillip by 2029 however this may vary between services.

Glossary of key assumptions, concepts and terms

Population forecasts
There is no consistently agreed model for forecasting population growth across different levels of government. Whilst the principles used are similar the numbers can differ based on the approach leading to different results depending on the forecast used.

There remains significant uncertainty around population forecasts as we continue to learn more about the impact of COVID-19 on migration patterns and development and the release of the 2021 Census will provide an opportunity get more accurate information about population.

Victoria in the Future	This is the Victorian Government's forecast model and provides forecasts for SA2s. It uses a top down approach to model growth across Victoria and is the preferred forecast for the Victorian Government.
Forecast id	The City of Port Phillip (like many local government authorities) subscribes to Forecast id to undertake more detailed forecasting of population growth. This model considers localised developments and household changes.

Types of places and enrolments

Depending on the context, the term "places" can refer to different things when modelling supply and demand for early education and care:

Licenced place/s	This refers to the total number of children a centre can have on site at any one time under its accreditation. The number of licenced places is largely determined by the available indoor and outdoor space. As children generally do not attend a centre the whole time it operates a single licenced place can facilitate multiple kindergarten or long day care enrolment depending on family requirements and the programming by the service. The KISP generally assumes that a single licenced place can provide a minimum of 1.6 enrolments for kindergarten however with change management activities to increase efficiency it is assumed that up to 2.49 enrolments could be provided by that single place.
Kindergarten enrolment places	This refers to how many funded enrolments in kindergarten are needed to deliver on the Victorian government policy to provide universal access to 15 hours of kindergarten in the two years prior to school. Kindergarten providers have flexibility to determine how many hours they offer each week however they only receive funding for the fifteen hours.
Long day care enrolment places	This refers to how many enrolments in long day care are estimated to be needed to meet demand once kindergarten demand has been met.

Defining geographic areas

To help planners examine service needs for to particular parts of the City of Port Phillip, it is necessary to divide the city up into smaller geographic areas:

Statistical Area Level 2 (SA2)	These are what the ABS uses to divide Australia into medium-sized areas which represent a community that interacts socially and economically, with a population range of 3,000 to 25,000 people, and an average population of about 10,000 people. SA2s often correlate with suburbs and are generally named after the biggest suburb in the area. For consistency across the state, the KISP uses SA2 areas to model supply and demand of kindergarten places.
Forecast small areas	Council has developed its own geography to forecast population growth and plan for services – these are known as forecast small areas. This modelling uses Council's defined forecast small areas to assess supply and demand of both kindergarten and long day care.
Suburb	Suburbs are defined for address and postal purposes however often suburb names are used to describe other geographies. Suburb boundaries have not been used by either the KISP or council's modelling.
Example of why comparisons are hard	Confusingly these different geographic boundaries are often called similar names to help locate them however the differences in the geography mean that they can't be directly compared. For example, the Elwood SA2 boundary is different to the Elwood-Ripponlea forecast area boundary (this is slightly smaller than the Elwood SA2). These different boundaries can lead to different estimates of population (e.g. demand) and can also impact supply estimates as a service may be included in the SA2 boundary but not the forecast areas boundary, or vice versa.

Modelling supply

Modelling supply quantifies enrolment capacity (the number of children that can be accommodated by existing and planned early education services). It is calculated by applying a set of assumptions (multipliers and scenarios) to the licensed capacity and the hours available at each service.

There are several significant uncertainties associated with modelling supply and enrolment capacity of the early education and care system. To address this the following assumptions have been applied:

Supply scenarios	The KISP models three scenarios for kindergarten supply: **Base** – assumes that each licensed place within a long day care centre can provide 0.57 funded kindergarten enrolments, while a licensed place within a stand-alone kindergarten can provide 1.6 kindergarten enrolments. **More efficient** –also assumes that each licensed place within a long day care centre can provide 0.57 funded kindergarten enrolments but that each licenced place in a kindergarten can generally supply approximately 2 kindergarten enrolments through change management activities. **High efficiency** - also assumes that each licensed place within a long day care centre can provide 0.57 funded kindergarten enrolments but

	that each licenced place in a kindergarten can generally supply up to 2.4 kindergarten enrolments through change management activities.
Hours available	The model assumes long day care services are available 10.5 hours per day (based on the reported average opening hours of services operating in the City of Port Phillip) five days per week and operate at 85% capacity. The assumption that centres operate at 85% capacity is based on average reported utilisation which is likely to vary between services.
Niche services	The City of Port Phillip has a number of niche services that target particular population groups and family preferences. Different assumptions have been applied to each service. Poets Grove Family and Children's Centre and Bubup Wominjeka operate both a long day care service and standalone kindergarten from the same centre. For the purpose of the model, the licenced places at these services have been split into kindergarten and long day care settings and relevant assumptions applied to each. Lady Forster Kindergarten, St Kilda Balaclava and Barring Djinang operate as extended hours kindergarten provided in all or some of the programs. The model assumes these services can facilitate between 1.3 and 1.6 kinder places for every licenced place. St Michaels and Wesley operate independent preschools in the municipality. These services require full enrolment across the five days so their capacity for kindergarten places have been modelled as one kinder place for every licenced place. There are also has a number of Jewish services and services fulfilling a niche type of education (for example, bi-lingual Montessori or Steiner). These have been modelling using the same assumptions for long day care settings however it should be noted that these services may attract a wider geographic clientele.

Modelling demand

Modelling demand quantifies enrolment demand (the number of children that can be need early and care education services). It is calculated by applying a set of assumptions about the what proportion of the estimated population rate will participate (participation rates) and an estimate of the time they will participate (hours required).

There are several significant uncertainties associated with modelling demand and for the early education and care system. To address this the following assumptions have been applied:

Kindergarten participation rates	As per the KISP, kindergarten participation rates are based on the sum of four-years old participation rates and three-years old participation rates. Four-years old participation is estimated on known current four-year enrolments, adjusted for population change. To estimate three-year old enrolments defined participation rates are set and applied to the forecast population (refer to table 1 in Appendix 1).

Kindergarten hours required	As per the KISP, the model assumes that demand for kindergarten is fixed at 15 hours for four-year-old children. It assumes a maximum of 15 funded hours per week for three-year-old children with hours increasing incrementally from 5 hours per week in 2022 to 15 hours in 2029. In practice some services will operate more or less hours depending on their program scheduling.
Long day care participation rate	Unlike kindergarten where there is an assumed target 100% participation of all eligible children, not all eligible children will utilise long day care. Latest Australian data indicates that approximately 47% percent of children aged 0-5 were utilising long day care. This will include children who are accessing kindergarten in long day care. The model takes a more conservative approach for estimating participation by estimating that 45% per cent of children aged 0-5 will utilise long day care. The reason for the slightly lower rate is the high rates of families utilising nannies (see below) however there is substantial uncertainty about this, and it should continue to be reviewed as further data is released.
Long day care hours required	Unlike schools and to a lesser extent kindergarten, family preferences and circumstances will determine the amount of care required. Data from Council's waitlist indicates that on average, families are looking for 2.9 days of care per week.

Key factors that may impact reliability of modelling

The are a range of factors that can impact the reliability of modelling including:

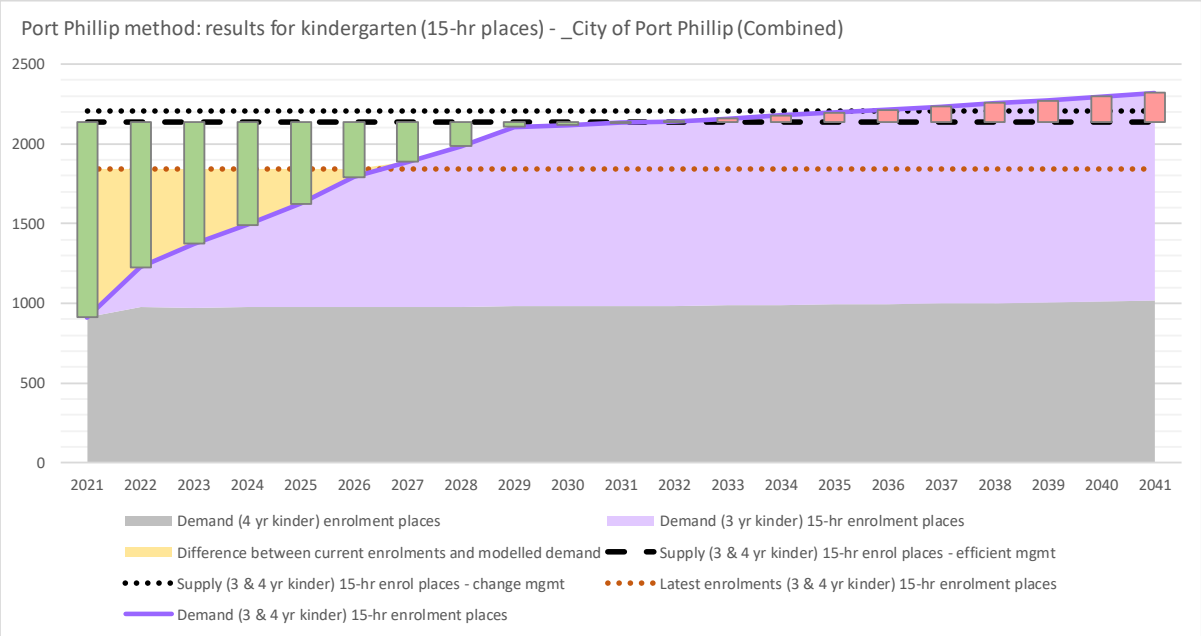
Demand from non-resident population	As an inner-City municipality, it is quite common for families to cross suburb, neighbourhood and municipal boundaries to access early education and care services that meet their family circumstances and preferences. This adds to the uncertainty and complexity of modelling supply and demand. The most recent data published regarding participation in four-year-old kindergarten in the City of Port Phillip indicates that whilst a proportion of children who reside in the City of Port Phillip are accessing kindergarten outside of the City of Port Phillip, a larger number of enrolments are coming from children who reside outside of the municipality. It is very difficult to quantify this impact and this demand is associated with worker population, the supply of niche services, or supply issues outside of the municipality. The availability of kindergarten enrolment data by the Department of Education and Training meant the KISP was able to make some adjustments for movement between areas however this data is not available for long day care services. Relevant local factors and insights should be considered before any intervention is undertaken as a result of this modelling.
Prevalence of nannies as carers or educators	The prevalence of nannies as carers or educators in the City of Port Phillip has shown an upward trend since 2012: from 7% in 2012, to 11% in 2015 and 12% in 2018 according to the Australian Early Development Census). Whilst reliable national data is unavailable this suggests our participation in long day care may differ from the Australian average.
Changes in family behaviour	The model assumes family decisions about demand for early education and care will not change over time. In practice economic and social factors may increase and decrease demand over time.

Potential unmet demand	The City of Sydney modelling in 2019 assumed there was unmet demand based on a 2017 ABS survey which indicated that 8% per cent of Australian families of children aged 0-12 desired additional early education and care. Potential unmet demand has not been included in this modelling because the assumptions for hours required are based on the number of hours families are requesting when they enter the system via Council's waitlist. It is acknowledged a limitation of this approach is that demand for hours is likely to change as families enter the system and family circumstances and preferences changes and children get older in the years since registering.
Potential supply changes	The model assumes existing supply is maintained and that there are no new services entering.

Key findings

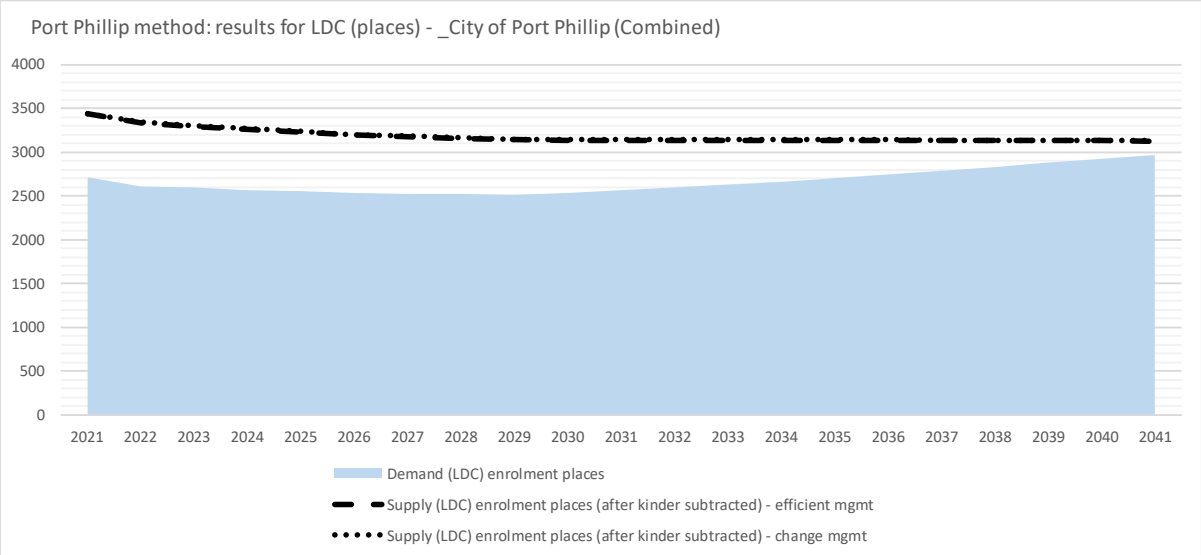
Across the municipality a surplus of kindergarten will continue until after 2030.

Figure 1: Estimated demand and supply of kindergarten places across the City of Port Phillip



The current significant surplus of long day care places will reduce gradually as a proportion of these places shift to kindergarten and will remain in surplus across the period of modelling.

Figure 2: Estimated demand and supply of long day care places across the City of Port Phillip



Note, some of this surplus may be required to support worker or non-residential demand, particularly in areas with high worker populations or close to the city (e.g. South Melbourne and St Kilda Road) that has not been included in the modelling.

Whilst there is a surplus overall, the modelling suggests that some forecast areas are undersupplied, and while others may be oversupplied. This may be due to demand moving between forecast areas.

Forecast small area	Model results
Port Melbourne	Large surplus of both kindergarten and long day care will continue across the modelling period. However, it is understood that Port Melbourne (together with South Melbourne) services the neighbouring areas of Fishermens Bend and is also likely to be accommodating worker and non-resident populations.
South Melbourne	Large surplus of both kindergarten and long day care will continue to across the modelling period. However, it is understood that South Melbourne services the neighbouring areas of Middle Park-Albert Park, Domain, St Kilda Road and Fishermans Bend.
Domain	Ongoing shortfall of both kindergarten and Long Day Care due to lack of any local services. It is understood that families currently access services in South Melbourne, St Kilda Road or South Yarra.
Fishermans Bend	The current surpluses of both kindergarten and long day care will become a shortfall from 2030 onwards, after which significant shortfalls in both kindergarten and long day care may exist based on current supply and forecast population growth.
St Kilda Road	Current surplus of kindergarten quickly becomes a large shortfall from 2023 onwards, peaking in 2029. The area may experience a very small shortfall in long day care. It should be noted that demand and supply in this area is likely to cross borders.
Middle Park – Albert Park	Current surplus of kindergarten becomes a very small shortfall from 2028 however it can be accommodated within a more efficient programming. A significant shortfall in long day care will continue across the modelling period however it is understood that families currently access services in neighbouring areas.
East St Kilda	Current surplus of kindergarten becomes a shortfall from 2026 onwards. Small surplus of long day care continues to across the modelling period. This may partly balance the shortfall in kindergarten if spare child care capacity is instead used for integrated kindergarten programs.
Elwood – Ripponlea	Current surplus of kindergarten becomes a shortfall from 2026 onwards. Current shortfall in long day care decreases slightly over time but the model is forecasting a shortfall in both kinder and long day care places from 2026 onwards. It is understood that some of this shortfall is accommodated by places in the St Kilda area or outside of municipal boundaries.
St Kilda	Current surplus of kindergarten becomes a slight shortfall from 2028 onwards. A moderate surplus of long day care will continue across the

modelling period, likely balancing the shortfall in kindergarten if spare child care capacity is instead used for integrated kindergarten programs.

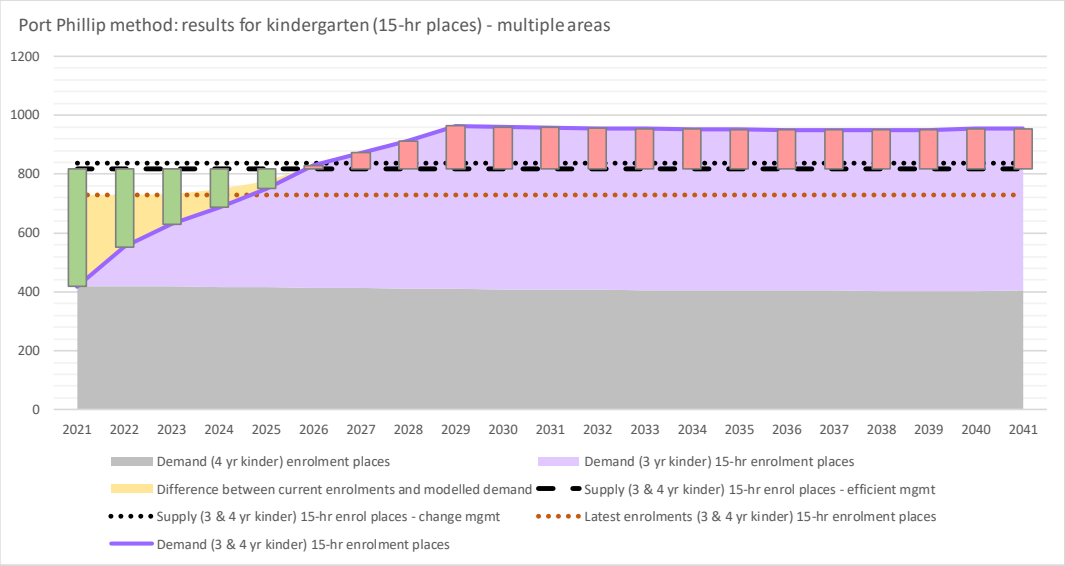
What does this mean?

Due to the challenges around the boundaries associated with different geographies, an approach that looks at supply and demand across multiple forecast areas in the south of the municipality has been used. This analysis should be supplemented by consideration of any available supply and demand factors that are outside boundaries.

As discussed earlier, direct comparison with the conclusions of the KISP are challenging due to the slightly different geographies, population forecasts and assumptions.

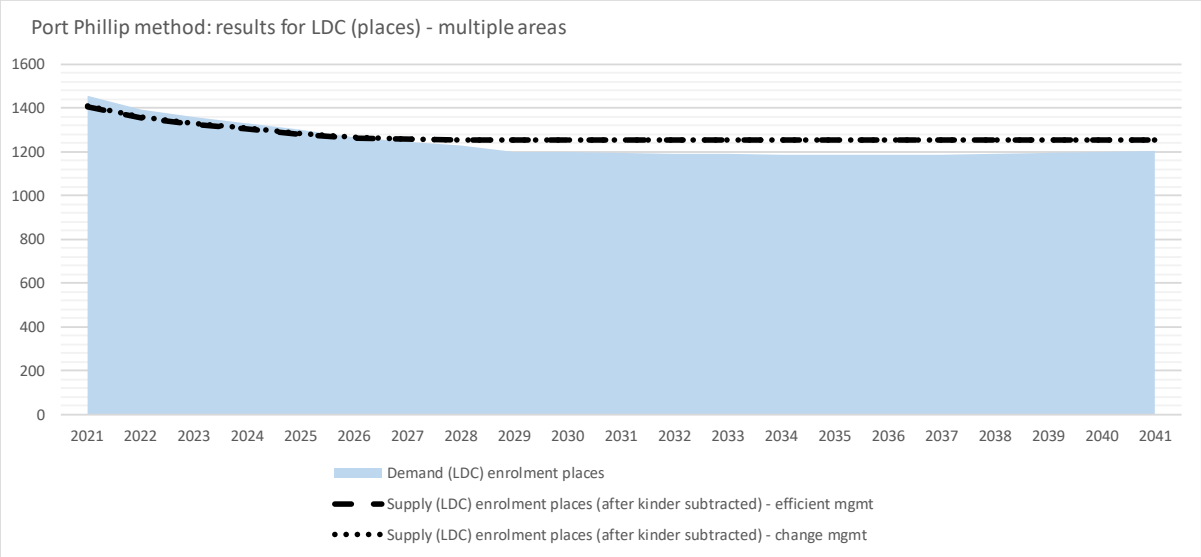
Collectively, across the forecast areas of St Kilda, St Kilda East and Elwood/Ripponlea, the model estimates that in 2027, there may be a shortfall of approximately 35-56 kinder places, increasing to a maximum of 126-147 kinder places in 2029 when three year old kindergarten is fully rolled-out. This is a higher shortfall than what was estimated in the KISP which is primarily due to the use of different geographies.

Figure 3: Estimated demand and supply of kindergarten places across St Kilda, St Kilda East and Elwood/Ripponlea forecast areas



The model estimates a current small shortfall in long day care places in this area will reduce gradually as a proportion of the demand for these places shifts to kindergarten and will remain in surplus across the period of modelling.

Figure 4: Estimated demand and supply of long day care places across St Kilda, St Kilda East and Elwood/Ripponlea forecast areas

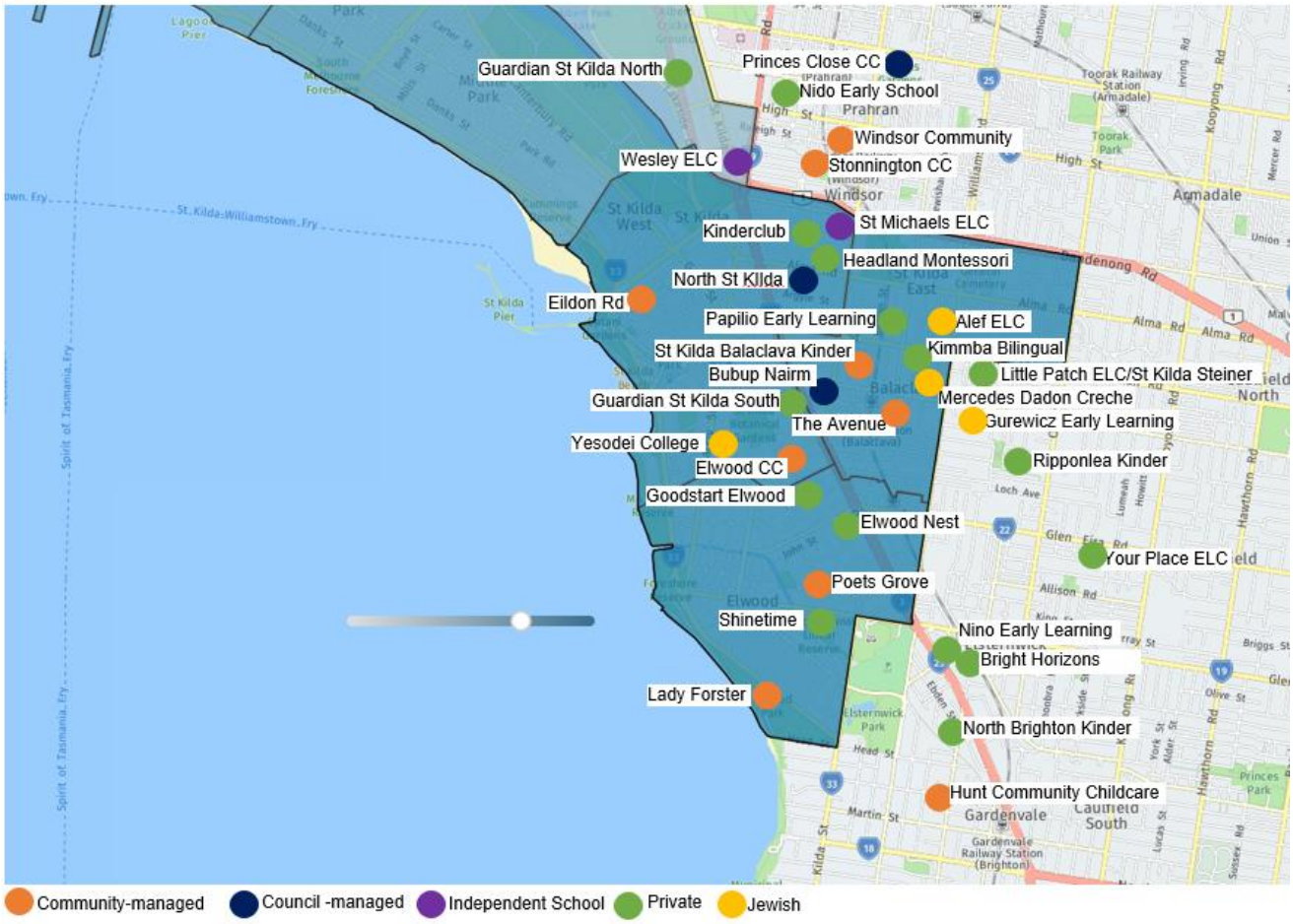


As noted previously, as demand for kindergarten places increases, demand for long day care decreases as the children receiving kindergarten in a long day care setting are shifted to kindergarten places.

Note, the modelling has not accounted for demand or supply that may be available across these boundaries and this should also be considered when making investment decisions about infrastructure.

Figure 5: Map of current services in the south of the City of Port Phillip

Early Education and Care Services in the Port Phillip by Forecast Areas – Southern Area



Appendix 1 Methodology

The model uses a base unit of hours (i.e. the hours that each child requires in kinder and/or LDC each week) which is then converted to either kindergarten places (eg enrolments in universal kindergarten) or long day care places (eg enrolments in long day care). This is not the same as licenced places.

Step 1. Calculate demand

To calculate kindergarten demand, the model adds:

a) current four-year enrolments, adjusted for forecast growth
b) estimated number of three-years olds participating based on population estimates, adjusted by the proportion estimated to participate and average hours (see table below) over the roll-out period.

Table 1: Assumptions used to model demand for three year old kindergarten.

	2022	2023	2024	2025	2026	2027	2028	2029
3 year old kindergarten hours per week	**5**	**7.5**	**9**	**10**	**12**	**13**	**14**	**15**
3 year old participation rate	**70%**	**75%**	**80%**	**90%**	**93%**	**95%**	**97%**	**100%**

To calculate LDC demand, the model:

a) Applies the agreed long day care participation rate to the Forecast ID population of 0-5s year-on-year for each Forecast Area. This determines the number of children who will create demand for LDC in each area, each year.
b) Multiplies the number of children by the avg hours per week to determine the total hours of LDC demand per week, year-on-year for each Forecast Area. This gives a total demand for long day care in hours.
c) Subtracts the total hours of kindergarten demand in an area allocated to long day care based on the KISP modelling. This gives a total demand for long day care (excluding kindergarten demand) in hours.

Step 2: Calculate supply

To calculate supply of kindergarten places, the model uses the assumptions outlined in the KISP. To calculate LDC supply, the model multiplies the number of licensed places in LDCs by the estimated hours available and number of days to provide total weekly hourly supply.

Step 3: Calculate gap

The model subtracts the allocated the number of hours of demand defined in the KISP for kindergarten in a long day care setting then subtracts the estimated local demand for non-kindergarten LDC from the model from the estimated supply.

Step 4: Convert to places

This figure is then converted into LDC places by dividing by 29.9 and rounding down:

Other models for estimating supply and demand

In developing this modelling, consideration has been given to other models that are publicly available including the City of Sydney's ***Child Care Needs Analysis 2019.*** The assumptions underlying this model are based on benchmarks from the ABS Childhood Education and Care, Australia, June 2017, Cat which was likely the most current benchmarking available at the time. This model does not account for kindergarten participation and since then, the Commonwealth has released additional data in its quarterly Childcare in Australia Reports which can be used to inform assumptions.