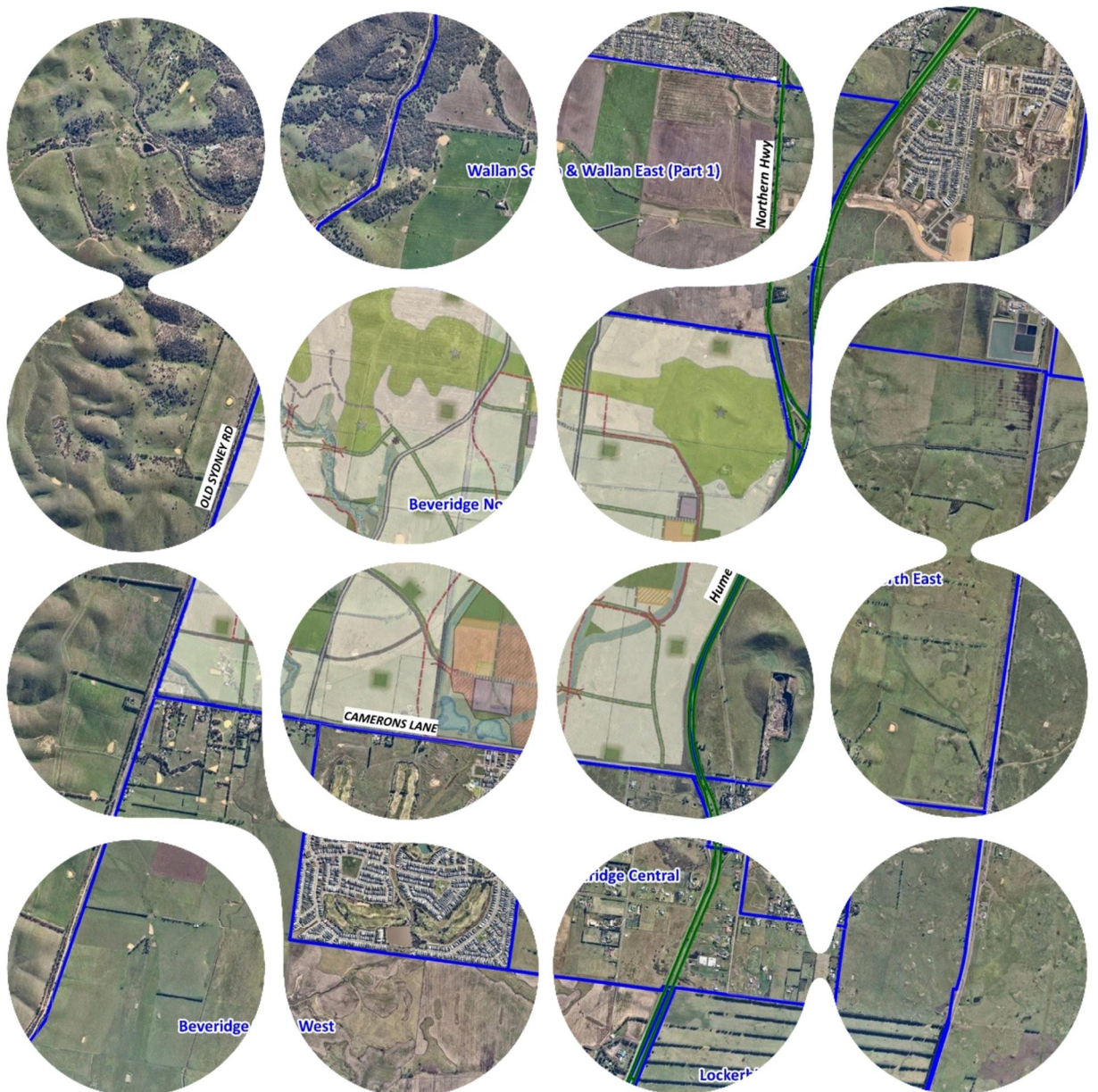


Am C106 Mitchell Planning Scheme Beveridge North West PSP

Expert witness statement of
Chris Abery, Deep End Services

14 July 2020



Deep End Services

Deep End Services is an economic research and property consulting firm based in Melbourne. It provides a range of services to local and international retailers, property owners and developers including due diligence and market scoping studies, store benchmarking and network planning, site analysis and sales forecasting, market assessments for a variety of land uses, and highest and best use studies.

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Document Name

Am C106 Mitchell Planning Scheme C Abery Statement - 14 July
2020
14.07.20

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This report should be read in its entirety, as reference to part only may be misleading.

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1

Introduction

- 1.1 Background** ⁰¹ I have been instructed in this matter by Norton Rose Fulbright Australia acting on behalf of Yarra Valley Water (YVW), the major land owner within the Beveridge North West Precinct Structure Plan (BNW PSP) area.
- 1.2 Instructions** ⁰² My instructions are to:
- Review the exhibited Amendment C106 (amendment) and background materials.
 - Prepare an expert economic report on the likely timing of development of the BNW PSP, considering where relevant.
 - ‘Potential development sequencing – Northern Growth Corridor’ (draft) prepared for Mitchell Shire Council (Council) by Patch Design + Plan.
 - Hazelwynde Project – Proposed Project Timing and Staging memorandum.
 - Appendix F of the Yarra Valley Water submission, being the memo prepared by Transport & Traffic Solutions; and
 - Victoria in Future forecast modelling, the forecasts on the Council website by ID Consultants, the projections contained in the PSP background reports and any other relevant material.
 - Comment on the statement in the Tract Planning Permit Report that “*..it is considered that the baseline 500m buffer from the quarry is not anticipated to be encroached until Phase 4 when a small amount of land to the north is impacted*”.
- ⁰³ I have been instructed to assume the following:
- The quarry development proceeds in accordance with the staging and timing proposed in the Permit Application (adjusting for the fact that the

works at the quarry would be unlikely to commence until 2022, given the need to obtain approvals); and

- The development of the YVW land proceeds in accordance with the sequence in the YVW Proposed Staging.

⁰⁴ Justin Ganly of Deep End Services was previously engaged by YVW in relation to the matters that I have been briefed on. I have been provided with a report by Mr Ganly summarising his views on residential development in the BNW PSP. While I have had regard to Mr Ganly's report, I have formed my own opinions on the instructions I have received based on my own research and analysis.

1.3 Expert witness details

Name and address of expert

Chris Abery
 Director
 Deep End Services Pty Ltd
 Suite 304 / 9-11 Claremont Street
 South Yarra VIC 3141

Expert's qualifications and experience

- Bachelor of Town and Regional Planning, University of Melbourne
- Graduate Diploma Social Statistics, Swinburne Institute
- I have over 30 years' experience in spatial modelling, market analysis and property economic evaluation.
- I have been a Principal and Director of Deep End Services, a property and retail economics consultancy since June 2009.
- I was a Director in the Property Economics unit of Urbis between March 2007 and April 2009.
- I have held senior roles in the Property Team at Coles Myer Ltd between 1992 and 2007 including as National Manager Strategy and Property Analysis.
- Between 1986 and 1992 I was employed as a consultant with Ratio Consultants, an economics and urban planning consultancy.

A full CV is included at *Appendix A*.

Expert's area of expertise

- Market demand studies for a wide range of property sectors including retail, commercial, community and residential.
- Spatial modelling of demand and supply variables using Geographic Information systems with Census data and proprietary data sets.
- Development and execution of sales forecasting models.
- Network and location planning for retailers and other clients with property-based distribution channels.
- Analysis of consumer data and research relating to retailing and shopping centre developments.
- Spatial analysis of customer data for catchment analysis.

- Market research and commercial advice in relation to recommended land use, layout, size, facility mix, turnover and rents of mixed use developments.
- Preparation of economic impact and benefit assessments of commercial developments.

Facts, matters and assumptions upon which the report proceeds

Stated in relevant sections of my statement.

Documents, materials and literature used in preparing this report

Stated in relevant sections of my statement.

Identity of the person who carried out any tests or experiments relevant to this report

None.

Provisional opinions not fully researched

None.

Questions outside the expert's expertise

None.

Report incompleteness or inaccuracies

None.

1.4 Summary of opinions

- ⁰⁵ The planning application for Conundrum's proposed quarry by Tract at Beveridge has adopted a long term average development rate of **277** dwellings per annum in the BNW PSP area from 2025 onwards.
- ⁰⁶ Based on an assumed pattern of development by Tract where the Hazelwynde project and other owners fill out the entire southern half of the PSP area – an area no more than 1.5 km north of Camerons Lane - Tract conclude there will be no encroachment by development on the quarry buffer by 2049.
- ⁰⁷ On my analysis, an appropriate rate of new dwelling construction in the Hazelwynde Project area of the BNW PSP alone is **320** dwellings per year.
- ⁰⁸ Based on the YVW's proposed staging plan and my assessment of dwelling construction rates, urban development in the Hazelwynde Project will encroach on the buffer in year 12 or 2035.
- ⁰⁹ On this basis, I disagree with Tract Planning Permit Report where it says that *"..it is considered that the baseline 500m buffer from the quarry is not anticipated to be encroached until Phase 4 when a small amount of land to the north is impacted"*.

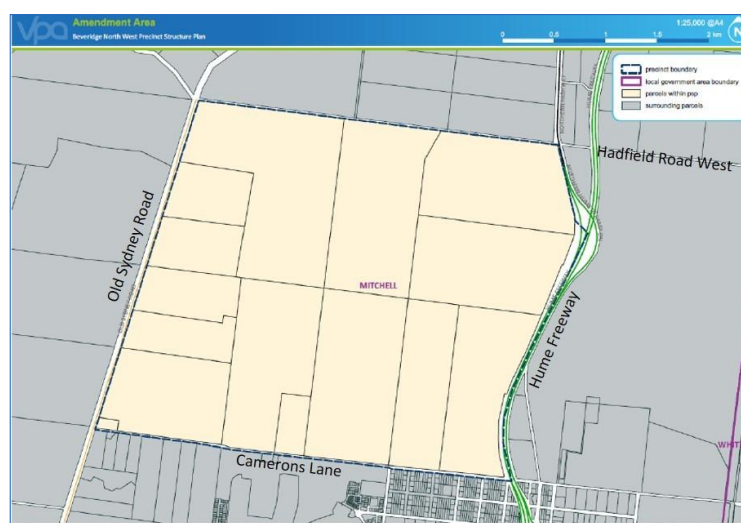
2

Amendment C 106

- 2.1 Amendment C106**
- ¹⁰ The amendment has been prepared by the Victorian Planning Authority (VPA).
 - ¹¹ The amendment applies to land within the BNW PSP, as shown in 1. The PSP area of 1,254 hectares is located between the Wallan and Beveridge townships in Melbourne's outer northern growth corridor.
 - ¹² The amendment is required to implement the BNW PSP which will facilitate the development of the PSP area for approximately 16,300 homes or 45,000 people with associated retail, education and community facilities and sporting fields and parks.

**Figure 1—
Amendment C106
area**

Source: VPA



¹³ The amendment proposes the following changes to the Mitchell Planning Scheme:

- Rezones land in the amendment area from Urban Growth Zone, Rural Conservation Zone and Urban Floodway Zone to UGZ3 and Rural Conservation Zone (RCZ).
- Inserts Schedule 3 to Clause 37.07 Urban Growth Zone (UGZ).
- Inserts Schedule 4 to Clause 43.03 Incorporated Plan Overlay (IPO)
- Deletes the Erosion Management Overlay (EMO) and Vegetation Protection Overlay Schedule 1 and Schedule 2 (VPO1, VPO2) from land in the amendment area.
- Incorporates the “Beveridge North West Precinct Structure Plan, August 2019” into the planning scheme by listing it in Schedule to Clause 72.04.

2.2 Beveridge North West Precinct Structure Plan

¹⁴ The PSP sets out a planning and design framework for a future urban community east of the Hume Freeway, between the existing townships of Beveridge and Mandalay to the south and the future southern extension of the Wallan township in the Wallan South and Wallan East (Part 1) PSP area, to the north (refer Figure 3, page 6).

¹⁵ The PSP area includes 15 individual lots. YVW is a significant land holder owning 740 hectares or about 60% of the area. YVW’s planned urban development is known as Hazelwynde.

¹⁶ The YVW land is overlaid on the Precinct Structure Plan in Figure 2 where it covers most of the central and western sections of the PSP area.

Figure 2— BNVW PSP Future Urban Structure with YVW land

Source : VPA

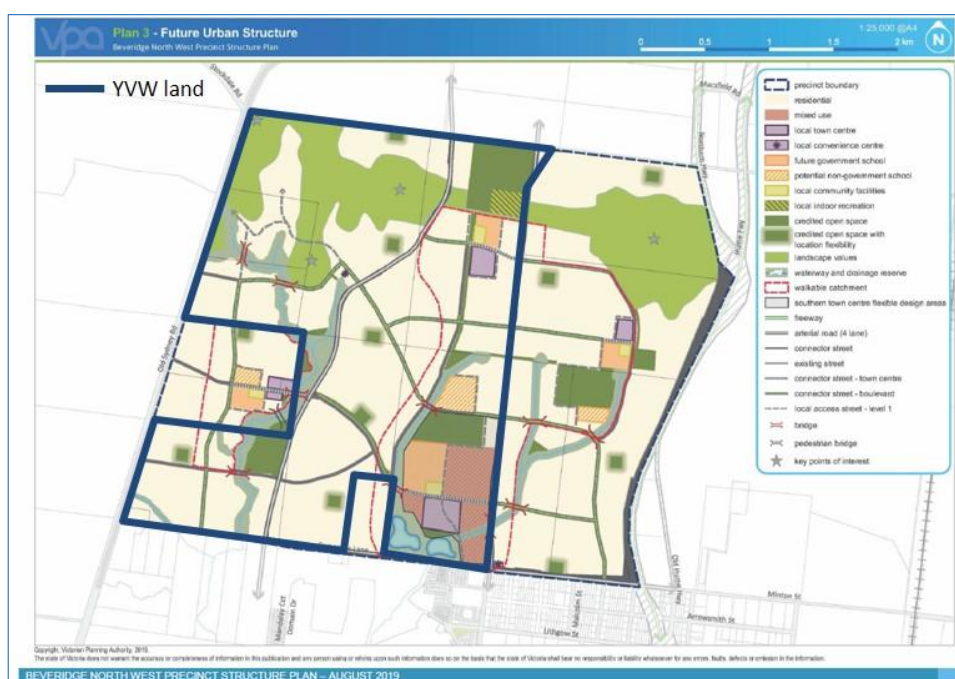
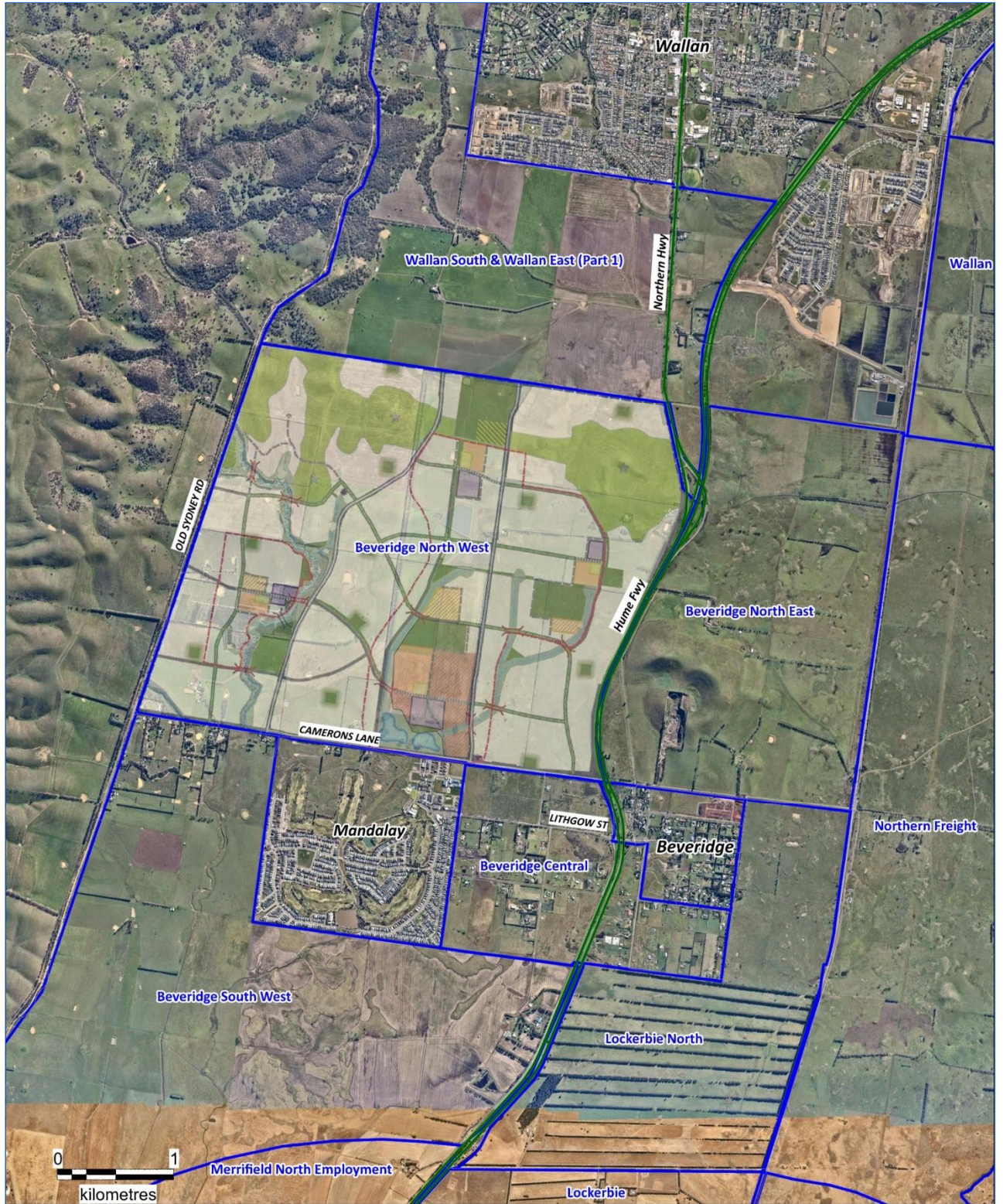


Figure 3— Local context



Source: Nearmap, VPA,

¹⁷ The major spatial and land use elements of the BNW PSP include:

- A large urban community of discrete but connected neighbourhoods located between ridgelines, volcanic cones and low foothills.
- Good connections to the Hume Freeway via a future Camerons Lane interchange, high frequency public transport services through a grid of local arterial roads and access to a future railway station at Beveridge.
- A diversity of housing types ranging from detached dwellings on conventional lots to higher density housing forms around the town centres.
- A network of four local town centres and two local convenience centres.
- Two primary schools and two secondary schools.

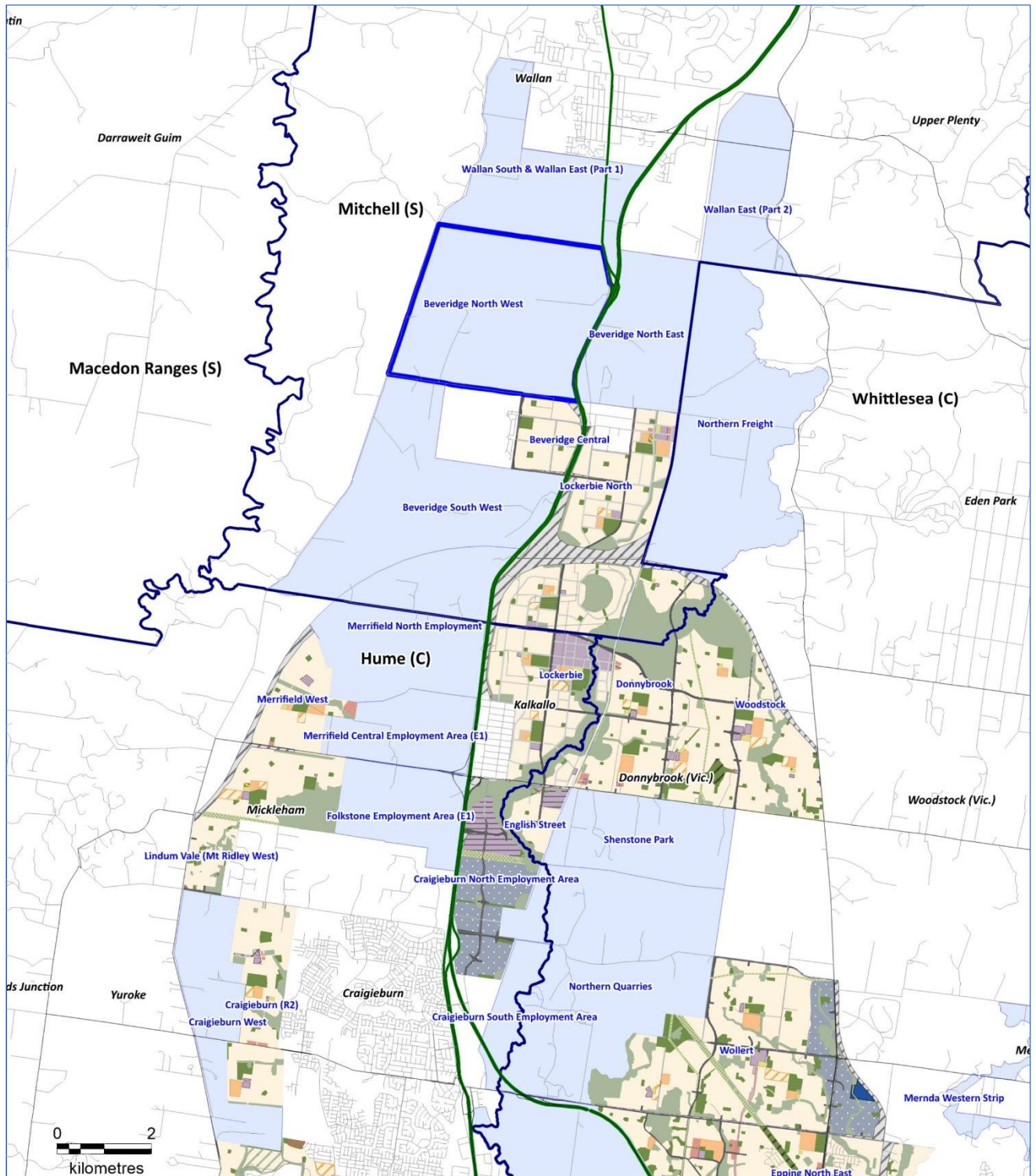
¹⁸ The status of other areas of the northern corridor adjacent to the BNW PSP area (shown in Figure 4) is as follows:

- The Wallan South and Wallan East (Part 1) PSP is currently in preparation with background studies underway. The Wallan South section of the PSP has an area of 806 hectares. I am not aware of any published estimates of its dwelling capacity but employing average NDA and density assumptions, the capacity may be around 10,000 dwellings.
- The Beveridge North East PSP area lies east of the Hume Freeway covering 646 hectares. Background studies have not commenced for this area.
- The Beveridge township which straddles the Freeway and the adjoining Mandalay golf course and residential development had an estimated 2019 population of 2,930 people. Mandalay appears to be about two-thirds developed towards its capacity of 1,500 dwellings while the Beveridge Central PSP sets out a new urban area over the existing township for 3,400 dwellings (pop. 9,500). Beveridge Central is still subject to the preparation of an Infrastructure Contributions Plan. Given the current small lot holdings in Beveridge area, development here is likely to be a slow process.
- The Beveridge South West PSP area (1,266 hectares) between the BNW PSP area and Merrifield North Employment has no scheduled commencement for PSP studies.

¹⁹ In my view, there is the potential for a rapid take-up of land in the BNW PSP based on its size, location and competition in the northern corridor. In particular:

- It appears to be about 3-4 years ahead of any development in the Wallan South PSP area and further ahead of the Beveridge North East and South West PSPs.
- Available land stocks in Wallan and Mandalay will be further absorbed until the first homes appear at BNW in 2024.
- It is approximately 6 km north of the currently developing areas of Kalkallo (Cloverton).
- Its separation from Merrifield and Kalkallo by the large corridor of intervening future urban and employment land - which will be rural in character for many years - creates a separate market at BNW distinct from other estates in the north corridor.

Figure 4— Northern corridor & PSPs



Source: VPA, Mapinfo, Ausway, Deep End Services

2.3 Proposed quarry

- ²¹ Conundrum Holdings Pty Ltd (Conundrum) recently lodged a planning permit application with Council for use and development of stone extraction and creation of access to a to a road in a Road Zone Category 1 at 175 Northern Highway, Wallan. The quarry site is situated in the north east part of the BNW PSP area, more specifically on the west slope of Spring Hill Cone.
- ²² The proposed quarry is not included in the urban structure of the BNW PSP. The Background Report to the BNW PSP sets out background material to the quarry proposal and the Minister for Planning's determination to exhibit the PSP without the quarry.
- ²³ The planning application (Tract report) made on behalf of Conundrum by Tract Consultants in October 2019 includes, amongst other things, an assessment of whether the proposed quarry would prejudice the residential development of the broader PSP areas – including the BNW PSP area and the Wallan South and East PSP area to the north.
- ²⁴ The Tract report sets out the following parameters for the operation of the quarry:
- The quarry will have a thirty year life span.
 - The quarry use requires a 500 metre buffer around each operating stage.
 - Phase timing of the quarry is based on the following completion dates, assuming a commencement in 2019:
 - Phase 1 – 2029
 - Phase 2 – 2036
 - Phase 3 – 2043
 - Phase 4 - 2049
- ²⁵ In assessing the timing and extent of future development in the BNW PSP area the Tract report adopted the dwelling and population forecasts prepared by .id Community which appear on Council's web site. The projections and other assumptions employed by Tract were:
- BNW SP limited to 500 lots until 2022 due to servicing constraints.
 - The BNW PSP area will accommodate .id's forecasts of 4,427 dwellings between 2025 and 2041 - or **277** dwellings per annum over the 16 years.
 - Rates of development will continue beyond the .id projection date (2041) at 277 dwellings per annum until 2049.
 - An average of 18 dwellings per net developable area.
 - The development pattern by 2049 is entirely confined to the southern half of the PSP area. The northern line of development in 2049 is 1.5km north of Cameron's Lane.
- ²⁶ Tract's summary of the total dwellings and developed residential land area in the BNW PSP area is reproduced in Table 1.

**Table 1— Tract
report land
development
scenario (BNW PSP)**

Year	Quarry Phase	New Dwellings*	Residential land Approx.^	Total Dwellings	Total Residential area approx.
2022	1	500	27.7ha	500	27.7ha
2029	1	1,108	61.5ha	1,608	89.2ha
2036	2	1,939	107.7ha	3,547	196.9ha
2043	3	1,939	107.7ha	5,486	304.6ha
2049	4	1,662	92.3ha	7,148	396.9ha

- ²⁷ The spatial development analysis by Tract (copied in my Figure 5) shows a scenario where the expected take up of residential land by 2049 (397 hectares) is concentrated in the southern half of the PSP area. The northern extent of urban development in 2049 is approximately 350 metres south of the 500 metre buffer for the Phase 4 operation of the quarry.
- ²⁸ The Tract analysis relies heavily on the assumed long term rate of development (277 dwellings per annum) which I consider in Section 4 of my statement. It also assumes that YVW and other land owners will develop in the pattern shown.
- ²⁹ I note my instructions that the earliest operating date of the quarry is now 2022. This extends the assumed completion date for each phase out by three years.

Figure 5— Quarry Buffer & Expected BNW PSP Development Pattern (Tract)

Source: Conundrum Planning Application (4 October 2019)

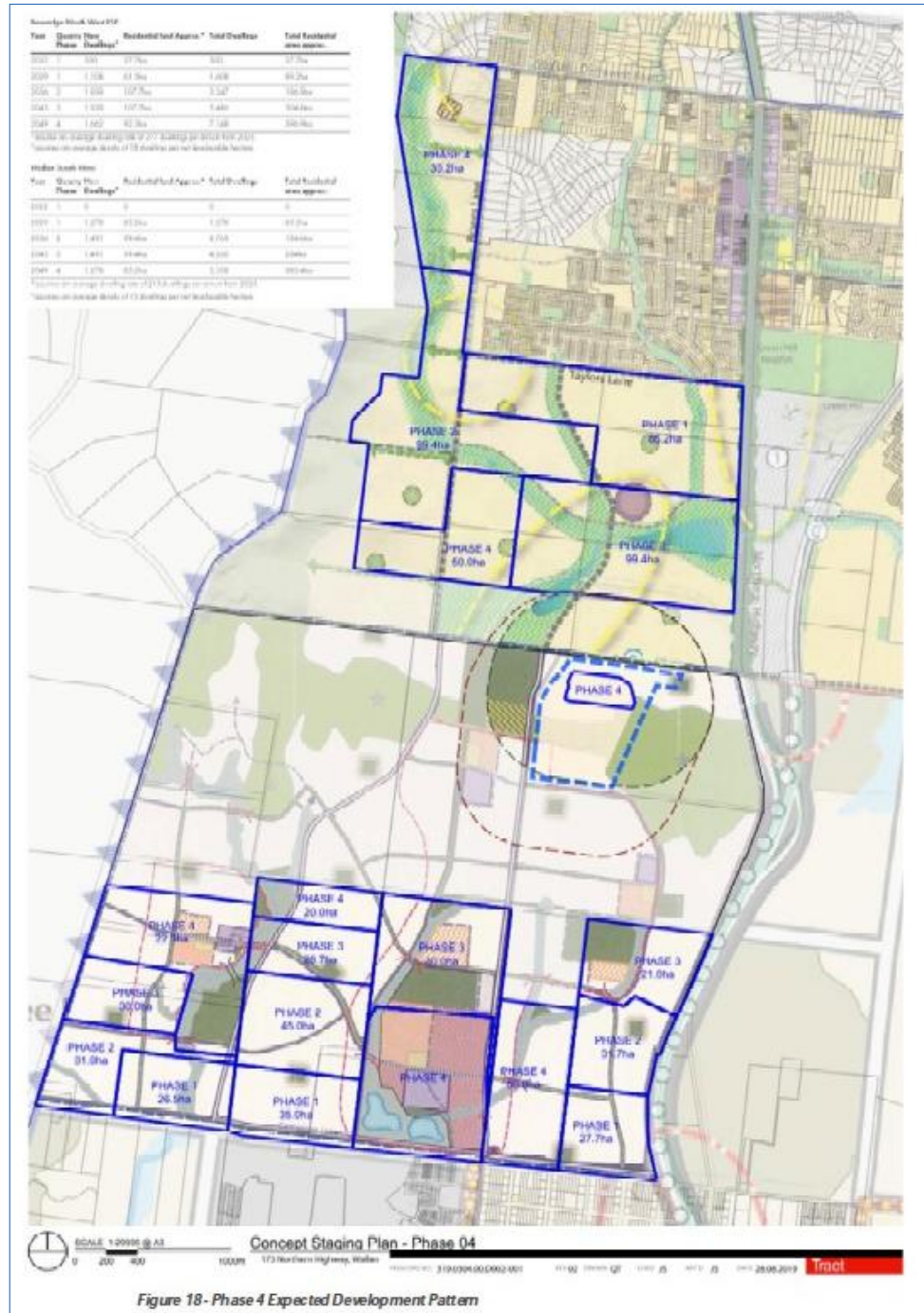


Figure 18 - Phase 4 Expected Development Pattern

3

Population growth in the northern corridor

3.1 Northern LGAs

- ³⁰ To provide context to potential growth rates at BNW, I firstly consider the historic and projected growth rates for the northern corridor and small statistical areas within it.
- ³¹ Melbourne's north growth corridor straddles the local government areas (LGAs) of Hume, Whittlesea and Mitchell (refer Figure 6).
- ³² The Australian Bureau of Statistics (ABS) estimate the three LGAs had a 2019 population of 288,464 people (refer Table 2). In the three years from 2016, the region grew by approximately 10,400 people, a higher average rate than the period 2011-2016 (8,059 per annum).
- ³³ The State Government's '*Victoria in Future*' (VIF)¹ forecasts indicate the three northern LGAs will add almost 300,000 people between 2019 and 2036.
- ³⁴ Since 2011, the three LGAs have accommodated about 15% of Melbourne's population growth. The VIF forecasts suggest this will increase to 20% of Melbourne's growth through to 2026 before easing back to 16% by 2036.
- ³⁵ The Shire of Mitchell is growing rapidly from a low base. Its 2019 population of 46,082 people has been growing by about 1,400 people per annum in the last three years. Since 2011, it has accounted for about 11% of total population growth in the three northern LGAs.
- ³⁶ VIF forecasts project Mitchell's population will increase to approximately 97,500 people by 2036. In each five year period from 2021 to 2036, Mitchell is projected to increase its annual average population growth (in absolute numbers) from 1,400 per annum (currently) to 3,784 per annum between 2031 and 2036.

¹ Victoria in Future 2019, Population Projections (2016-2056), DELWP
Am C106 Mitchell Planning Scheme

- ³⁷ Mitchell's share of population growth in the 3 northern LGAs rises steadily in each period from 8% (currently) to 23% by 2036.
- ³⁸ The forecasts indicate that Hume's population growth will peak in the next 2 years with the demand for new housing and new residents shifting north to the Shire of Mitchell.
- ³⁹ The PSP areas in Mitchell, of which BNW is the largest, will be the major recipients of this rising growth and transfer of housing demands from the City of Hume.

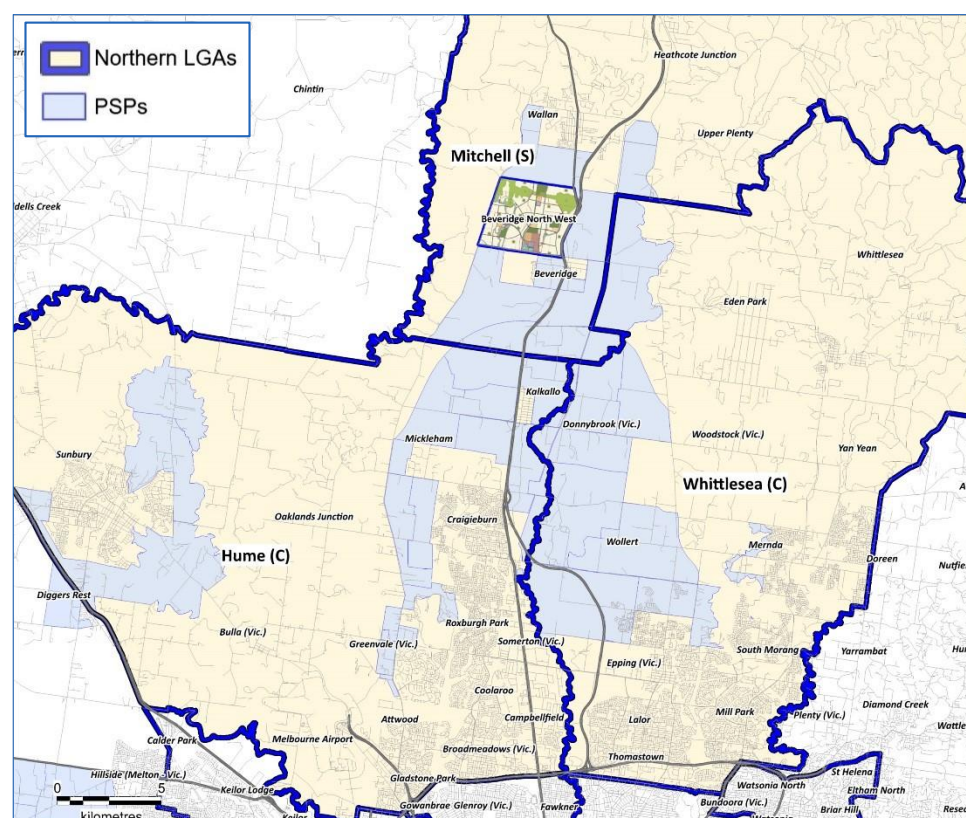
Table 2— Northern local government areas population projections

Source: VIF

LGA	Census		ABS estimate		Projected (VIF 2019)		
	2011	2016	2019	2021	2026	2031	2036
Population (no.)							
Hume	174,290	207,041	233,471	251,003	287,013	316,721	344,471
Whittlesea	160,800	207,058	230,238	245,294	285,200	326,754	363,736
Mitchell	35,105	41,795	46,082	49,873	62,225	78,568	97,490
Total Northern LGAs	370,195	455,894	509,791	546,170	634,437	722,043	805,696
Melbourne	4,169,366	4,714,387	5,078,193	5,256,102	5,693,510	6,217,482	6,734,299
Population change (no. p.a)							
Hume	-	6,550	8,810	8,766	7,202	5,942	5,550
Whittlesea	-	9,252	7,727	7,528	7,981	8,311	7,396
Mitchell	-	1,338	1,429	1,896	2,470	3,269	3,784
Total Northern LGAs	-	17,140	17,966	18,190	17,653	17,521	16,731
Melbourne	-	109,004	121,269	88,954	87,482	104,794	103,363

Figure 6— Northern local government areas

Source: VPA, Mapinfo



3.2 Small area population forecasts

- ⁴⁰ Population, dwelling and household forecasts in the VIF series are also prepared at the ABS-defined SA2 (statistical) area. For the northern growth corridor, the SA2s are shown in Figure 7 with historic and projected population and dwelling estimates set out in Table 3.
- ⁴¹ The SA2 of Wallan is a large area, covering the townships of Wallan, Wandong and Beveridge, adjoining rural areas and the PSP areas from Wallan South to Lockerbie.
- ⁴² The main findings are:
- Development rates (and population growth) are escalating in each 5-year period from 2021 to 2036.
 - Population and dwelling growth in the four Craigieburn SA2s is projected to fall sharply from 2021 and further from 2026.
 - Mickleham – Yuroke, covering Merrifield West and the estates at Kalkallo (Kallo and Cloverton) will maintain their current rates of development through to 2031.
 - The Whittlesea SA2 will increase its growth through the Donnybrook and Woodstock PSPs.
 - Wallan is the big mover with 670 dwellings per annum between 2021-2026. It then becomes the highest growing SA2 in the corridor with 946 dwellings per annum between 2026-31 and 1,173 dwellings per annum between 2031-36.
- ⁴³ The timing of BNW as the largest, development-ready PSP in the Wallan SA2 makes it well-placed to accommodate a high proportion of the projected dwelling growth in the forecast period.

Figure 7— Northern SA2s

Source: ABS, VPA, Mapinfo

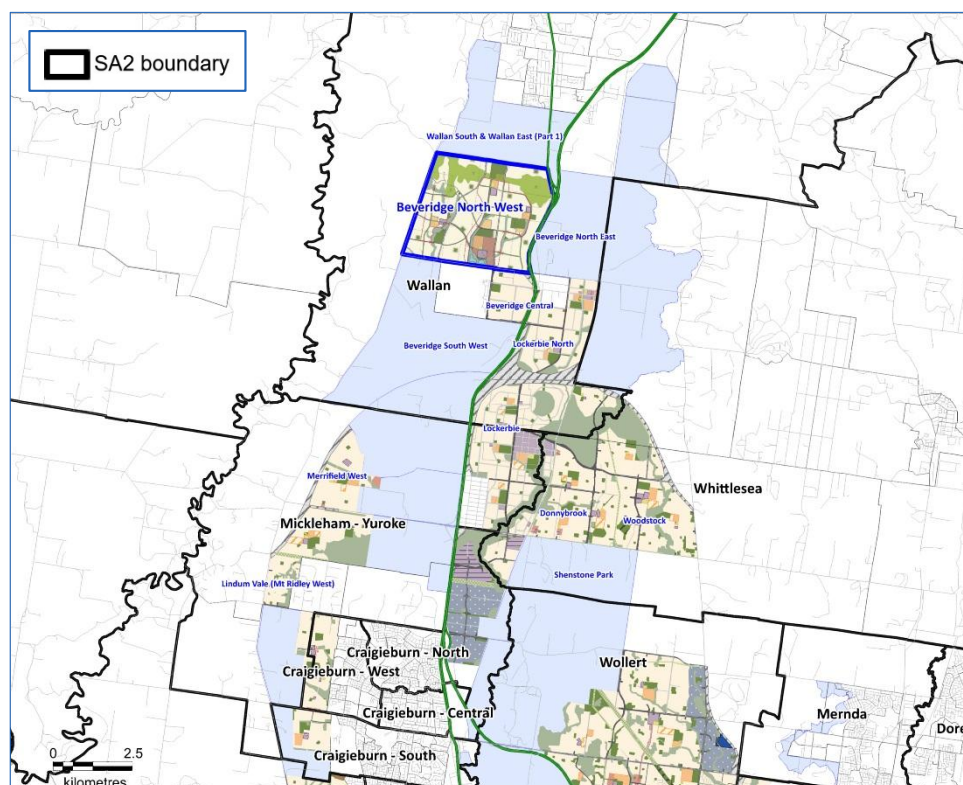


Table 3— Population and dwelling projections by SA2 area

SA2	Census		ABS est.	Projected (VIF 2019)			
	2011	2016	2019	2021	2026	2031	2036
Population (no.)							
Craigieburn - Central	8,335	8,749	8,840	8,853	8,902	8,986	9,124
Craigieburn - North	8,479	12,124	13,337	13,641	13,862	14,084	14,320
Craigieburn - South	12,691	16,999	20,617	22,636	25,973	27,812	28,912
Craigieburn - West	4,247	14,882	20,202	23,289	28,014	29,950	31,566
Mickleham - Yuroke	1,579	3,580	11,227	19,750	34,737	48,324	59,546
Wallan	12,189	16,747	19,654	22,741	32,908	46,985	63,849
Whittlesea	7,580	8,436	8,911	9,815	18,883	31,913	44,584
Wollert	528	9,493	16,073	21,876	36,788	51,121	63,802
Northern SA2s	55,628	91,010	118,861	142,601	200,068	259,174	315,704
Population change (no. p.a)							
Craigieburn - Central	-	83	30	7	10	17	28
Craigieburn - North	-	729	404	152	44	44	47
Craigieburn - South	-	862	1,206	1,009	668	368	220
Craigieburn - West	-	2,127	1,773	1,543	945	387	323
Mickleham - Yuroke	-	400	2,549	4,262	2,997	2,717	2,244
Wallan	-	912	969	1,544	2,033	2,815	3,373
Whittlesea	-	171	158	452	1,814	2,606	2,534
Wollert	-	1,793	2,193	2,901	2,982	2,867	2,536
Northern SA2s	-	7,076	9,284	11,870	11,493	11,821	11,306
Northern SA2s (% p.a)	-	10.3%	9.3%	9.5%	7.0%	5.3%	4.0%
Dwellings (no.)							
Craigieburn - Central	2,741	2,823	2,993	3,058	3,189	3,304	3,446
Craigieburn - North	2,805	3,442	3,931	4,146	4,312	4,515	4,845
Craigieburn - South	3,781	5,170	6,504	7,224	8,476	9,209	9,790
Craigieburn - West	1,733	4,551	6,211	7,205	8,555	9,130	9,901
Mickleham - Yuroke	474	1,170	3,730	5,705	10,774	15,402	19,234
Wallan	4,287	5,799	6,857	7,723	11,094	15,822	21,689
Whittlesea	2,736	3,097	3,361	3,636	6,582	10,975	15,455
Wollert	199	3,028	5,187	6,754	11,328	15,779	19,977
Northern SA2s	18,756	29,080	38,773	45,450	64,309	84,136	104,337
Dwellings change (no. p.a)							
Craigieburn - Central	-	16	57	32	26	23	28
Craigieburn - North	-	127	163	108	33	41	66
Craigieburn - South	-	278	445	360	250	147	116
Craigieburn - West	-	564	553	497	270	115	154
Mickleham - Yuroke	-	139	853	987	1,014	926	766
Wallan	-	302	353	433	674	946	1,173
Whittlesea	-	72	88	137	589	879	896
Wollert	-	566	720	783	915	890	840
Northern SA2s	-	2,065	3,231	3,339	3,772	3,965	4,040
Northern SA2s (% p.a)	-	9.2%	10.1%	8.3%	7.2%	5.5%	4.4%

Source: ABS, VIF

4

Timing & rate of development in the BNW PSP area

⁴⁴ In this section I examine the proposed Hazelwynde development and staging scenarios provided by YVW and projections for the corridor and the BNW PSP area assessed by others. I then present my own projected levels of development.

4.1 Hazelwynde Project development & staging

⁴⁵ I have been provided with a document prepared by YVW² and others setting out the expected project timing and staging of Hazelwynde based on two growth scenarios.

⁴⁶ In terms of the projected lot capacity, YVW calculate a residential yield of **8,200 lots** based a net developable area of 414 hectares and an average density of 20 dwellings per hectare (as required by the PSP).

⁴⁷ The following milestones have been set out by YVW which would see the first dwellings built and occupied in 2024.

- PSP gazettal and YVW development partner selection – 2021
- Masterplan approval – 2022
- Marketing of residential lots & construction commences – 2023
- Stage 1 residential lot settlements – 2024

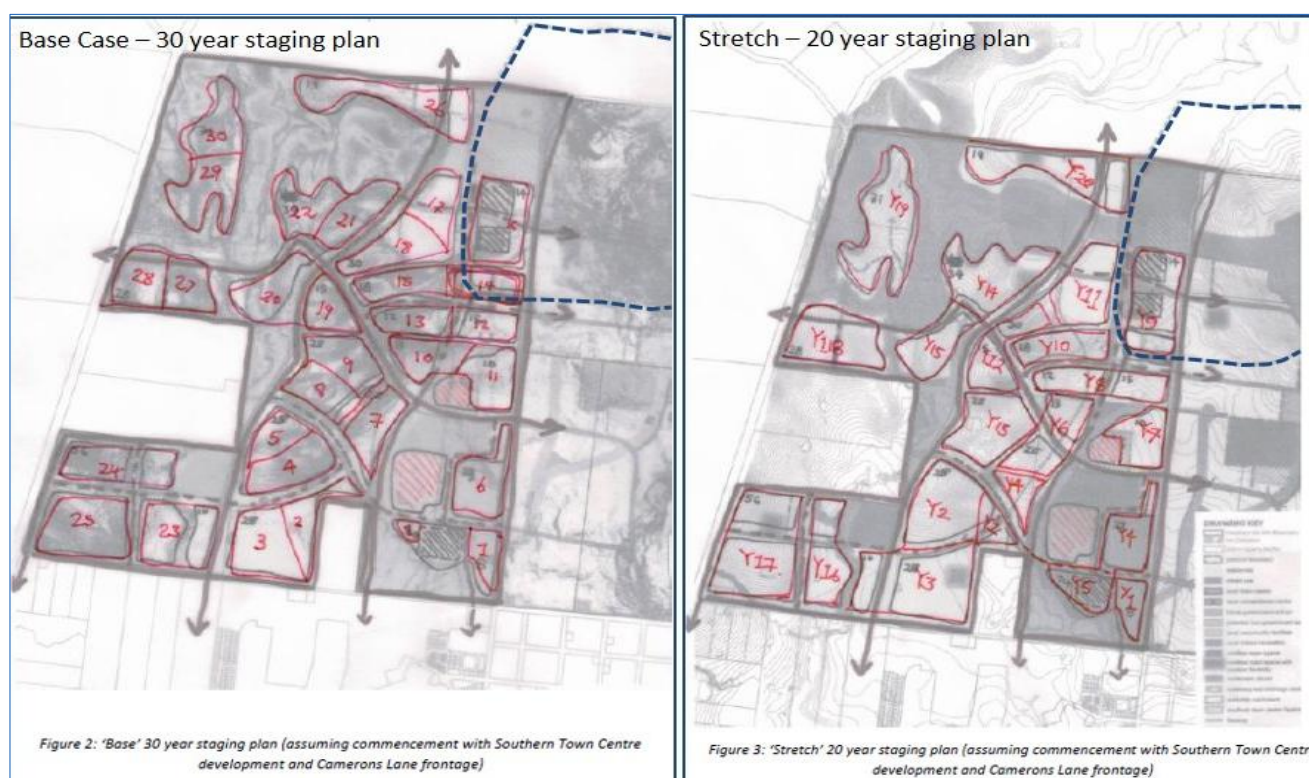
⁴⁸ In my view, these time frames seem reasonable and achievable. The first new homes are therefore likely to appear in 2024.

⁴⁹ The Hazelwynde Project will commence from Camerons Lane which has a number of advantages including an existing road frontage and Freeway access, proximity to services and amenity from the Mandalay golf course development. It is also close to the future Southern Local Town Centre for the provision of early services.

² Hazelwynde Project – Proposed Project Timing and Staging, June 2020 (Yarra Valley Water)
Am C106 Mitchell Planning Scheme

- ⁵⁰ The staging of development will be initially around the future Local Town Centre and north-south arterial road, before moving in a north easterly direction following the relatively flat plain. Once development reaches the northern limits of the Hazelwynde land area, it would shift west over slope-affected land.
- ⁵¹ The staging is a logical and efficient approach and will deliver lower cost lots to the market in the early stages before developing the more costly sections of the project.
- ⁵² Under the proposed Staging Plan, the buffer zone of the proposed quarry in the north area of the Hazelwynde Project is met when 3,750 dwellings are delivered.
- ⁵³ In terms of projected development rates, I note that YVW has taken advice from Charter Keck Cramer that similar large master planned estates in the northern areas of Melbourne such as Merrifield, Cloverton and Highlands have developed at the rate of 311 dwellings per annum.
- ⁵⁴ YVW has calculated when the buffer zone is reached based on the staging plan and two residential development scenarios:
- A “base case” of **280** dwellings per annum which would see the project built out in 30 years and the buffer zone reached in year 14 (2037).
 - A “stretch” of **400** dwellings per annum which would see the project built out in 20 years and the buffer zone reached in year 10 (2033).
- ⁵⁵ Figure 8 shows the progress of development towards the buffer under each scenario. The southern boundary line of the buffer is 2km north of Camerons Lane.

Figure 8— Staging plans with completed development areas applying ‘base’ and ‘stretch’ development rates



Source: YVW,

⁵⁶ I now consider the projected rates of development in the PSP and wider area, produced by others.

4.2 Projections by others

4.2.1 Patch report for Shire of Mitchell

⁵⁷ The Patch report³ was prepared in April 2016 for the Shire of Mitchell. The report sets out a spatial and statistical analysis of development sequencing in the Northern Growth Corridor (NGC) out to 2060. The purpose was to identify infrastructure capacity issues and future needs.

⁵⁸ The report qualifies its findings by stating that the sequence put forward is one of many different scenarios and should be used as a guide only.

⁵⁹ The defined NGC or study area adopted in the Patch report is the area from Merrifield north to, and including, Wallan. The study area was then divided into three localities; Wallan, Beveridge and Donnybrook/Kalkallo.

⁶⁰ The report proceeds on the following key method:

- Establishing known or estimated dwelling and household capacities for the PSPs through the NGC (Table 1 p.7).
- Adopting a “conservative” average of 3,000 lots per annum in the NGC (p.9)
- Estimating spatial areas of new development in each PSP area with a projected land take-up, new dwellings (@16/ha) and population (@ 3.1/household) for every five-year period from 2015-2060.

⁶¹ At the outset, I would concede that such an exercise is fraught with difficulties around the underlying assumptions of overall demand levels, the timing of PSP approvals and capacity levels and predicting spatial growth patterns over 40 years.

⁶² In relation to the report’s analysis of BNW PSP area and the wider NGC area, I note the following.

⁶³ The Patch report assumed a net developable area (NDA) of 752 hectares yielding **11,856 lots** at 16 lots per hectare.

⁶⁴ The exhibited PSP shows an NDA of 815 hectares producing **16,286 lots** at 20 lots per hectare. The Patch report therefore adopted a dwelling capacity for the BMW PSP which was 4,430 fewer lots than now proposed. This is a significant variation.

⁶⁵ Despite the stated assumption of 3,000 new lots per annum for the NGC area, my analysis indicates that in no five year period from 2015-2060 was this average annual rate applied in the Patch analysis. The development of 81,420 lots over the 45 year period yields an average of just 1,809 lots per annum.

⁶⁶ I have reconstructed Patch’s 5-year and cumulative dwelling yield assumptions for the BNW PSP in Table 4. It shows the much smaller capacity of 11,856 lots achieving an average annual rate of development between 2020-2060 of 286 lots per annum.

⁶⁷ The capacity of the ‘smaller’ BMW PSP area is conveniently reached at the end of the forecast period (2060). In my view, there is considerable scope to increase the

³ Potential Development Sequencing Northern Growth Corridor for Mitchell Shire Council (April 2016)
Am C106 Mitchell Planning Scheme

assumed rate of development in the BNW PSP area by applying a higher share of total corridor growth and to the significantly higher confirmed lot capacity of BNW PSP.

Table 4— Patch dwelling & population projections for BNW PSP

Source: reconstructed from Patch report

Period	Dwelling Yield (@16/ha)	Population (@3.1/h'hold)	Cumulative pop.
2015-20	400	1,240	1,240
2020-25	1,800	5,580	6,820
2025-30	1,800	5,580	12,400
2030-35	1,802	5,586	17,986
2035-40	1,200	3,720	21,706
2040-45	1,200	3,720	25,426
2045-50	1,200	3,720	29,146
2050-55	1,200	3,720	32,866
2055-60	1,254	3,889	36,755
Total period	11,856		
Avg. p.a. 2020-60	286		

- ⁶⁸ I have also compared the Patch report's predicted pattern of expected growth in some of the major estates in the NGC in 2020 against the current extent of development revealed by recent aerial photography in those areas. I have found that growth in some of the larger master planned estates such as Stockland's Cloverton estate at Donnybrook and MAB's Merrifield development have progressed well ahead of Patch's assumptions, even within the short four year time frame since the report was completed.
- ⁶⁹ While the Patch report is a useful assessment of how the corridor may eventually develop with associated infrastructure needs, I do not consider it to be a reliable resource to assess development rates at BNW.

4.2.2 .id for Shire of Mitchell

- ⁷⁰ Population and household forecasts for areas of the Shire of Mitchell, prepared by .id in August 2018, are published on Council's web site.
- ⁷¹ The defined area of Beveridge (refer Figure 9) includes all, or parts, of 8 PSPs and major housing estates. For each area, new dwelling completion rates are projected out to 2041 - or stopped at an earlier year if the PSP/estate reaches capacity.
- ⁷² This is a complex exercise made more difficult by applying the same approach in the adjoining area of Wallan, where 24 individual projects, estates or PSPs are identified.
- ⁷³ It is unclear if the projections are based on a top down 'corridor' or area growth rate which is distributed amongst individual areas or built as a 'bottom up' analysis of assumptions on each individual PSP or estate.
- ⁷⁴ At the area-level, .id estimate that Beveridge will grow from 5,566 people in 2021 to 46,092 in 2041. Dwellings will increase from 1,713 to 14,413 over the same period – or by **635** per year.
- ⁷⁵ For the BNW PSP area, id adopt the assumption of 4,427 new dwellings from 2025 to 2041 at the average rate of **277** dwellings per annum. This includes both the YVW land and other land owners. As noted earlier, this rate was adopted by Tract in their

analysis of the projected development coverage of the BNW PSP area out to 2049 – for the purpose of analysing any encroachment from the quarry buffer.

Figure 9— .id Beverage area

Source: Shire of Mitchell web site



- ⁷⁶ At the outset, I find id's assumed rate to be low given the likelihood of a major residential developer partnering YVW and already high rates of growth being achieved at other master planned developments in the corridor, such as Merrifield in the Merrifield West PSP area and Cloverton in the Lockerbie PSP area. I detail their average rates of new housing additions since inception in Section 4.3.
- ⁷⁷ In terms of other assumptions adopted by .id for the Beveridge area I note the following:
- The Lockerbie North PSP area was approved in 2012 however no works have commenced here and no estates are being marketed. .id has assumed new dwellings will be appearing here from 2021.
 - Beveridge Central is subject to finalisation of an Infrastructure Contributions Plan and is unlikely to be adding new homes in 2021, as .id have assumed.
- ⁷⁸ For the Wallan area, id. has assumed the Wallan South West PSP area (now known as Wallan South & East part 1) will see new dwellings from 2023 – at the rate of 213 per annum reaching 3,835 dwellings by 2041. The assumed first homes at Wallan South are two years ahead of their assumptions for the first dwellings at BNW (2025).
- ⁷⁹ I note the Wallan South and East PSP is still in the investigation and consultation phase and is thought to be 3-4 years behind the progress of BNW.
- ⁸⁰ With updated information on the delayed timing of other PSP areas, .id may well alter its growth projections for the BNW PSP area. If the underlying demand in the Beveridge area is 635 dwellings per annum, then a high proportion will shift to BNW, the largest project area delivering lots.

4.3 Other PSP and project rates of development

- ⁸¹ In my view, a strong indicator of future growth rates at a master planned community is the evidence of other developments in the corridor or those of a similar size and positioning elsewhere.
- ⁸² Public and private data sets are available for approved and proposed subdivisions and for lot sales and settlements for individual projects however these data sets need further interpretation and assumptions for time lags, failures to settle and construction and occupancy time frames.
- ⁸³ In this case, where a critical question is the projected rate of new dwelling completions over an extended time frame, I have firstly elected to use aerial photography over several PSPs and estates to calculate comparable rates of dwelling completion.
- ⁸⁴ The two developing PSP areas in the northern corridor that I have examined are Merrifield West and Lockerbie. I have also examined the large Woodlea estate in the Rockbank PSP area (Shire of Melton) which has a similar greenfield setting off a major highway.
- ⁸⁵ A summary of my findings in relation to average new dwellings per annum in the three PSP areas is shown in Table 5. I then discuss the findings and relevance of these areas in more detail.

Table 5— Average new dwellings per annum

Source: Deep End Services, Nearmap, Vic Map.

PSP	1st lots sold	First homes appeared	Approved & proposed lots ¹	Roof top count ²	Years from first home to current roof top completions & occupancy	Average new dwellings per annum
Merrifield West	Q4 FY13	Nov-14	5,243	3,447	6.0	575
Lockerbie	Q4 FY15	Jan-17	2,638	1,342	3.9	343
Woodlea (Rockbank)	Q4 FY15	Dec-15	2,929	2,069	4.9	421

¹ Vicmap Property Cadastral files (June 2020)

² Nearmap images - Lockerbie & Merrifield West 15/4/20, Woodlea 15/5/20

4.3.1 Merrifield West PSP

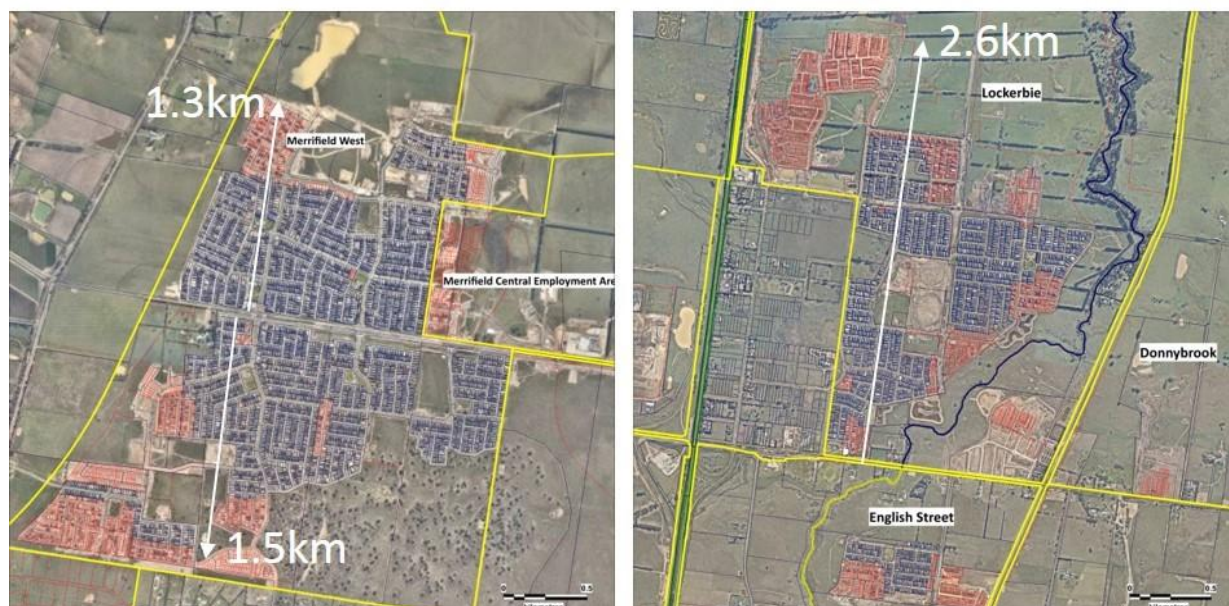
- ⁸⁶ The Merrifield West PSP in Mickleham was the first major release area in the northern corridor, beyond Craigieburn. With 6,877 lots (19,300 people) it is just over one-third the size of BNW.
- ⁸⁷ Development of the area was initiated by MAB and its joint venture partner who have delivered most of the early lots. In recent years, other developers have become active south of Donnybrook Road.
- ⁸⁸ The first lots were sold in the fourth quarter of 2012/13 with the first homes appearing on aerial imagery in late 2014. According to Vic Map Property Cadastral data, there is currently 5,243 lots in approved or proposed subdivision plans in the PSP area.
- ⁸⁹ A count of 'roof tops' from the latest Nearmap aerial imagery (14 April 2020) reveals 3,447 dwellings either complete or under construction in the Merrifield PSP area. This count excluded lots with site works, slabs or frames.

- ⁹⁰ Allowing a generous 6 months for all roofed dwellings to be complete and occupied (and excluding the completion of other partially built homes), the 3,447 dwellings have been constructed in a 6 year period from when the first homes appeared. This is a conservative average rate of **575** new homes per annum.
- ⁹¹ The time frame covers a period of low and high points in the housing cycle.
- ⁹² In the 5.5 years since development began, homes are now stretching 2.8km from north to south and 2.1 km east to west along Donnybrook Road. The extent of development at Merrifield is shown in the aerial image from April 2020 (Figure 10).

4.3.2 Lockerbie PSP

- ⁹³ The Lockerbie PSP in Kalkallo and part of Donnybrook is about two-thirds the size of the BNW PSP area with a capacity of approximately 10,221 lots. The major estates are Kalko by National Pacific Properties and Cloverton by Stockland.
- ⁹⁴ Development commenced about two years after the first stages at Merrifield with the first homes appearing in January 2017. Kalko was the first estate while Cloverton is still in its early stages. There is over 2,600 approved or proposed lots in the cadastral data base.
- ⁹⁵ The ‘roof top’ count at 15 April 2020 was 1,342 yielding an annualised completion rate of **342** new dwellings per annum in less than 4 years. I expect this rate will increase in future years as Cloverton gains scale.
- ⁹⁶ The development pattern through Kalko and now Cloverton to the north, has a narrow north-south orientation, similar to the expected staging of Hazelwynde. The northern stages of Cloverton are now 2.6 km north of Donnybrook Road. Figure 10 also shows the extent of development at Lockerbie PSP in April 2020.

Figure 10— Merrifield West & Lockerbie PSP areas (April 2020)



Source: Nearmap, Vic Map

4.3.3 Rockbank PSP

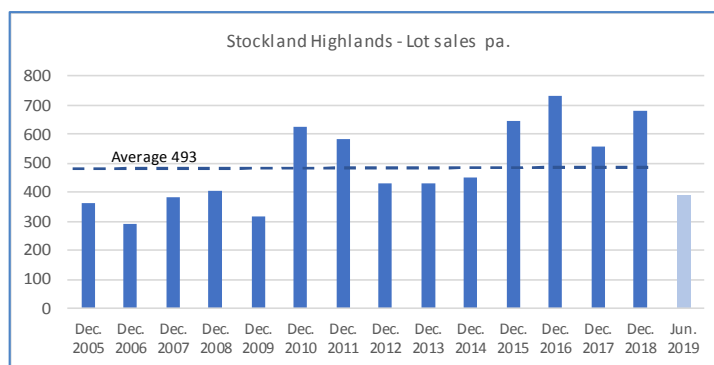
- ⁹⁷ The third PSP area is in the west, where the Woodlea Estate by Mirvac at Avonlea is the major development in the Rockbank PSP area, just off the Western Highway.
- ⁹⁸ A roof top count at 15 May 2020 revealed 2,069 dwellings since the first homes appeared in December 2015. In less than 5 years, this is an annualised construction rate of **421** new dwellings per annum.
- ⁹⁹ The current stages of development are now 2.2 km east of Leakes Road.

4.3.4 Stockland Highlands

- ¹⁰⁰ Finally, I have examined the major housing estate by Stockland at Craigieburn, known as Highlands.
- ¹⁰¹ This is a long-term project where Stockland's land holding has grown over the years. The reported lot capacity in December 2019 was 11,385 lots. The first stages were sold in 2004 which pre-dates Nearmap imagery by 6 years and rules out a dwelling count method, used in the above PSPs.
- ¹⁰² As a surrogate to dwelling construction, I have examined annual lot sales at Highlands from Stockland's property portfolio reports back to 2004.
- ¹⁰³ Over approximately 15 years 7,286 lots have been sold or 64% of the current project capacity. The annual sales rates are charted in Figure 11.
- ¹⁰⁴ From project inception, Highlands was selling between 300 and 400 lots per annum for the first five years, including in the 12 months of the GFC (2009).
- ¹⁰⁵ Over 14 full years of reported sales, the average annual rate has been **493** sales per annum. In the last 10 years, the average rate has been **550** lots per annum. It has achieved these strong rates despite new competition at Merrifield and from other new estates in the north.

**Figure 11—
Stockland
Highlands sales
rates**

Source: Stockland



- ¹⁰⁶ The analysis shows that three discrete, isolated PSPs – including two close to BNW - with good regional road links and major developer involvement can deliver very high rates of new home construction within 3-5 years.

- ¹⁰⁷ Merrifield West (575 dwellings per annum) and Lockerbie (343 per annum) are well in excess of the 277 dwellings per annum for the BNW PSP area projected by .id and adopted by Tract in their assessment of the development coverage at BNW.
- ¹⁰⁸ In the three PSP examples, an orderly pattern of development has extended **more than 2km** from the first stages off the main road. This is an indicator of how quickly and how far development could proceed in the Hazelwynde Project, noting the proposed quarry buffer is just 2km north of Camerons Lane.
- ¹⁰⁹ The sales history at Stockland Highlands shows a major estate starting at over 300 lots per annum in the early years, building to higher levels as services and other attractions are added to the area. At current rates of development, Highlands is likely to slow within 5-7 years.

4.4 Assessment

- ¹¹⁰ In forming my view on the likely long term average rate of new dwellings for the BNW PSP area, the recent experience at Merrifield West, Lockerbie and Highlands is informative and supports a strong rate of development.
- ¹¹¹ More broadly, there are macro-economic factors that affect the housing market such as the state of the economy, Victoria's population growth, cost of finance and government policy and support for home buyers.
- ¹¹² I understand the COVID-19 Pandemic with higher unemployment and short-term job uncertainty is impacting sales in Melbourne's growth areas. However, I expect this will be a short term disruption (1-2 years) and should not weigh heavily on sales at BNW in 2024.
- ¹¹³ Melbourne's housing market moves in cycles and has historically shown a strong capacity to rebound sharply after economic shocks.
- ¹¹⁴ In any case, average construction levels at BNW are considered over 20 years or longer so any analysis needs to look through any short term volatility in the market.
- ¹¹⁵ Other factors that I have considered are:
- The scale of the Hazelwynde Project which will be a dominant land project in the outer north for many years and attract. The size and time frame for development should attract an experienced development partner who can bring best-practice design and marketing strategies.
 - The more affordable price points of the outer northern land market. For example, new residential estates in Wallan such as Springridge, Featherston Rise, Wallanbrae, Wallan Waters and Newbridge are selling land at prices 15-25% below other large estates in the north corridor.
 - The marketable benefits of good connections to the Hume Freeway, a future railway station at Beveridge and development commencing close to the future Local Town Centre where early community facilities can be established.
 - BNW's location between Merrifield – Kalkallo and Wallan which could attract buyers otherwise looking in these areas.
 - As Craigieburn and Merrifield West exhaust their land stocks in the next 5-10 years, buyers in the corridor will inevitably move north.

- BNW's 3-4 year head start over Wallan South gives it a competitive advantage while other adjoining PSPs are progressing slower than expectations.

¹¹⁶ Having considered all the factors, I expect the Hazelwynde Project should average a long term development rate of at **300-350** new homes per annum.

¹¹⁷ In the early years, I expect it will average about **300** dwellings per annum and then grow as community and retail facilities are developed. The existing and growing population at Beveridge and Mandalay provide a base to develop the southern Local Town Centre earlier than other greenfield estates.

¹¹⁸ My estimated long-term rate for Hazelwynde of **320 dwellings** per annum allows for:

- An establishment phase of (say) five years at 300 per annum.
- Higher rates as the estate matures and services develop.
- Competition from other land owners in the PSP area likely to develop at a later stage to Hazelwynde.

¹¹⁹ This rate is similar to the Charter Keck Cramer estimate (311 per annum) provided to YVW and slightly below the average of the 'base case' (280 per annum) and 'stretch' (400 per annum) rates employed in YVW's capacity analysis of **340** per annum.

¹²⁰ With **8,200** lots in the Hazelwynde project area developing at an average rate of **320** new homes per annum, the development time frame for Hazelwynde itself is approximately **26** years.

¹²¹ Commencing in 2024, the Hazelwynde project area would be fully developed by about 2049.

¹²² Other land owners in the BNW PSP will develop at different time periods and rates which is difficult to predict with any certainty.

¹²³ On the evidence of other PSPs and estates I have examined, I estimate an achievable average long-term rate of development for the entire PSP area is **450 dwellings** per annum.

¹²⁴ Based on a projected lot capacity of 16,286 dwellings the BNW PSP area would have a development life of 36 years - from 2024 to 2060.

4.5 Impact of proposed quarry buffer

¹²⁵ The *Hazelwynde Project – Proposed Project Timing and Staging* report by YVW concluded that **3,750 dwellings** would be delivered before residential development reaches the buffer zone of the proposed quarry.

¹²⁶ Based on my average construction rate of **320** dwellings per annum, the buffer zone would be encroached in the **twelfth year** of development (2035).

¹²⁷ This is midway between the two development scenarios assessed by YVW which concluded the encroachment would occur:

- In year 14 (2037) under a base case' development scenario (280 dwellings per annum); or

- In year 10 (2034) under a ‘stretch’ development scenario (400 dwellings per annum)

¹²⁸ I have summarised the three positions in Table 6.

**Table 6—
Hazelwynde project
area – timing of
buffer zone
encroachment**

Year no.	Year	Cumulative dwellings per annum		
		YVW development scenarios		
		Base Case (@280 p.a.)	Stretch (@400 p.a.)	C. Aberly (@320 p.a.)
1	2024	280	400	320
2	2025	560	800	640
3	2026	840	1,200	960
4	2027	1,120	1,600	1,280
5	2028	1,400	2,000	1,600
6	2029	1,680	2,400	1,920
7	2030	1,960	2,800	2,240
8	2031	2,240	3,200	2,560
9	2032	2,520	3,600	2,880
10	2033	2,800	4,000	3,200
11	2034	3,080	4,400	3,520
12	2035	3,360	4,800	3,840
13	2036	3,640	5,200	4,160
14	2037	3,920	5,600	4,480
15	2038	4,200	6,000	4,800
16	2039	4,480	6,400	5,120
17	2040	4,760	6,800	5,440
18	2041	5,040	7,200	5,760
19	2042	5,320	7,600	6,080
20	2043	5,600	8,000	6,400
21	2044	5,880	8,400	6,720
22	2045	6,160		7,040
23	2046	6,440		7,360
24	2047	6,720		7,680
25	2048	7,000		8,000
26	2049	7,280		8,320
27	2050	7,560		
28	2051	7,840		
29	2052	8,120		
30	2053	8,400		

¹²⁹ On this analysis, I disagree with the Tract Planning Permit Report where it says that “..it is considered that the baseline 500m buffer from the quarry is not anticipated to be encroached until Phase 4 when a small amount of land to the north is impacted”.

¹³⁰ On any of the three development scenarios (above) the buffer is encroached well before 2049 (or 2052 allowing for an additional three years for the quarry approval and commencement of operations).

5

Conclusions

- ¹³¹ The planning application for Conundrum's proposed quarry by Tract at Beveridge has adopted a long term average development rate of **277** dwellings per annum in the BNW PSP area from 2025 onwards.
- ¹³² Based on an assumed pattern of development by Tract where the Hazelwynde project and other owners fill out the entire southern half of the PSP area – an area no more than 1.5 km north of Camerons Lane - Tract conclude there will be no encroachment by development on the quarry buffer by 2049.
- ¹³³ On my analysis, an appropriate rate of new dwelling construction in the Hazelwynde Project area of the BNW PSP alone is **320** dwellings per year.
- ¹³⁴ Based on the YVW's proposed staging plan and my assessment of dwelling construction rates, urban development in the Hazelwynde Project will encroach on the buffer in year 12 or 2035.
- ¹³⁵ In arriving at my conclusions, I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Panel.



Chris Abery
Director
Deep End Services

Appendix A Curriculum Vitae – Chris Abery

- A.1 Current Position:** Director, Deep End Services Pty Ltd
June 2009 – current
- A.2 Previous Positions:** Director, Property Economics, Urbis
March 2007 - May 2009
- National Manager, Strategy & Property Analysis, Coles Myer
October 2000 - March 2007
- Strategic Analyst, Manager Strategy (Property), Coles Myer
October 1992 - October 2000
- Strategic Planner, Senior Consultant, Ratio Consultants
November 1985 - October 1992
- A.3 Academic Qualifications:** Bachelor Town & Regional Planning,
University of Melbourne (1985)
- Graduate Diploma Social Statistics,
Swinburne (1990)
- A.4 Skills / Attributes:** Extensive knowledge of the retail property industry and shopping centre locations throughout Australia and NZ including regional areas and major growth corridors:
- Retailer location requirements and industry contacts.
 - Site location analysis & retail network planning and optimization.
 - Growth area structure planning for activity centres.
 - Development and execution of new store sales forecasting and impact models.
 - Due diligence studies for site / asset acquisitions.
 - Market studies, site evaluations and highest and best use recommendations.
 - Articulation of planning and policy issues and submissions to authorities for retail and property clients.
 - Retail planning, layout and facilities (composition & mix) advice.
 - Turnover potential of retail schemes.
 - Economic impact or need / demand studies.
 - Preparation of witness statements and expert advice to planning hearings.

A.5 Professional Experience

A.5.1 Director, Deep End Services (June 2009 - current)

Chris joined Deep End Services in June 2009 to assist clients with a common requirement - the need to quantify the effects of the location of their business or property on sales, profitability, growth and income. "DEEP" represents three core service areas:

- Demand Evaluation
- Economics
- Planning

Within each area, Deep End Services provides consulting advice to retailers, property owners, property developers, financial institutions, infrastructure providers, government and industry associations. The products offered included:

- Store network planning and sales forecasting
- Acquisition due diligence
- Highest & best use analysis
- Economic impact assessment

Deep's property clients include:

- GPT, Amcor, AMP, Australand, Brookfield Multiplex, Cbus Property, Charter Hall Retail REIT, Federation Centres, Harvey Norman, ISPT, Lend Lease, MAB Corporation, Macquarie Bank, Mirvac, Orica, Pellicano, Development Victoria, Stockland, Walker Corporation, Dennis Family Corporation and Westfield

Deep's retail clients include:

- ALDI, 7-Eleven, Anaconda, Baby Bunting, Beacon Lighting, City Farmers, Clark Rubber, Coles, Liquorland, David Jones, Harris Scarfe, Pacific Brands, Pet Barn, Spotlight, The Good Guys, Trade Secret, Cheap as Chips and Woolworths

Deep's other clients include:

- ANZ, Crescendo Partners, InterContinental Hotels Group, KPMG, Large Format Retail Association, Medibank Private, Melbourne Racing Club, Newcastle Permanent Building Society and Reading Entertainment

A.5.2 Director, Property Economics, Urbis (March 2007 - May 2009)

Director of Property Economics, Urbis in Melbourne from March 2007 - May 2009.

During that time, Chris lead projects for national retailers and shopping centre owners and developers throughout Australia including economic impact assessments, market demand studies, retail planning, facility briefs and scheme assessments, due diligence reports, network analysis and new store sales forecasting. Chris led a team within the Melbourne office and was responsible for all retail based consulting work from the Brisbane office.

- Retail Scheme Assessments - Westfield, Stockland, Vinta, Cedar Woods, FKP, Leightons, Australand, Challenger, Pentridge Village, QIC, Salta / Centro, Port Bouvard, Insurance Commission of WA.

- Economic Impact Assessments - Coles / Australian Unity, Vinta, Bourse, Ticor, Leda, Eureka Funds, McDonalds, Stockland, ING, Consolidated Properties, Valad, Silverton.
- Due Diligence Reports - Wesfarmers acquisition of Coles Group. Potential acquisitions by Abacus Property Group, Centro, Australand, Macquarie Bank.
- Growth area planning, Network Planning & Store Location Advice - Delfin, Clarkson Properties, Bunnings, Officeworks, Aldi, KFC.
- Retail Store Turnover Forecasting - Woolworths, Officeworks, Australand, Equiset.
- Market Profile Reports - Woolworths, Centro.
- Witness Statements / Expert Evidence - Leightons, Eureka Funds, Peninsula Development Group.

A.5.3 National Manager, Strategy & Property Analysis, Coles Myer Ltd (October 1992 - March 2007)

Chris held senior roles for 14 years in the property team at Coles Myer Ltd where, as National Manager Strategy and Property Analysis he led the team responsible for network planning, site analysis and new store sales forecasting across the group (Coles, Bi-Lo, Kmart, Target, Officeworks, First Choice Liquor, Myer).

He gained an extensive knowledge of Coles and competitor store networks and their host centres throughout Australia and extensively researched population growth corridors and their development potential including identifying sites for freehold acquisition.

Chris pioneered the spatial analysis of customer loyalty data, adapting and modifying data to illustrate individual store and overall network based market penetration maps. The data and benchmarking was used extensively in network planning and the development of analogue forecasting methods which achieved world best practice in cost and accuracy.

Chris provided strategic and market advice on major property and business acquisitions and on key planning and policy issues.

Presentations to the Board, senior management teams and external advisors on retail property, market and network issues, development and roll-out of new store formats and implications of potential acquisitions.

A.5.4 Strategic Planner, Senior Consultant, Ratio Consultants (1985 - 1992)

From 1985 - 1992, Chris was employed as a strategic planner with Ratio Consultants specialising in retail demand studies, impact assessments and economic analysis for shopping centre clients. Chris was also extensively involved in a range of activity centre and structure planning studies for local and state government clients.