

**BEFORE THE HEARINGS PANEL
FOR THE QUEENSTOWN LAKES PROPOSED DISTRICT PLAN**

IN THE MATTER of the Resource Management Act
1991

AND

IN THE MATTER of Hearing Stream 13 -
Queenstown Mapping Annotations
and Rezoning Requests

**STATEMENT OF EVIDENCE OF WALTER ANTONY CLARKE
ON BEHALF OF QUEENSTOWN LAKES DISTRICT COUNCIL**

GROWTH PROJECTIONS

19 June 2017

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Appendix 1: Detailed Population Projections

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1. INTRODUCTION

- 1.1 My name is Walter Antony Clarke. I have been employed since 2007 as an Infrastructure Advisor at Rationale Limited, based in Arrowtown. My qualifications include a Bachelor of Technology and a Postgraduate Diploma in Dairy Science & Technology from Massey University, 1992 to 1996.
- 1.1 I have over 10 years' experience working in local government in a wide range of business units within Territorial Local Authorities.
- 1.2 Rationale Limited has been involved in Queenstown Lakes District Council (**QLDC** or **Council**) growth projections since 2004. Personally, my experience includes growth projection studies for a range of clients including QLDC, Dunedin City Council, Central Otago District Council, Waitaki District Council, Thames-Coromandel District Council, Matamata-Piako District Council, Hauraki District Council, Waitomo District Council and Nelson City Council.
- 1.3 I am familiar with the Queenstown area of the Queenstown Lakes District (**District**) as a result of this experience.
- 1.4 I have been asked by the QLDC to provide evidence on the methodology and approach underpinning the growth projections that Rationale has developed for the Council, specifically in relation to the Queenstown area. I oversaw the production of Rationale's May 2017 report "QLDC Growth Projections to 2058", which contains the growth projections.
- 1.5 Although this is a Council hearing I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

2. EXECUTIVE SUMMARY

2.1 The findings of the growth projections are summarised in the table below. The District is projected to continue to experience strong growth in resident population, visitor numbers, dwellings and rating units.

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	38,000	49,300	66,400	74,700	11,300	1,130	2.6%	940	920
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	79,300	99,700	126,400	138,700	20,400	2,040	2.3%	1,570	1,480
Total Dwellings	15,800	19,700	24,700	31,600	35,000	5,000	500	2.3%	400	380
Total Rating Units		26,000	30,900	38,800	43,000	4,900	490	1.7%	430	430

Table 1: Summary of Population Projections

2.2 The approach used to derive the growth projections has been developed and enhanced by Rationale Limited over the last 13 years.

2.3 Due to the long-term nature of the growth projections and the large number of influencing factors, there is an intrinsic uncertainty in the findings. For this reason, the projections consider multiple scenarios and are updated regularly to ensure they are based on the best and most up to date data available.

2.4 Notwithstanding these qualifications, the projections are the result of a detailed process, factoring in significant data inputs and trends, and take account of the District's unique growth drivers. Therefore, I consider the recommended growth scenario to be appropriate for providing a sound basis for QLDC's long term strategic planning.

3. SCOPE OF THIS EVIDENCE

3.1 The purpose of this evidence is to:

- (a) set out the methodology behind Rationale's growth projections;

- (b) outline the base data/ inputs into the growth projections;
- (c) explain the assumptions made and key growth drivers for population growth in the District; and
- (d) provide a summary of the resident population, visitor, and dwelling projections.

3.2 I understand that the Rationale projections were attached to Mr Craig Barr's supplementary evidence dated 2 May 2017 in the Upper Clutha Hearing Stream 12. It is these same projections that are included within **Appendix 1**.

3.3 I attach in **Appendix 2**, the Rationale Limited report *QLDC Growth Projections to 2058*, dated May 2017.

4. BACKGROUND

4.1 Rationale Limited built a growth model in 2014 to allow multiple growth model scenarios to be considered. This replaced earlier growth models dating back to 2004. The model was updated in 2015 and most recently in 2017 using the latest inputs now available.

4.2 This growth model has been successfully adapted for seven other councils; Dunedin City Council, Central Otago District Council, Waitaki District Council, Thames-Coromandel District Council, Matamata-Piako District Council, Hauraki District Council and Waitomo District Council.

4.3 The growth projection outputs for the District include:

- (a) usually resident population including:
 - (i) five-year age groups and,
 - (ii) average household size.
- (b) visitors on both the peak and average day staying in:
 - (i) commercial accommodation – visitors staying hotels, motels, guest house, campgrounds, backpackers etc.

- (ii) private residences - visitors staying with friends/family in occupied (resident) dwellings + visitors renting unoccupied holiday homes/AirBnBs.
- (iii) and day visitors;
- (c) total residential dwellings split into:
 - (i) Occupied dwellings, used to house the resident population.
 - (ii) Unoccupied dwellings, made up of holiday homes, absent owners, AirBnB, vacant rentals.
- (d) rating units by type – according to QLDC’s current rating categories:
 - (i) Residential;
 - (ii) Country Dwelling;
 - (iii) Commercial;
 - (iv) Accommodation;
 - (v) Mixed Use – Commercial;
 - (vi) Mixed Use – Accommodation;
 - (vii) Primary Industry;
 - (viii) Vacant; and
 - (ix) Hydro/Other.

4.4 The above outputs are provided out to 2058 and have been produced for the District, comprising the Wakatipu and Wanaka wards, and the census area units as shown in **Table 2** below.

Queenstown Lakes District	
Wakatipu ward (Wakatipu and Arrowtown wards)	Wanaka ward
Arrowtown	Hawea
Arthurs Point	Matukituki
Frankton	Wanaka
Frankton East	
Glenorchy	
Jacks Point	
Kelvin Heights	
Kingston South	
Lake Hayes	
Lake Hayes South	
Outer Wakatipu	
Queenstown Bay	
Queenstown Hill	
Sunshine Bay	
Wakatipu Basin	

Table 2: Wards and census area units within the District for which model outputs are available

- 4.5** The census area units are based on Statistics New Zealand (**SNZ**) boundaries. There is a further level of census detail provided by SNZ at the meshblock level. However, we have found that census area units are the best level to use for the growth projections, as the historical and projected data provided by SNZ at the meshblock level is much more limited compared to the data at the census area unit level.

5. METHODOLOGY

- 5.1** The philosophy underlying the methodology of the growth model is that people drive the growth in dwellings and rating units. An increase in people living, working or holidaying in the District will also result in an increase in both dwellings and rating units. Resident population growth is only one of three factors that can drive an increase in dwellings; the other two are declining household size and holiday home demand. These factors, along with the high number of visitors and the employment opportunities they create, all have a flow on effect through to rating unit growth.

5.2 The philosophy is best summarised as the live, work and play model. This is illustrated in the diagram in **Figure 1** below.

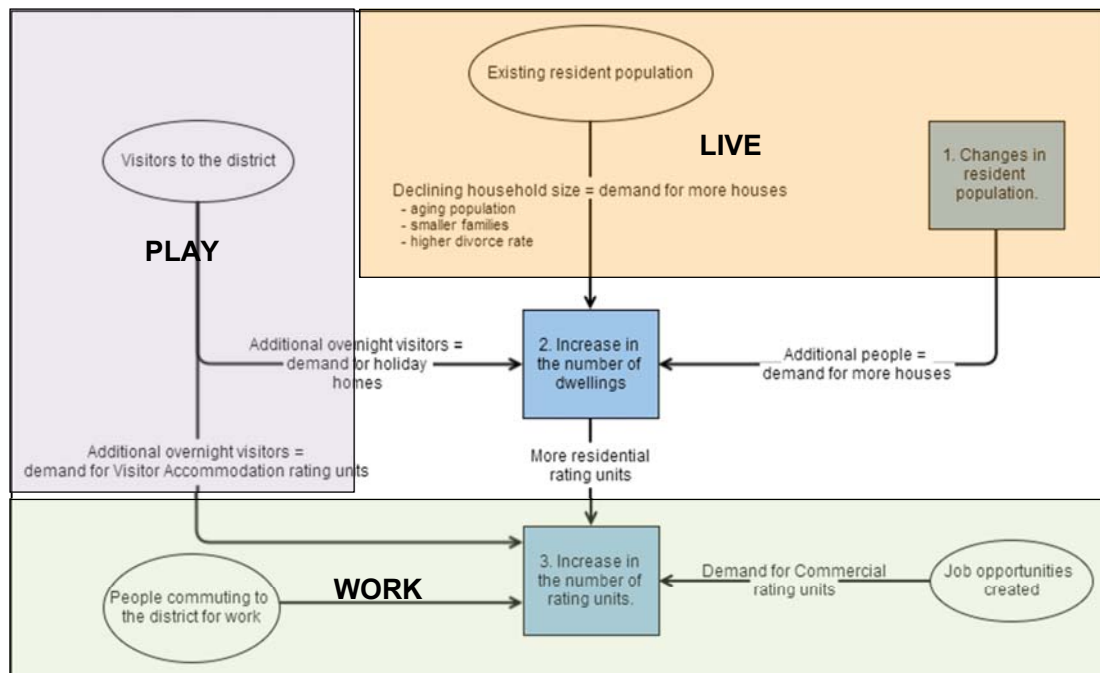


Figure 1: Live, Work and Play Model

Base Data / Inputs

5.3 The data and model structure are summarised in the two left hand columns of the diagram in **Figure 2** below. The data/inputs are as follows:

- (a) historical census data for households, population, age demographics and residential dwellings;
- (b) SNZ population and household projections;
- (c) SNZ employment information from recent censuses;
- (d) Commercial Accommodation Monitor (**CAM**) information on commercial accommodation providers;
- (e) various Central Government agencies visitor data and projections - Tourism Strategy Group (**TSG**, previously Tourism Research Council) are now provided by the Ministry of Business Innovation and Employment (**MBIE**); and
- (f) QLDC rating unit information from the rates database.

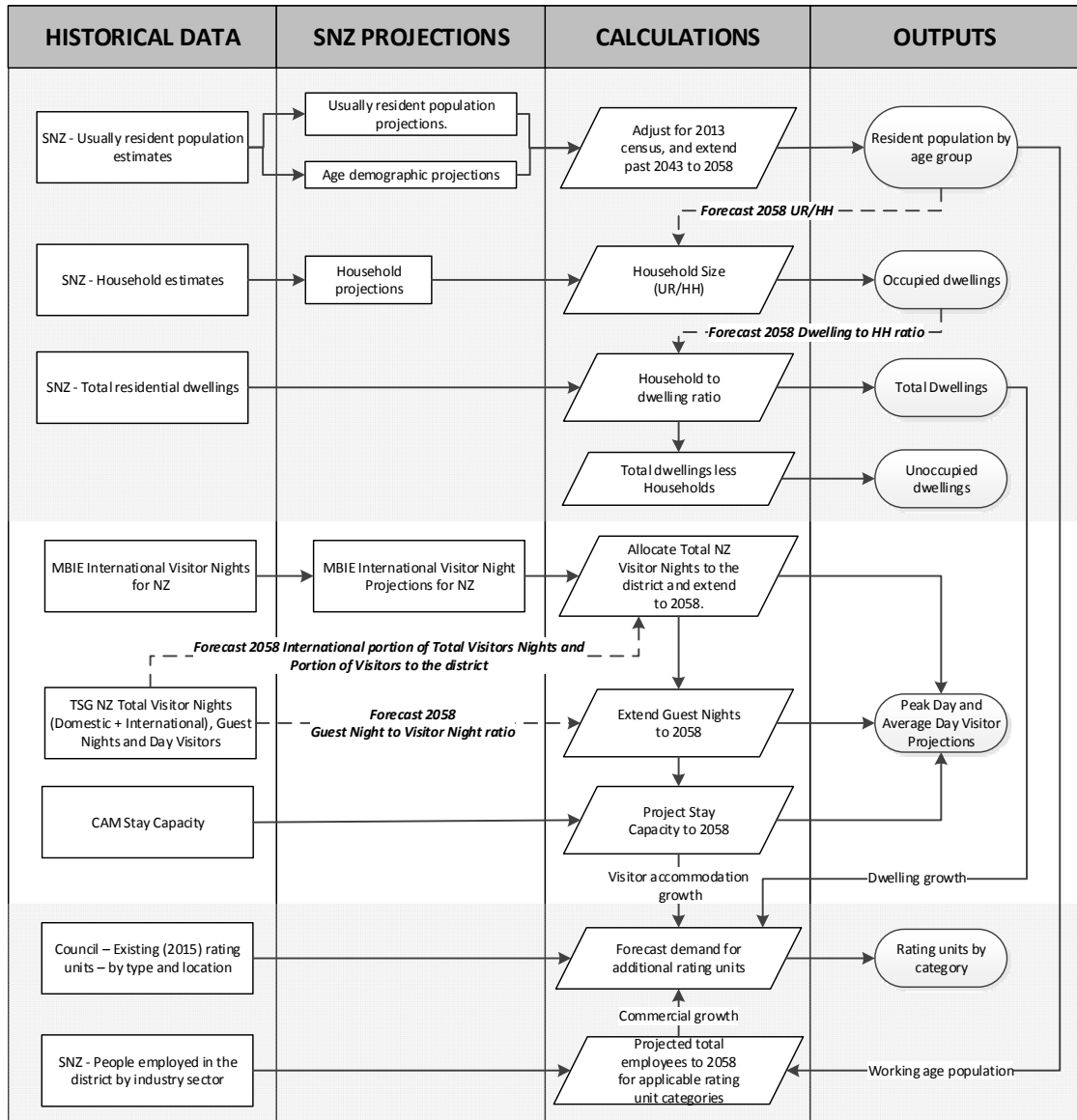


Figure 2: Model Structure

5.4 The model is a bottom-up model where all data, assumptions and calculations are at the census area unit level. The sub-totals for the wards and the District correspond to the groupings shown in **Table 2**.

Key components

5.5 The key components of the growth projections are:

- (a) SNZ population projections – these are released periodically between censuses based on the latest information obtained by SNZ. This study uses a combination of the district wide projections (Dec 2016) and the census area unit level projections (Oct 2015);

- (b) the additional dwellings required to house the resident population and the visitors in holiday homes;
- (c) visitors on the average and the peak day; and
- (d) impact of the above growth on the rating units.

5.6 These components are explained in detail in the following sections.

Resident Population

5.7 The population growth scenarios included in the projections are developed from the three SNZ resident population growth series; low growth (slow population growth), medium growth (steady increase in population) and high growth (strong population growth). The population projections are based on natural change (births and deaths) and net migration into or out of the district.

5.8 This report also introduces a fourth growth scenario; modified growth, which incorporates local growth trends, unique demographics and drivers in the District, and projected demand at the census area unit level. This scenario has been developed by Rationale and sits between the medium and high growth scenarios, being closest to the high growth scenario at the District level.

Additional dwellings

5.9 A key component of the growth model is to convert the increase in population and trends towards a smaller household size into residential dwelling growth. The holiday home aspect of the District also needs to be accounted for.

5.10 The model relies on two key variables:

- (a) Household size – this ratio has been decreasing, both locally and nation-wide due to an ageing population and a move to smaller families. This trend is projected to continue, resulting in more dwellings being required to house the same number of people; and

(b) Households to dwelling ratio – this ratio accounts for dwellings not occupied by the usually resident population, e.g. holiday homes. The forecast ratio is based on historical data. Where this ratio declines, more dwelling growth occurs, typically driven by holiday home growth. If this ratio increases, less dwelling growth occurs, indicating a shift to residents utilising more of the dwelling stock.

5.11 The analysis and forecasted trend for these ratios is at the census area unit level.

5.12 Assessment of the residual dwelling capacity in each area is also considered to ensure there is sufficient available zoned land to meet the projected demand for dwellings in each area. The capacity is still based on the 2013 Dwelling Capacity Model as the most recent update was not available at the time the report in **Appendix 2** was finalised. While this is acknowledged to not be ideal, this was the best information available at the time, and it is important to note that any limitations of the capacity assumptions in the 2013 Dwelling Capacity Model do not affect the ward or district projections, but will affect the individual census area unit level projections. I understand there is an intention for this to be updated.

5.13 The model allocates any unmet demand for dwellings to an overflow area within each ward. This is different to previous studies. In the past, the overflow from an area was allocated to other areas based on the capacity available. The overflow area is used to quantify the growth that may need to be accommodated elsewhere in the ward if any areas reach capacity.

Visitors

5.14 Visitors are a significant portion of the total population in the District, and comprise over two times the resident population on the peak day. The peak day population is important for the planning, design and operation of certain core infrastructure, e.g. water and wastewater networks. Both the peak day population and the average day

population are important in discussing the adequacy, or possible inadequacy, of future capacity for dwellings.

- 5.15** The core method (see **Table 3** below) for projecting average day and peak day visitors has been retained from the previous growth model. However, the tourism/visitor forecasts previously provided by the Tourism Strategy Group are now provided by MBIE. MBIE visitor forecasts are New Zealand wide and no longer provide Regional Tourism Organisation level (previously Queenstown (Wakatipu) and Wanaka)) visitor projections.
- 5.16** To accommodate these shortcomings, the latest MBIE visitor projections have been combined with the last Tourism Strategy Group projections to forecast visitors to the District. Data from the CAM is still used to determine the split of visitors staying in commercial or private accommodation. The model now relies on forecasting the following ratios:
- (a) the international portion of total visitor nights;
 - (b) the portion of New Zealand visitor nights staying in Queenstown Lakes; and
 - (c) the guest night to visitor night ratio – this splits the total visitors into those in commercial accommodation and those in private residences.
- 5.17** The above ratios are set at different levels for each growth scenario.
- 5.18** A summary of the method used for each type of visitor, on both the peak and average day is shown in **Table 3** below.

Visitor Category	Average Day	Peak Day
Visitors in commercial accommodation	Queenstown Lakes guest nights averaged over 365 days.	Full utilisation of the total available capacity assuming two visitors per unit. (CAM)
Visitors in private residence	Queenstown Lakes visitor nights less guest nights, averaged over 365 days.	Assumes that all dwellings will house 1.75 and 3.2 visitors in Wakatipu and Wanaka respectively. These figures are derived from the <i>2004/05 Peak Population Survey (Rationale Ltd)</i> .
Day visitors	Based on the ratio of day visitors to visitor nights, with the total averaged over the year.	Assumes 0.09 and 0.13 day visitors per overnight visitor on the peak day, in Wakatipu and Wanaka respectively (TSG).

Table 3: Calculation Methods for Visitor Numbers

5.19 Visitor projections are at the District level, i.e. top down. The District's visitors in commercial accommodation are allocated to census area units based on the location of the visitor accommodation rating units. The District's total visitors staying in private residences are allocated based on the dwellings in each census area unit.

5.20 The District-wide average day visitor figures have been reconciled with similar visitor number estimates provided by Qrious, an entity of Spark that uses mobile phone data to capture overnight stays. This analysis of the two methods found the visitor number estimates were very similar, within 5%.

5.21 Relatively new accommodation options like Airbnb and freedom camping are not captured as distinct categories. However, they are captured in the visitor number projections.

Rating Units

5.22 The final step of the model is to convert the population and dwelling growth into rating units. The approach differs for each type of rating unit. These are explained in detail in Section 4.5 of the report appended to this evidence.

Limitations

5.23 The key limitations, aside from the fact that they are long term projections, are:

- (a) the visitor projections now provided by MBIE do not provide the same level of detail they have in the past. Therefore, significant assumptions are required to project all components of the visitor projections; and
- (b) the overflow of growth projected for the areas that reach capacity is distributed to an overflow area for each ward. These capacity figures have not been updated since 2013 and do not consider proposed changes to zones, in the PDP. While not ideal this was the best information available at the time. In reality the location of this demand is unknown and may be met with a combination of changes to existing zoned areas, and provision of new residential zoned areas.

5.24 Despite these limitations, the projections are based on a proven, robust method using the best information available at the time. Therefore they are considered appropriate for providing a sound basis for QLDC's long term strategic planning.

Scenarios

5.25 The report summarises four scenarios for population growth; low, medium, high and modified (the latter is the 'recommended' scenario in **Figure 3**). These are summarised in **Figure 3**, showing resident population growth under each scenario.

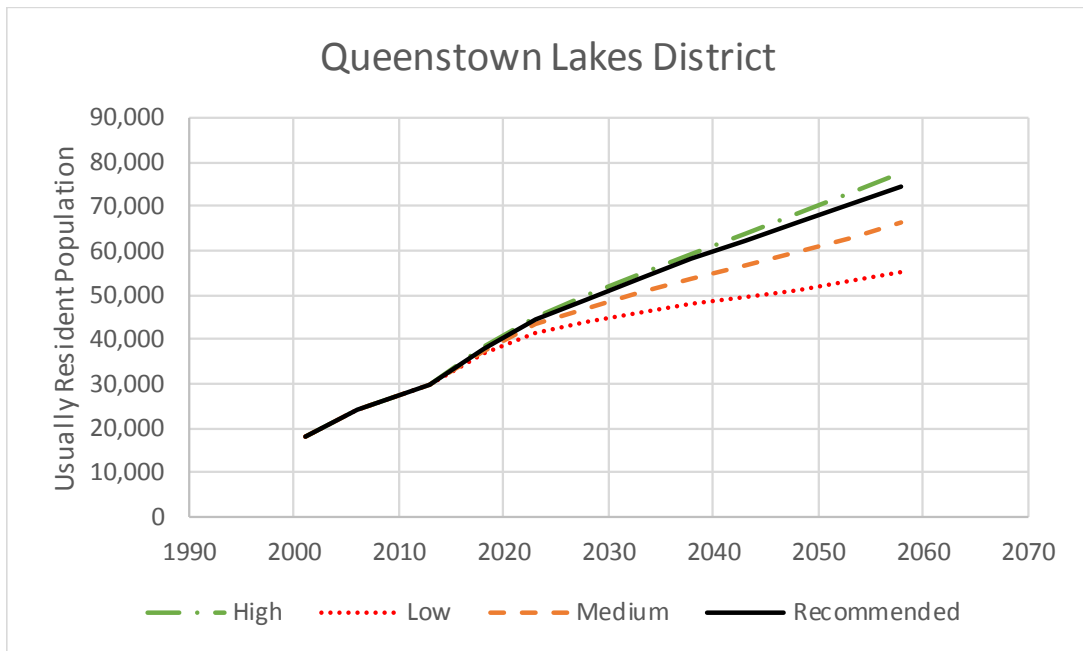


Figure 3: Resident Population Growth in Low, Medium, High and Modified (Recommended) Growth Scenarios

5.26 The modified (recommended) growth scenario is considered the most appropriate for the purpose of QLDC’s long term strategic planning. The key reasons are:

- (a) the modified growth scenario provides realistic projections that are conservatively optimistic. It is considered to best reflect historical population growth trends and the current economic climate;
- (b) the high growth scenario is considered to be too high, and may lead to overstating the growth. Similarly, the low growth scenario is more of a worst-case scenario. While this provides a useful perspective, it is not considered appropriate for long term strategic planning purposes;
- (c) although SNZ consider their medium series to be the most appropriate to assess future population changes, it appears too conservative for the purpose of long term strategic planning in the District. Historically the medium scenario has understated the growth in the District; and
- (d) the modified growth scenario is informed by the appropriate SNZ population series for each census area unit and analysis of recent building activity. Therefore it provides

more accurate localised projections that better meet QLDC's planning needs.

5.27 A key driver for the high population growth being experienced at present is a high level of migration of people into the District. Under the high scenario the migration component is projected to remain higher compared to the medium scenario. Therefore until the findings of the 2018 census are known, we believe the medium scenario is too conservative. These assumptions will be updated when more recent census information is available.

6. SUMMARY OF GROWTH PROJECTIONS

6.1 The projections for the District are summarised in **Table 4** below (also included in my Executive Summary above). A more detailed overview of the results at the ward level is provided in **Appendix 1**.

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	38,000	49,300	66,400	74,700	11,300	1,130	2.6%	940	920
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	79,300	99,700	126,400	138,700	20,400	2,040	2.3%	1,570	1,480
Total Dwellings	15,800	19,700	24,700	31,600	35,000	5,000	500	2.3%	400	380
Total Rating Units		26,000	30,900	38,800	43,000	4,900	490	1.7%	430	430

Table 4: Summary of Population Projections

- 6.2** The key findings are:
- (a) strong growth in population, visitor numbers, residential dwellings and rating units is projected in both the Wakatipu and Wanaka wards;
 - (b) the District's population is projected to nearly double between 2018 and 2058, increasing from 38,000 to just under 75,000 residents;
 - (c) the rate of growth is highest in the next 10 to 15 years. Over the long term, while positive growth is still forecast the rate of growth is slightly lower. This is due to a forecast slow-

down in migration and also the impact of the ageing population;

- (d) in the long term a higher proportion of visitors are projected to stay in commercial accommodation. This is likely to be driven by an increase in international visitor numbers. The number of day visitors and visitors in private residences (staying with friends/family, AirBnB, holiday homes) is still projected to increase; and
- (e) as the resident population increases, a higher proportion of the dwelling stock is projected to be used by the resident population (occupied dwellings). This is most noticeable in the Wanaka Ward where in the long term the number of unoccupied dwellings is projected to decline.



Walter Clarke
19 June 2017

Appendix 1 Detailed Population Projections

Area / Output variable								HISTORICAL GROWTH (2001 to 2013; 12 yrs)			CURRENT GROWTH (2013 to 2018; 5 yrs)			PROJECTED GROWTH (2018 to 2028; 2048 and 2058; 10, 30 and 40 yrs)				
	2001	2013	2018	2028	2038	2048	2058	Change	Average annual growth	Annual average growth rate	Change	Average annual growth	Annual average growth rate	Change	Average annual growth	Annual average growth rate	Average annual growth	Average annual growth
District																		
Resident Population	17,840	29,730	38,048	49,277	58,066	66,355	74,731	11,890	991	4.3%	8,318	1,664	5.1%	11,229	1,123	2.6%	944	917
Total Dwellings	10,322	15,780	19,718	24,674	28,267	31,595	35,030	5,458	455	3.6%	3,938	788	4.6%	4,956	496	2.3%	396	383
Occupied Dwellings	7,000	11,760	15,006	19,524	23,192	26,767	30,504	4,760	397	4.4%	3,246	649	5.0%	4,518	452	2.7%	392	387
Unoccupied Dwellings	3,322	4,020	4,712	5,150	5,075	4,828	4,526	697	58	1.6%	692	138	3.2%	438	44	0.9%	4	-5
Total Visitors	42,838	63,879	79,301	99,747	113,805	126,374	138,658	21,042	1,753	3.4%	15,422	3,084	4.4%	20,446	2,045	2.3%	1,569	1,484
Commercial Accommodation	15,740	21,420	26,123	33,297	38,234	42,695	46,763	5,680	473	2.6%	4,703	941	4.0%	7,174	717	2.5%	552	516
Private Residences	23,022	36,296	45,512	56,839	64,668	71,726	79,017	13,273	1,106	3.9%	9,216	1,843	4.6%	11,327	1,133	2.2%	874	838
Day Visitors	4,076	6,164	7,667	9,612	10,903	11,953	12,877	2,088	174	3.5%	1,503	301	4.5%	1,945	195	2.3%	143	130
Total Rating Units			26,024	30,897	34,894	38,778	43,041							4,873	487	1.7%	425	425
Wakatipu Ward																		
Usually Resident Population	12,990	20,230	25,557	32,627	38,330	43,846	49,374	7,240	603	3.8%	5,327	1,065	4.8%	7,070	707	2.5%	610	595
Total Dwellings	6,903	9,794	12,128	15,254	17,784	20,261	22,813	2,891	241	3.0%	2,334	467	4.4%	3,126	313	2.3%	271	267
Occupied Dwellings	5,011	7,833	9,825	12,575	14,903	17,250	19,708	2,821	235	3.8%	1,993	399	4.6%	2,750	275	2.5%	247	247
Unoccupied Dwellings	1,892	1,961	2,303	2,679	2,881	3,011	3,105	69	6	0.3%	342	68	3.3%	376	38	1.5%	24	20
Total Visitors	26,254	36,491	44,854	56,759	65,650	73,946	81,946	10,237	853	2.8%	8,363	1,673	4.2%	11,905	1,191	2.4%	970	927
Commercial Accommodation	12,006	16,339	19,926	25,398	29,165	32,568	35,671	4,333	361	2.6%	3,588	718	4.0%	5,472	547	2.5%	421	394
Private Residences	12,080	17,139	21,224	26,695	31,122	35,457	39,923	5,059	422	3.0%	4,085	817	4.4%	5,471	547	2.3%	474	467
Day Visitors	2,168	3,013	3,704	4,666	5,363	5,921	6,353	845	70	2.8%	691	138	4.2%	963	96	2.3%	74	66
Total Rating Units			16,847	20,121	22,967	25,772	28,981							3,273	327	1.8%	297	303

Area / Output variable								HISTORICAL GROWTH (2001 to 2013; 12 yrs)			CURRENT GROWTH (2013 to 2018; 5 yrs)			PROJECTED GROWTH (2018 to 2028; 2048 and 2058; 10, 30 and 40 yrs)				
	2001	2013	2018	2028	2038	2048	2058	Change	Average annual growth	Annual average growth rate	Change	Average annual growth	Annual average growth rate	Change	Average annual growth	Annual average growth rate	Average annual growth	Average annual growth
Wanaka Ward																		
Usually Resident Population	4,850	9,500	12,491	16,650	19,736	22,509	25,357	4,650	388	5.8%	2,991	598	5.6%	4,159	416	2.9%	334	322
Total Dwellings	3,419	5,986	7,590	9,420	10,483	11,334	12,217	2,567	214	4.8%	1,604	321	4.9%	1,830	183	2.2%	125	116
Occupied Dwellings	1,989	3,928	5,181	6,949	8,289	9,517	10,796	1,939	162	5.8%	1,253	251	5.7%	1,768	177	3.0%	145	140
Unoccupied Dwellings	1,431	2,059	2,409	2,471	2,194	1,817	1,421	628	52	3.1%	350	70	3.2%	62	6	0.3%	-20	-25
Total Visitors	16,584	27,389	34,448	42,988	48,155	52,428	56,712	10,805	900	4.3%	7,059	1,412	4.7%	8,540	854	2.2%	599	557
Commercial Accommodation	3,734	5,081	6,197	7,898	9,070	10,128	11,093	1,347	112	2.6%	1,116	223	4.0%	1,702	170	2.5%	131	122
Private Residences	10,942	19,157	24,288	30,144	33,546	36,269	39,094	8,215	685	4.8%	5,131	1,026	4.9%	5,856	586	2.2%	399	370
Day Visitors	1,908	3,151	3,963	4,946	5,540	6,032	6,524	1,243	104	4.3%	812	162	4.7%	983	98	2.2%	69	64
Total Rating Units			9,177	10,776	11,926	13,006	14,060							1,599	160	1.6%	128	122

APPENDIX 2

**QLDC Growth Projections to 2058
Report by Rationale Limited dated May 2017**

|QLDC

Growth Projections to 2058

Resident Population
Visitors
Dwellings
Rating Units



Document Title:

QLDC Growth Projections to 2058

Prepared for:

QUEENSTOWN LAKES DISTRICT COUNCIL

Quality Assurance Statement

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Executive Summary

Rationale Limited (Rationale) has been engaged to review and develop growth projections for Queenstown Lakes District Council (QLDC).

The main purpose of the review is to provide resident population, visitors, dwelling and rating unit projections out to 2058, for the district, its 2 ward areas and 21 census area units. The growth projections provide key assumptions for use in the 2018 Long Term Plan (10 years), the 30-year infrastructure strategy, and longer term planning densities (40 years to 2058).

Further detail is provided on the following:

- Resident population structure (age demographics and average household size).
- Visitors on both the average day and the peak day (visitors staying in commercial accommodation and in private residences, plus day visitors).
- Dwelling types (occupied and unoccupied).
- QLDC's nine rating unit categories (ward and district level only).

The underlying philosophy of Rationale's model is that people drive the growth in dwellings and rating units. An increase in people living, working or holidaying in the district will also result in an increase in both dwellings and rating units. Resident population growth is only one of three factors that can drive an increase in dwellings; the other two are declining household size, and holiday home demand. These factors, along with the high number of visitors and the employment opportunities they create, all have a flow on effect to the rating unit growth.

A growth model has been built to allow multiple scenarios to be considered. The intention of the approach used is to provide a tool to help council officers and elected members decide on an appropriate set of growth projections that balance the funding risk of over projecting with the planning and infrastructure risks of under projecting.

The population growth scenarios included in this review are developed from three baseline resident population growth rates considered appropriate for the Queenstown Lakes District: low growth (slow population growth), medium growth (steady increase in population) and high growth (strong population growth). This report also introduces a fourth growth model known as the modified growth scenario, which incorporates local growth trends and projected demand at the census area unit level. This scenario sits between the medium and high growth scenarios, being closest to the high growth scenario at the district level.

The modified growth scenario is considered the most appropriate for the purpose of QLDC's long term planning. The reasons for this view are presented in Section 3 of this report.

A summary of the key results is shown below for the recommended growth scenario. The 2013 figures are also shown as this is the most recent census year.

This table shows that the population is projected to increase at a steady rate. The projected visitor, dwelling and rating unit growth rate is slightly lower than the population growth rate. This is consistent with recent trends.

Key Results – Recommended growth scenario

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	38,000	49,300	66,400	74,700	11,300	1,130	2.6%	940	920
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	79,300	99,700	126,400	138,700	20,400	2,040	2.3%	1,570	1,480
Total Dwellings	15,800	19,700	24,700	31,600	35,000	5,000	500	2.3%	400	380
Total Rating Units		26,000	30,900	38,800	43,000	4,900	490	1.7%	430	430

Note 1: QLDC installed a new IT system in 2014, so the 2013 rating unit figure has been omitted for the purposes of data consistency.

Regarding the population structure, the district has a relatively young population. However, in the long term, the overall population is ageing. The data collected in the 2013 census indicates that the proportion of people aged 65+ is around 11% of the total population. This is lower than the national average (14%). However, the proportion of people aged 65+ in the district is projected to increase to over 22% by 2043.

Factors such as the ageing population will contribute to a decline in the average household size. The average household size is projected to decrease from around 2.5 residents per household in 2018 to around 2.4 in 2058.

In terms of geographic spread of population growth, the Wakatipu and Wanaka wards are projected to grow by around 700 and 420 people per year respectively. Due to its smaller size, the Wanaka ward is projected to experience the highest percentage rate of population growth.

The total visitor population on both the average and peak day is projected to increase. The total visitors on the peak day will increase at a slightly lower rate compared to the number of visitors on an average day. As with the resident population, the average day visitor population percentage growth rate in the Wakatipu ward will be slightly lower than the Wanaka ward. The peak day visitor population percentage growth rate will be very similar for the two wards.

The dwelling growth is projected to be more evenly spread across the wards with around 60% of the total dwelling growth projected to occur in the Wakatipu ward. The district’s proportion of holiday homes decreases from 25% of total dwellings in 2013 to 13% in 2058.

Population, visitor and dwelling growth flows through to rating units. The majority of the district rating units are residential, with over 65% of all rating units falling under these categories. Therefore, any rating unit growth is heavily dependent on dwelling growth. However, the other two main rating unit categories, Commercial and Accommodation are both projected to increase, due to an increase in visitors and the job opportunities created by growth.

The projections model and outputs for the modified growth scenario are considered appropriate for providing a sound basis for QLDC’s long term planning. The accompanying *Rationale QLDC Growth Projections to 2058 Data Model* provides a summary and detailed projections data for population, dwellings and rating units. The data is shown for the district, the two wards and each census area unit.

1 Introduction

Rationale Limited (Rationale) has been engaged to review and develop growth projections for Queenstown Lakes District Council (QLDC). The main purpose of the review is to provide population, visitor, dwelling and rating unit projections out to 2058, for QLDC’s relevant geographic areas. The projections take into account elements such as historical and current trends, relevant land use policies, and relevant national, regional and local level drivers.

The growth projections outputs are listed below:

- Usually resident population – by five-year age groups and average household size.
- Visitors on both the peak and average day – visitors staying in commercial accommodation and those in private residences, plus day visitors.
- Dwellings by type – occupied and unoccupied (not used by usually resident population).
- Rating units by type – according to QLDC’s current rating categories:
 - Residential
 - Country Dwelling
 - Commercial
 - Accommodation
 - Mixed Use - Commercial
 - Mixed Use - Accommodation
 - Primary Industry
 - Vacant
 - Hydro/Other

Definitions of the QLDC’s rating unit categories can be found in Appendix A.

The above outputs have been produced for the district, the district’s wards and census area units, as outlined in Table 1. Maps of the census area units can be found in Appendix D.

Table 1 : Queenstown Lakes District Wards and Census Area Units

Wakatipu ward (includes Wakatipu and Arrowtown wards)	Wanaka ward
Arrowtown	Hawea
Arthurs Point	Inland Water - Lake Hawea
Frankton	Inland Water - Lake Wanaka
Frankton East	Matukituki
Glenorchy	Wanaka
Inland Water - Lake Wakatipu	
Jacks Point	
Kelvin Heights	
Kingston South	
Lake Hayes	
Lake Hayes South	
Outer Wakatipu	
Queenstown Bay	
Queenstown Hill	
Sunshine Bay	
Wakatipu Basin	

A growth model was built in 2014 to allow multiple scenarios to be considered. This model replaced the old model, developed by Rationale and Hill Young Cooper that has been used to provide the district's growth projections since 2004. The reasons for the change were:

- The old growth model was based on visitor projections provided by various central government tourism agencies. These visitor projections were previously at the ward level and were converted to population and dwelling projections based on a number of assumptions. These visitor projections have been simplified and no longer provide sufficient information to form the basis of the growth model.
- The Statistics New Zealand population projections have improved and are now considered the best basis for forecasting growth in the district. These have always been accounted for in the growth model, however, the new approach uses these as the starting point for all other projections.
- Legislative changes now require councils to provide rating unit projections. This required changes to be made to the growth model, therefore a simpler approach that can be used by any council was considered more appropriate.

The intention of the approach used is to provide a tool to help council officers and elected members decide on an appropriate set of growth projections that balance the funding risk of over projecting with the planning and infrastructure risks of under projecting. The growth projections will be updated annually, including consideration of the latest data used to inform the projections.

Scenario development is discussed briefly in Section 2, along with results analysis for each scenario (low, medium, high) and the opportunity for a further modified scenario. The recommended scenario is presented in Section 3. Section 4 provides a summary of the methodology used for this review.

The accompanying *Rationale QLDC Growth Projections to 2058 Data Model* provides summary and detailed projections data for population, visitors, dwellings and rating units for the district and each of the wards and census area unit.

2 Scenarios

2.1 Overview

The underlying philosophy of Rationale’s model is that people drive the growth in dwellings and rating units. An increase in people living, working or holidaying in the district will also result in an increase in both dwellings and rating units.

The scenarios included in this review are a range of resident population growth rates. The change in population is based on the migration of people into or out of the district and the birth rates and mortality (death) rates. The birth and death rates differ for areas within the district (and wider) depending on the existing age structure. Although the resident population provides the base inputs, the approach still accounts for non-resident population drivers that can influence dwelling and rating unit growth.

The results for each scenario show the flow on effect for dwelling, visitor and rating unit growth. The scenarios are:

- Low population growth – a minor increase in the resident population.
- Medium population growth – a steady increase in resident population.
- High population growth – a significant increase in resident population.

The underlying assumptions required to convert population growth into dwelling and rating unit growth are maintained for each of the above scenarios. This report also introduces a fourth modified growth scenario that includes individual population growth trends for each census area unit, as opposed to applying the same scenario for all census area units.

The following sections discuss the projected growth (2018-2058) under the three main scenarios, and the recommended modified growth scenario. The analysis includes projections for 10 year growth (2018 LTP), 30 year growth (Infrastructure Strategy) and 40 year growth (long term demand).

Change in population structure (size of age groups) and average household size under each scenario is discussed in a sub-section following the scenario analysis.

Analysis of historical growth trends is a key component of this review and has informed likely growth trends going forward, for example, decreasing household size and holiday home growth. This is explained briefly below.

2.1.1 Historical Growth

All outputs in this review are projected as at 30 June of each year. This aligns with QLDC’s financial year. Therefore, the population figures in this review are not equivalent to the census night usually resident population, they are 30 June estimates (for each year – historical and projected), referred to as resident population estimates.

This approach is consistent with Statistics New Zealand (SNZ) methodology where a 30 June resident population estimate is derived using the census usually resident population count. The adjustments include net census undercount due to non-response, residents overseas on census night, and demographic adjustments including those to account for births, deaths and net migration between census night and 30 June. The historical analysis is based on the censuses from 2001, 2006 and 2013 as this is the most reliable date available.

As a high level district overview of historical growth, the usually resident population of the district on 30 June 2013 is estimated to be around 29,700 people. This has grown by around 11,900 people (4.4% or 990 people per year) in the last 12 years. Over the same period, over 5,500 new dwellings have been built, increasing the total number to nearly 15,800 dwellings. This is an increase of around 3.6% or 460 dwellings per year. Most of the growth is in occupied dwellings with only 25% of the total dwelling stock in 2013 assumed to be unoccupied (holiday homes, rentals for visitors). This unoccupied dwelling portion has decreased from 32% in 2001.

A more detailed overview of historical growth in the district is provided as Appendix B.

2.2 Scenario Analysis

This section reviews the main outputs under the three growth scenarios, and introduces a recommended modified growth scenario. For reporting purposes, discussion is built around district and ward trends. More in-depth analysis at the census area unit level is provided in discussion on the recommended scenario - Section 4.

The tables in this section show the total growth over 10 years (2018 to 2028) and the average annual growth and average annual growth rate (%). The average annual growth is also shown for both the 30 year (to 2048) and 40 year (to 2058) periods. The 2013 figures are also shown as this is the last census year. Due to a change in QLDCs information systems, the rating unit data is not shown for 2013. The projections and growth have been rounded to the nearest multiple of 100 and the average annual growth rounded to the nearest multiple of 10.

2.2.1 Scenario 1 – low growth scenario

The low growth scenario assumes low fertility and high mortality which still results in a net increase in population. This scenario also assumes a net migration of people into the district. The combined impact is a slow increase in usually resident population overall. A steady amount of dwelling and rating unit growth is evident.

The high level outputs for the low growth scenario are summarised in the following table.

Table 2 : Key results - low growth scenario

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	36,800	43,800	51,300	54,900	7,000	700	1.8%	480	450
Total Visitors (average day)	18,000	24,500	29,700	33,300	34,000	5,200	520	1.9%	290	240
Total Visitors (peak day)	63,900	77,600	91,700	104,000	108,800	14,100	1,410	1.7%	880	780
Total Dwellings	15,800	19,100	22,100	25,000	26,400	3,000	300	1.5%	200	180
Total Rating Units		25,400	27,500	31,000	32,500	2,100	210	0.8%	190	180

Population

Under this scenario, the population in the district increases at a rate of around 700 people per year, or 1.8% per year over the 10 year period between 2018 and 2028. Both wards are projected to increase in population, with the Wanaka ward (2.4% per year) growing at a higher rate than the Wakatipu ward (1.4% per year).

Visitors

The total visitor population on both the average and peak day is projected to increase under the low growth scenario. The total visitors on the peak day increase at a slightly lower rate (1.7% per year) compared to the visitors on the average day (1.9%). The peak day visitor population growth rate in the Wanaka ward is approximately equal to the Wakatipu ward. The average day visitor population growth rate in the Wanaka ward is slightly higher than the Wakatipu ward.

Dwellings

The dwelling growth that flows from the population growth is positive, however the annual increase is less than 70% of the historical trend, increasing by around 300 dwellings per year. To put this in perspective, the increase in dwellings over the last 12 years would take around 18 years to achieve under this low growth scenario.

The slow growth in dwellings is driven by a steady increase in occupied dwellings, but at a lower rate than the previous 12 years. Some currently unoccupied dwellings also revert to occupied dwellings. The proportion of occupied dwellings is projected to increase from 76% to around 85% between 2018 and 2058.

Rating units

The growth in total rating units is also relatively slow, around 0.8% per year. The growth in dwellings results in an increase in Residential and Country Dwelling rating units. All other rating unit categories are projected to increase except Hydro/Other and Primary Industry which do not change and Vacant which decrease.

Overall

This scenario represents the worst case scenario. It is unlikely that the population growth would be as slow as shown above, therefore this scenario is not recommended. It does however provide a useful perspective of the potential consequences should the long term growth slow significantly.

2.2.2 Scenario 2 – medium growth scenario

Under the medium growth scenario, the fertility and mortality rates result in a larger increase in population and the migration into the district is also higher, resulting in a greater increase in population overall compared to the low growth scenario. This flows through to relatively strong growth in dwellings and rating units. The high level outputs for the medium scenario are summarised in the table below.

Table 3 : Key results - medium growth scenario

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	37,600	47,000	59,800	66,100	9,400	940	2.3%	740	710
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	78,700	97,100	119,100	129,300	18,400	1,840	2.1%	1,350	1,270
Total Dwellings	15,800	19,500	23,500	28,600	31,100	4,000	400	1.9%	300	290
Total Rating Units		25,800	29,500	35,800	38,900	3,700	370	1.3%	330	330

Population

Under this scenario, the population in the district increases at a slightly lower rate than the past 12 years, with an increase of around 940 people per year. The rate of growth is projected to be higher in the next 10 years (with growth continuing strongly until 2028, after which time the growth slows slightly).

Both wards are projected to increase in population, with the Wanaka ward (2.7% per year) growing at a higher rate than the Wakatipu ward (2.1% per year).

Visitors

The total visitor population on both the average day and the peak day is projected to increase under the medium growth scenario. Total visitors on the peak day increase at a slightly lower rate (2.1% per year) compared to visitors on the average day (2.4%). The peak day visitor population annual growth rate in the Wanaka ward (2.0%) is slightly lower than the Wakatipu ward (2.2%). The average day visitor population annual growth rate in the Wanaka Ward is slightly higher (2.5%) than the Wakatipu Ward (2.3%) however.

Dwellings

The dwelling growth that flows from this scenario is more than 1.3 times greater than the dwelling growth under the low scenario. It is only 90% of the historical rate of growth however. The proportion of occupied dwellings increases from 76% in 2018 to around 87% in 2058.

The dwelling growth rate is projected to occur in similar proportions in both the Wakatipu ward and Wanaka ward, unlike the distribution of the population growth.

Rating Units

The impact on the rating units is slightly lower than the dwelling growth, around 1.3% per year. The Country Dwelling rating unit growth is the highest at around 3.8% per year. Vacant rating units are projected to decline at 5.1% per year.

Overall

Although this is the scenario that SNZ believe is the most realistic, for QLDC this scenario still appears to be too conservative. The dwelling growth of around 410 dwellings per year is lower than that previously experienced. The population growth is also considerably lower than the strong growth in residents estimated over the last two years.

2.2.3 Scenario 3 – high growth scenario

Under the high growth scenario, the fertility and mortality rates result in a large increase in population. The migration into the district is also higher, resulting in a significant increase in population overall compared to the medium growth scenario. This results in very strong dwelling and rating unit growth. The key outputs for the high scenario are summarised in the table below.

Table 4 : Key results - high growth scenario

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	38,200	50,000	68,300	77,300	11,800	1,180	2.7%	1,000	980
Total Visitors (average day)	18,000	25,200	33,400	45,100	50,600	8,200	820	2.9%	660	630
Total Visitors (peak day)	63,900	79,800	102,600	135,400	151,500	22,800	2,280	2.5%	1,850	1,790
Total Dwellings	15,800	19,800	25,000	32,600	36,300	5,200	520	2.4%	430	410
Total Rating Units		26,200	31,600	41,000	46,000	5,300	530	1.9%	490	490

Population

Under this scenario, the population in the district increases by 1,180 people per year. This is slightly more than the average annual growth between 2001 and 2013. As in the other two scenarios, the Wanaka ward (2.9% per year) is projected to grow at a higher rate than the Wakatipu ward (2.6% per year).

Visitors

The total visitor population on both the average day and the peak day is projected to increase at similar rates to the population growth. The increase in the visitor population growth is around 820 and 2,280 visitors per year on the average day and peak day respectively. The peak day total visitor numbers under this scenario are projected to remain around double the resident population.

Dwellings

The dwelling growth that flows from the above population is around 520 dwellings per year. This is higher than the growth seen between 2001 and 2013 and considering the construction boom of the early-mid 2000s, it is unlikely to be sustained in the long term.

Again, the proportion of occupied dwellings increases from 75% in 2013 to around 87% in 2058.

Rating Units

The impact on rating units is slightly lower than the population and visitor growth, around 1.9% per year. The distribution of the rating units across the wards is similar to the medium scenario.

Overall

The rate of growth projected under this scenario is unlikely to continue consistently for over 40 years. In reality, growth of the level shown in this scenario is likely to be a combination of a multitude of factors, some of which may not even exist today. However, it provides some good aspirational targets, and also enables QLDC to understand the impact of achieving desired outcomes such as a high increase in visitors.

2.2.4 Scenario 4 – modified growth scenario

The previous three scenarios, and the approach taken in previous growth studies, apply the same SNZ series to all census area units within the district. A review of Rationale growth projections, completed for the 2015 growth study, has indicated that consideration of the appropriate SNZ series for each census area unit is a better approach for infrastructure planning. This is because understanding the location of growth in each area is as important as the overall growth in the ward or district.

The allocation includes consideration of two factors:

1. A comparison of historical population growth, from the 1996, 2001, 2006 and 2013 censuses and the last three years’ population growth based on the 30 June 2016 resident population estimates.
2. An analysis of recent building consent applications for new residential buildings to assist in understanding the high growth areas.

A combination of the above two factors were used to define the appropriate scenario for each census area unit. The combination of these assumptions were then sub-totalled to provide ward and district level projections.

The key outputs for the modified scenario are summarised in the table below.

Table 5 : Key results – modified growth scenario

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year avg annual growth (2018-2048)	40 year avg annual growth (2018-2058)
						Growth	Avg annual growth	Avg annual growth rate		
Usually Resident Population	29,700	38,000	49,300	66,400	74,700	11,300	1,130	2.6%	940	920
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	79,300	99,700	126,400	138,700	20,400	2,040	2.3%	1,570	1,480
Total Dwellings	15,800	19,700	24,700	31,600	35,000	5,000	500	2.3%	400	380
Total Rating Units		26,000	30,900	38,800	43,000	4,900	490	1.7%	430	430

Population

Under this scenario, the population in the district increases by 1,130 people per year. This is slightly higher than the average annual growth over the last 12 years. As in the other scenarios, the Wanaka ward (2.9% per year) is projected to grow at a slightly higher rate than the Wakatipu ward (2.4% per year).

Visitors

The total visitor population on both the average and peak day is projected to increase at similar rates to the population growth. The increase in the visitor population growth is around 660 and 2,040 visitors per year on the average day and peak day respectively.

Dwellings

The dwelling growth that flows from the above population is around 500 dwellings per year. This is slightly higher than the historical average growth of 460 dwellings per year. The proportion of occupied dwellings increases from 76% in 2018 to around 87% in 2058.

Rating Units

The impact on the rating units is lower than the population and visitor growth, around 1.7% per year. The distribution of the rating units across the wards is similar to the medium scenario.

Overall

This scenario is considered to be the most realistic and therefore it is the recommended scenario. There is evidence of high localised growth in some areas, above the medium series. Therefore, this scenario best meets the need for robust projections at the district, ward and census area unit level.

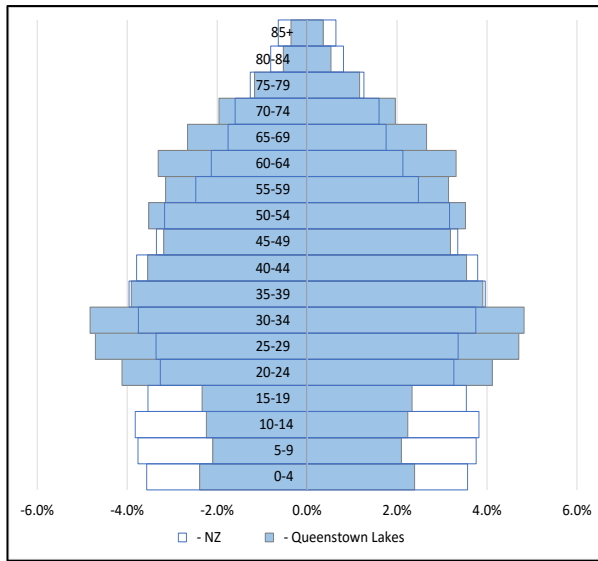
2.3 Projected Population Structure

This section provides additional detail about the projected population structure under each scenario. This includes the population by five-year age groups and average household size.

2.3.1 Age Demographics

The following age pyramids show the district’s resident population in five-year age groups, for both 2001 and 2013, in relation to the age distribution of New Zealand. 0-4 year olds are at the base of the pyramid and the over 85 year olds are at the top. Typically, age pyramids show the male/female population split but that level of detail is not necessary for the purpose of this review. To calculate the total proportion in an age group, the two sides of the vertical axis need to be added together ignoring the negative sign.

Figure 1 : 2001 Age pyramid
The district compared with New Zealand



- The pyramids show that the district has a high proportion of the population in the 20-45 year age group compared to the rest of New Zealand.
- The proportion of people aged 65+ in the district has decreased from 13% in 2001 to 11% in 2013. This trend differs from a lot of other districts in New Zealand, where an increase in the older population is evident. The proportion of elderly people in the district in 2013 is lower than the national average of 14%.
- The district has a larger proportion of people aged between 15 and 65 years, compared to the national average. Most noticeably in the 25-44 year age group.
- The district’s proportion of children aged 14 years and under (18%) is lower than the nationwide average (20%).

Figure 2: 2013 Age pyramid
The district compared with New Zealand

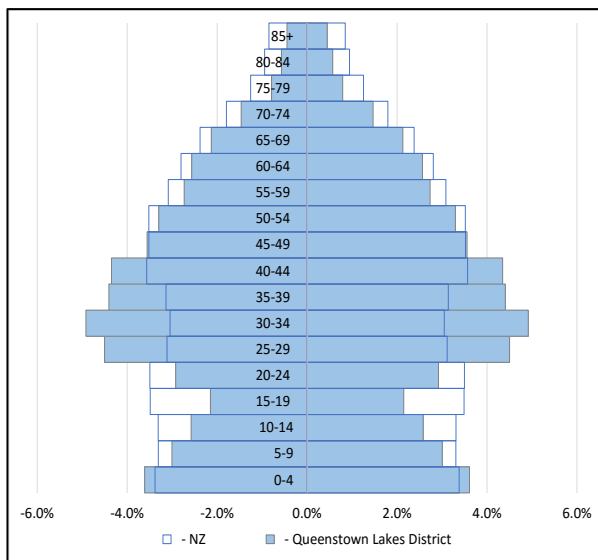


Figure 3 : District-wide age pyramid in 2018

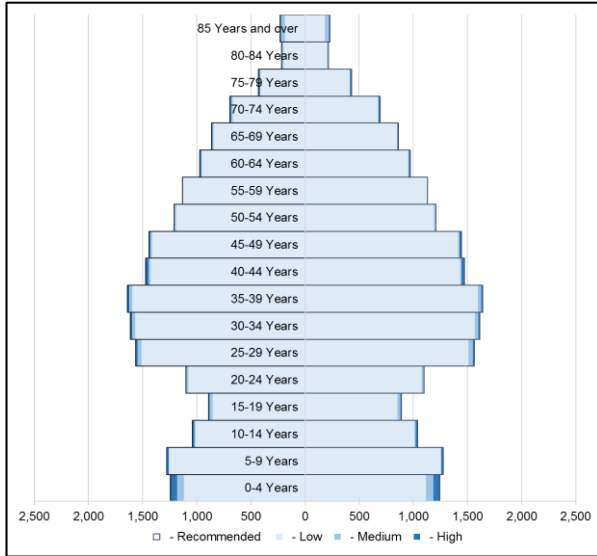


Figure 4 : District-wide age pyramid in 2028

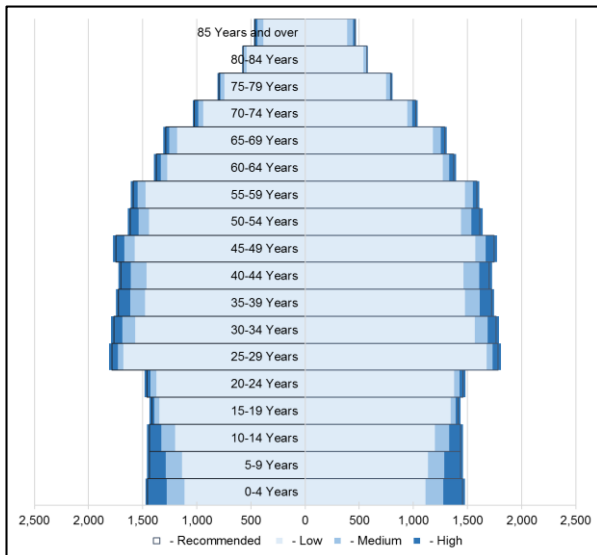
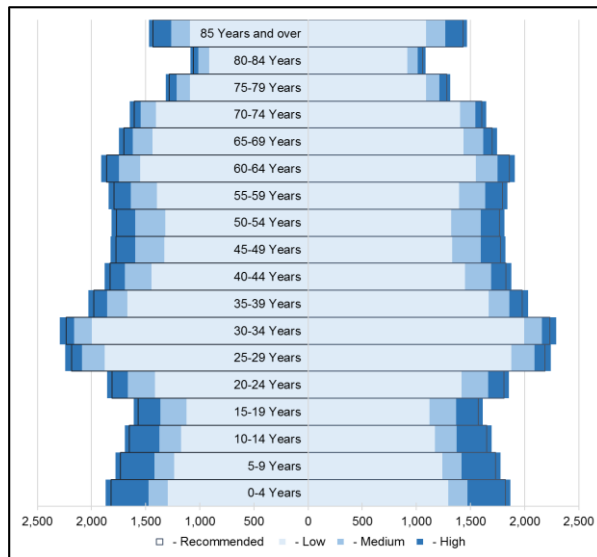


Figure 5 : District-wide age pyramid in 2048



- Figures 3, 4 and 5 show the projected change in the district’s age demographics under each scenario and have been overlaid for ease of comparison. The light blue bars show the low growth scenario, dull blue the medium growth scenario, navy blue the high growth scenario (the widest bars) and the black outline the recommended scenario. These pyramids show the actual population numbers in each age group, rather than a percentage of the total population.

The key points are:

- The age pyramid shows a similar distribution of age groups for each scenario, with only the projected total population differing.
- The trend toward an ageing population is evident under all scenarios. The number of people aged 65+ is forecast to increase to over 22% by 2043.
- The proportion of the population under 15 years of age is projected to decline to between 15% and 17% by 2043.
- The result of this changing profile of the population is that people aged between 15 and 64 years of age are projected to decline from around 69% to around 61%. Due to the increase in population there is still a net increase in the number of people in this age group under all scenarios. However the decrease in the proportion of working age people may have a flow-on effect to the make-up of the district’s work force.

2.3.2 Average household size

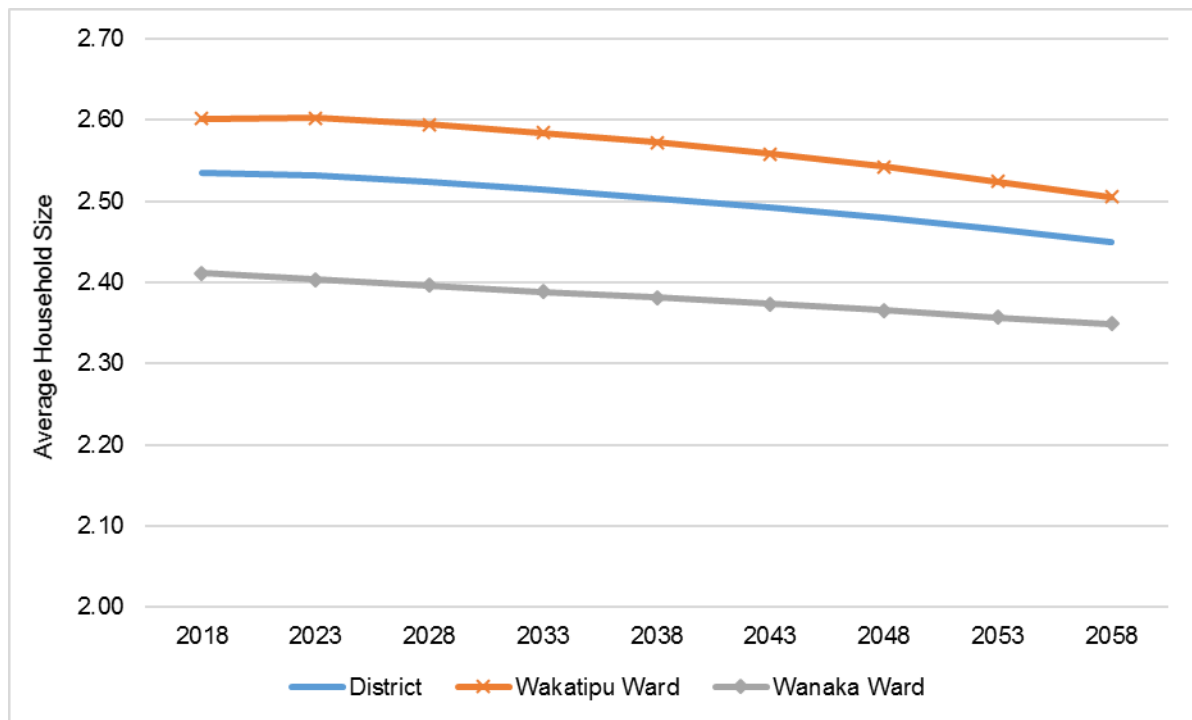
The average household size of a given area is the total resident population divided by the total number of households. A household can be one person who usually resides alone, or two or more people who usually reside together and share facilities in a dwelling. There may be more than one family in a household. The average household size for the district is projected to decline, a continuation of historical trends.

Table 6 : Average household size for the district

2018	2023	2028	2033	2038	2043	2048	2053	2058
2.54	2.53	2.52	2.51	2.50	2.49	2.48	2.46	2.45

The following graph shows that the average household size is projected to decline in all wards. Note the scale on the vertical axis is between 2.0 and 2.6 residents per household. This smaller scale better displays the difference between the wards.

Figure 6 : Household size for the district and Wakatipu and Wanaka wards



There is variation across the two wards, similarly there is a degree of variation across the census area unit (not shown). Overall, the Wanaka ward is projected to decline at a slower rate than the Wakatipu ward. This is based on historical trends and is most likely due to a number of factors such as age demographics and a reduction in multiple families living as one household.

As with the age demographics, these trends are consistent for all scenarios and are simply applied to a smaller or larger population size.

3 Recommended Scenario

As discussed in Section 2, the modified growth scenario is considered the most appropriate for the purpose of QLDC’s long term planning. The key reasons are:

- The modified growth scenario provides realistic projections that are conservatively optimistic. It is considered to best reflect historical trends and the current economic climate.
- The high growth scenario is considered to be too aspirational, and may lead to overstating the growth. Similarly, the low growth scenario is more of a worst case scenario. While this provides a useful perspective, it is not considered appropriate for long term planning purposes.
- Although SNZ consider their medium series to be the most appropriate to assess future population changes, it appears too conservative for the purpose of long term planning in the Queenstown Lakes district.
- The modified growth scenario is informed by the appropriate SNZ population series for each census area unit. More accurate localised projections better meet QLDC’s planning needs.

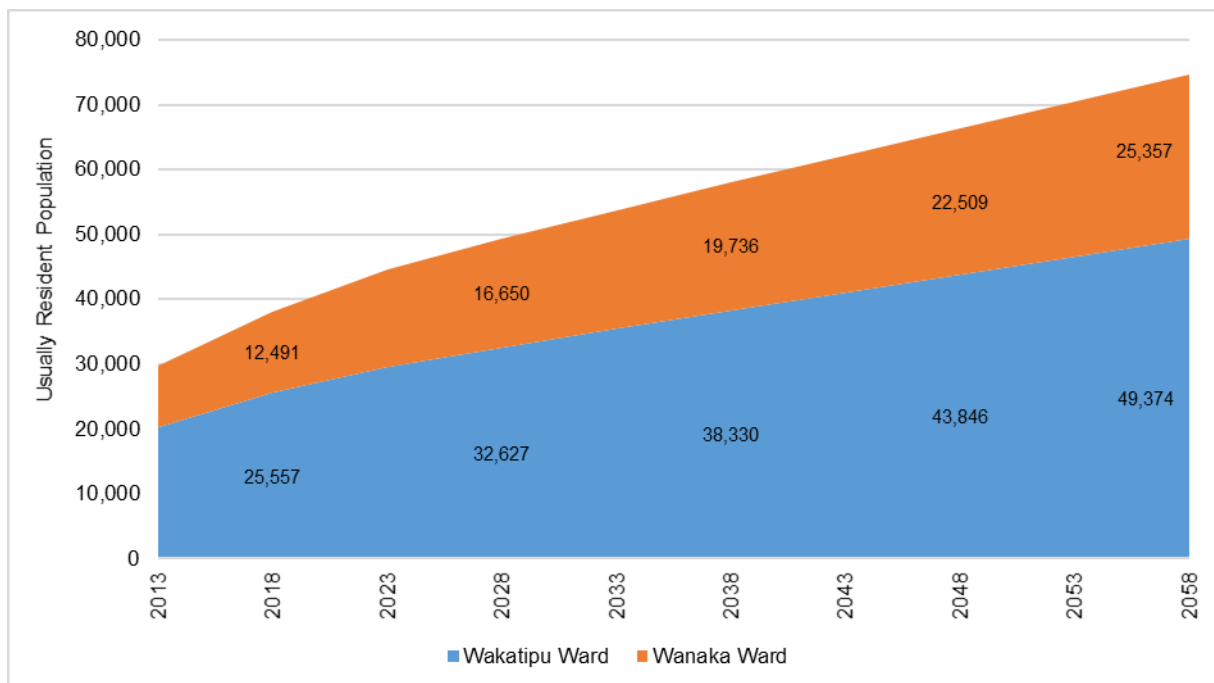
3.1 Detailed Results

This section provides further discussion on the recommended modified growth scenario, including growth in the wards, along with further analysis of the detailed outputs for visitors, dwellings and rating units. Further detail of the main outputs at the census area unit level can be found in Appendix C.

Population

The population growth in the two ward areas is shown below, and the total area reflects total district population growth. This shows that both wards are projected to approximately double in population in around 40 years.

Figure 7 : Resident population growth by ward



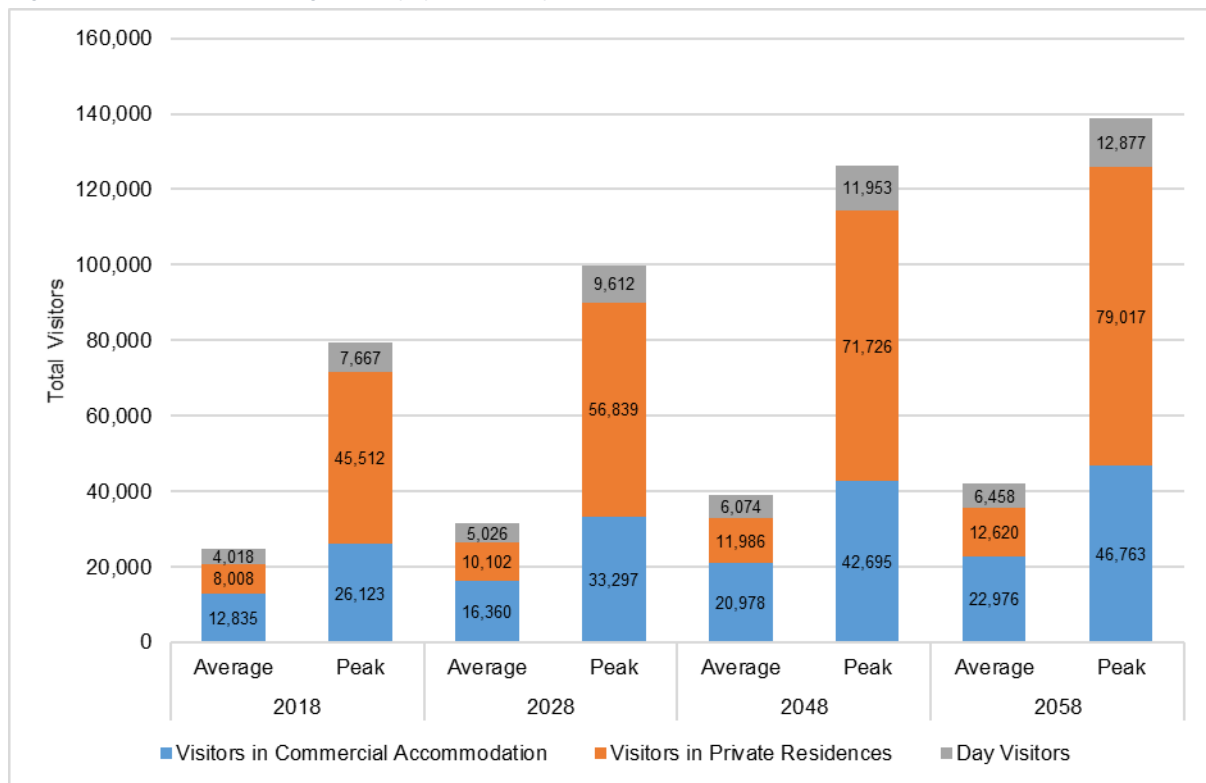
In the Wakatipu ward the highest growth areas are Lake Hayes South and Jacks Point, which are projected to receive over 30% of the ward’s population growth, an increase of around 230 people per year. Most other areas in the Wakatipu ward are projected to grow at between 20 and 80 people per year. The slower growth areas (less than 20 people per year) are Kingston South, Glenorchy and Lake Hayes.

Wanaka is the main growth area in the Wanaka ward, receiving nearly three quarters of the ward’s population growth. The population in Wanaka is projected to grow at 2.9%, or around 310 people per year. The population in Hawea and Matukituki is projected to increase by around 100 people and 10 people per year, respectively.

Visitors

The projected visitor growth by type is shown below for the district on both the average day and the peak day. The graph shows the projected visitors in 2018, 2028, 2048 and 2058. This shows that the peak day visitors are projected to grow at a slightly slower rate than the average day visitors. On the average day, over half the visitors stay in commercial accommodation. However, on the peak day the majority of the visitors are staying in private residences.

Figure 8 : Visitor population growth by type and day

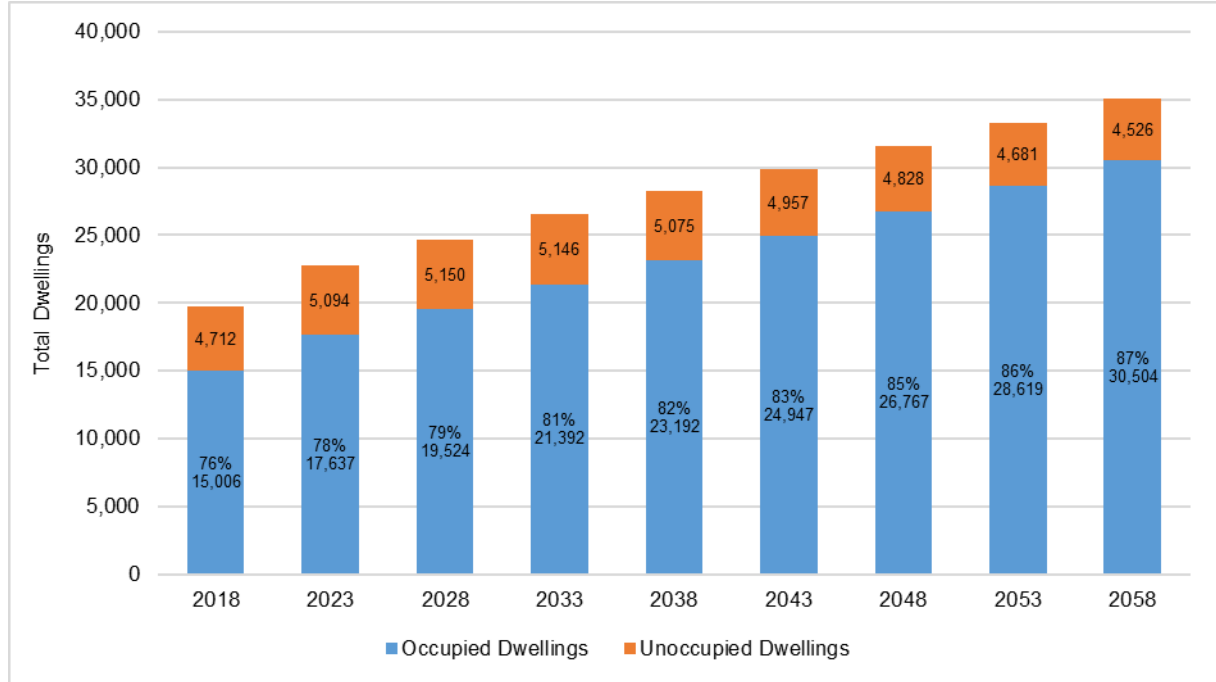


The location of the visitors staying in private residences are dependent on the number of dwellings in each area. Almost three quarters of the growth in visitors in commercial accommodation is located in Queenstown Hill, Queenstown Bay and Wanaka.

Dwellings

The projected dwelling growth by type is shown below for the district. The proportion of occupied dwellings is also shown. This shows a steady increase in the proportion of occupied dwellings, indicating a greater utilisation of the dwelling stock by the resident population, and a trend toward visitors staying in commercial accommodation. Although the long term trend is a decrease in unoccupied dwellings, there is a steady increase over the next 20 years.

Figure 9 : Dwelling growth by type



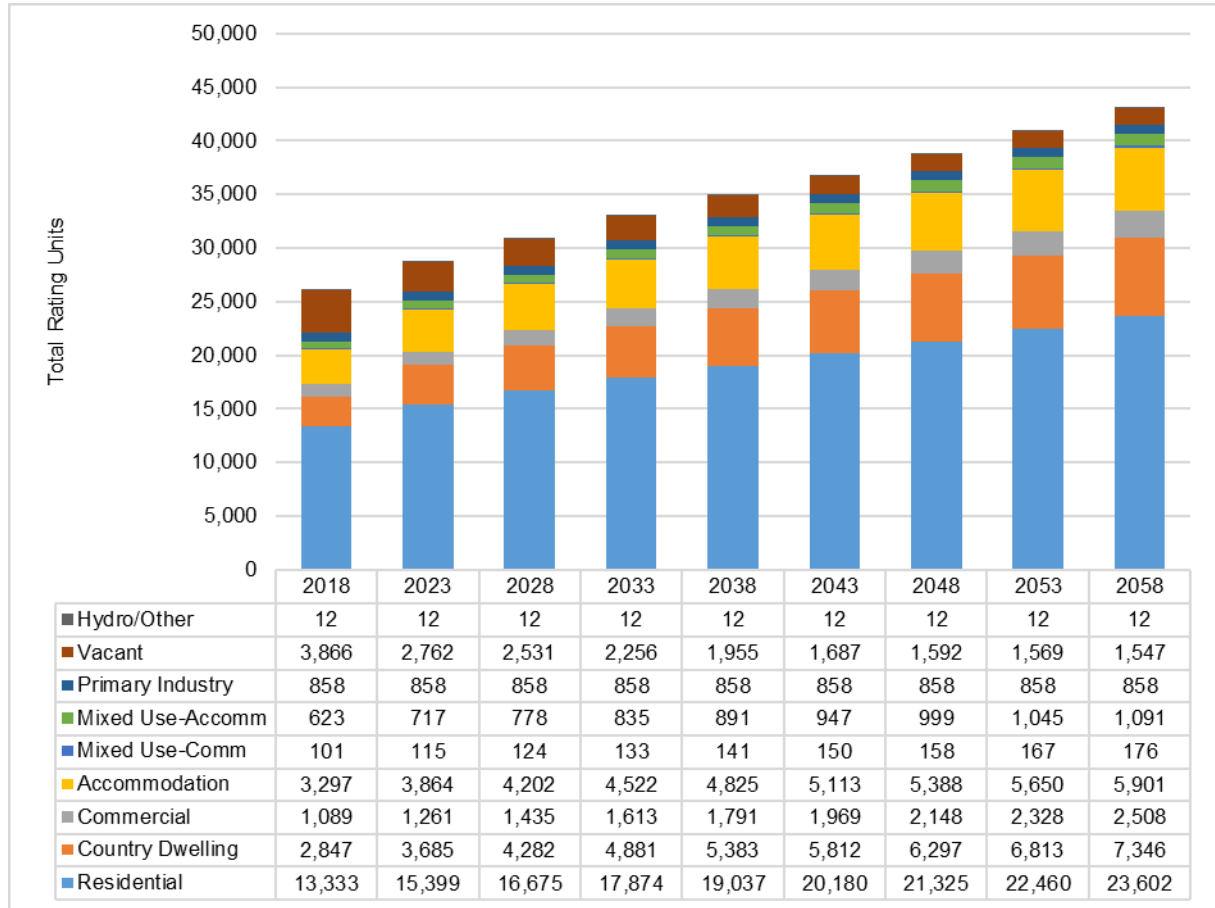
The only areas projected to reach their estimated total dwelling capacity in the next 40 years are Sunshine Bay (2048), Lake Hayes South (2043), Arrowtown (2023), Queenstown Hill (2048) and Wakatipu Basin (2038). The overflow of growth projected for these areas is assumed to be accommodated in the Wakatipu ward as there is sufficient capacity. In reality, the location of this demand is unknown and may be met within existing areas through the RMA processes.

Rating units

The projected district-wide growth in rating units by type is shown in the following graph. More than two thirds of the rating units house the resident population (Residential, Country Dwelling, Mixed Use and Primary Industry). This is a low portion compared to most other areas in New Zealand and highlights the district’s reliance on visitors. The residential rating units are projected to grow by around 2.3% per year.

The majority of the remaining rating units are in the Accommodation, Commercial and Vacant ratings unit categories. Between 2018 and 2028 Accommodation and Commercial rating units are projected to grow at around 2.5% and 2.8% respectively with Vacant rating units declining at -4.1% per year.

Figure 10 : Rating unit growth by category



The projected growth in the residential rating unit categories within each census area unit are the same as those discussed in the above Dwelling section.

The distribution of the district’s rating unit growth between wards differs for the other main categories. Around two thirds of the district’s Commercial rating unit growth and over 80% of the projected Accommodation rating unit growth is projected to occur in the Wakatipu ward. This is consistent with the existing distribution.

3.2 Comparison with Previous Projections

The recommended growth projections are higher than the previous version used in QLDC’s 2015 Long Term Plan (April 2014). The previous population projections were based on SNZ medium series projections (Oct 2012; 2006 (base) to 2031). The latest SNZ population projections for QLDC are higher than the previous projections. The higher population projections flow through to higher dwelling and rating unit growth.

The latest visitor numbers projected by MBIE are higher than those previously forecast. The higher visitor projections resulted in the growth in the latest projections being greater than the growth projected in the previous report.

For the purpose of the comparison the 2025 and 2045 figures from the previous projections have been compared.

Table 7 : Previous projections (2015) versus 2017 projections district-wide

Output	2015 LTP Projections (April 2014)			2018 Projections (May 2017)		
	2013	2025	2045	2013	2025	2045
Usually Resident Population	29,700	41,700	60,500	29,700	46,500	63,800
Total Visitors (average day)	17,900	26,100	31,400	18,000	30,100	38,000
Total Visitors (peak day)	63,900	83,900	111,000	63,900	95,100	122,600
Total Dwellings	15,800	21,100	28,900	15,800	23,500	30,600
Total Rating Units		27,800	36,800	29,700	29,600	37,500

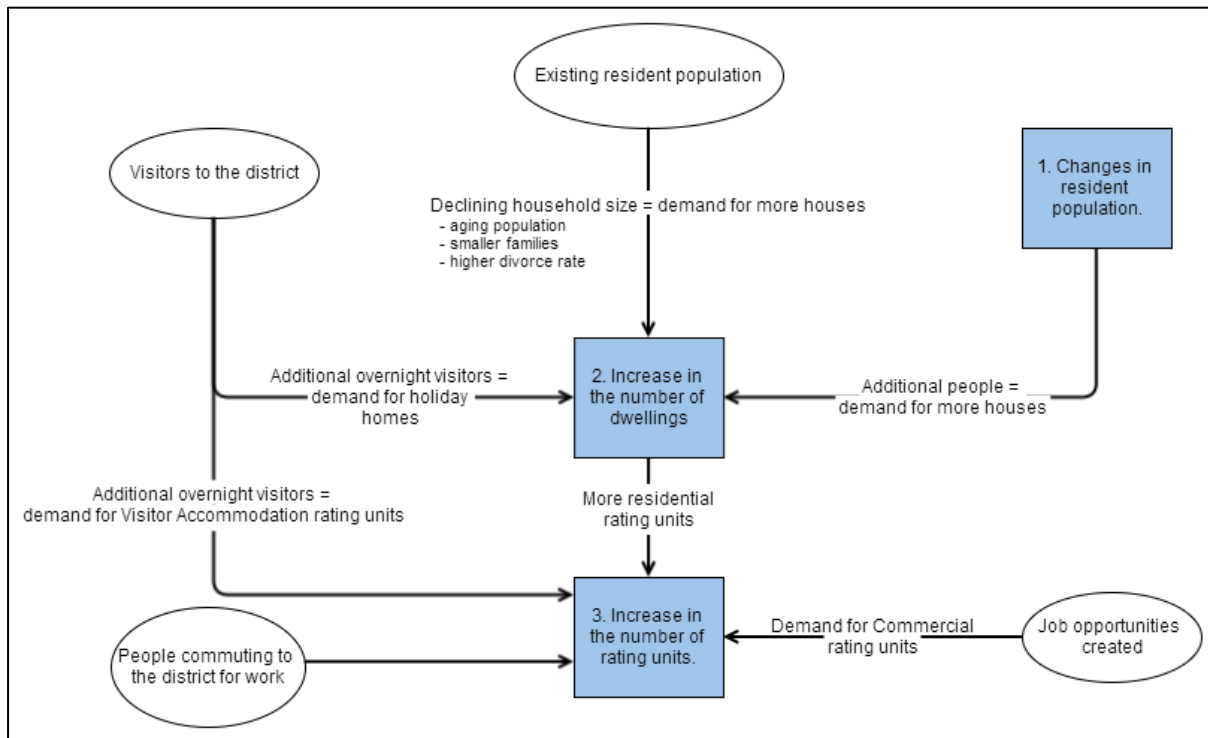
4 Methodology Summary

An overview of the methodology used to develop the growth projections is shown below. This is followed by an explanation of methodology components.

4.1 Overview

The basic underlying philosophy is that people drive the growth in dwellings and rating units. An increase in people living, working or holidaying in the district will result in an increase in both dwellings and rating units. An overview of the methodology is shown below.

Figure 11: Method overview



Resident population growth is only one of three factors that can drive an increase in dwellings. The other two factors are:

- Declining household size - if the historical trend of smaller families continues, then additional dwellings will be required to house the same number of people.
- Demand for holiday homes - out of district demand for holiday homes may drive dwelling growth, independent of the resident population.

Changes in the above variables then flow on to rating units. Any additional dwellings result in an increase in residential rating units. The business related rating unit growth is again a combination of multiple factors:

- A higher population and/or more dwellings, resulting in more services required.
- A greater number of visitors to the district, resulting in more tourism related job opportunities.
- Local industry creating more jobs that provide services or products external to the district.
- An increase in the number of people commuting into the district for work.

The key point is that growth in dwellings and/or rating units may still occur with a stable or declining population. However, rather than attempt to quantify the standalone impact of the above factors, the approach relies on trends to estimate the overall effect on dwelling growth. This is explained further in Section 4.4.

As a guiding start point, Statistics New Zealand (SNZ) population projections have been used. These are released as a low, medium, high series and are discussed in more detail in Section 4.2.

While the SNZ projections provide robust population and household projections, they do not project dwelling, visitor or rating unit growth. The key requirement of the model is to convert the population growth for each census area unit into these other main output variables.

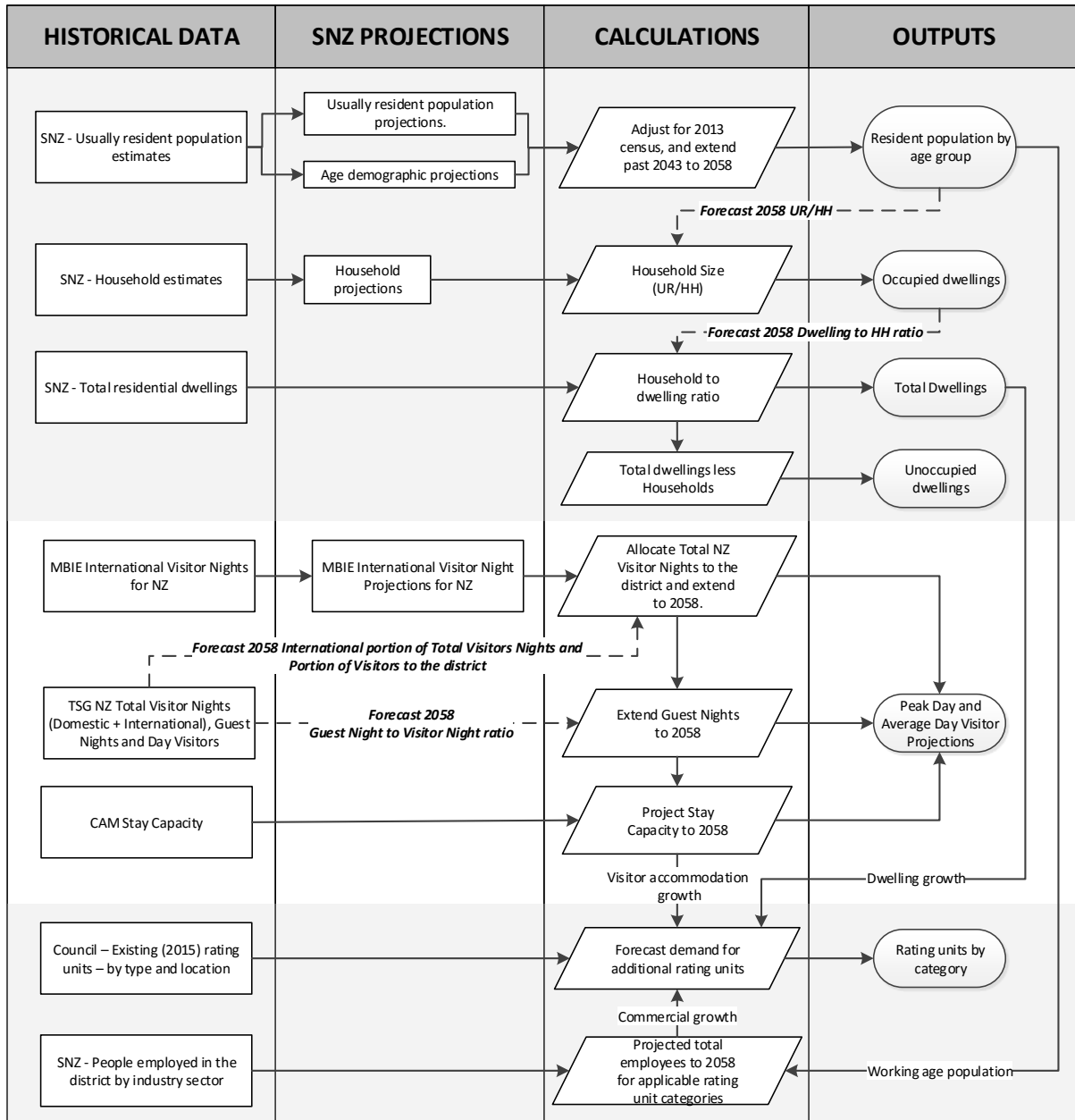
To deliver the required outputs for this review the following key processes have been undertaken:

- A 'start' point is estimated using 30 June 2015 usually resident population estimates. The projections are then realigned with the new starting point. The SNZ population projections series extend to 2043, then linear extrapolation is applied out to 2058.
- Historical and current data is inputted and analysed to set base trends for each type of projection (population by age, dwellings by type and rating units by type). The collation, analysis and projection of the census data in the model is done at the census area unit level and aggregated up to provide ward and district outputs. This data includes 1996, 2001, 2006, and 2013 census data for population and dwellings.
- Validation of the outputs include comparison with QLDC's previous projections, plans/strategies and building consent information. Assessment of the residual dwelling capacity in each area is also considered to ensure there is sufficient available zoned land to meet the projected demand. The model now allocates any unmet demand for dwellings to an overflow area within each ward. This is different to previous studies. In the past, the overflow from an area was allocated to other areas based on the capacity available.

All outputs are projected as at 30 June of each year. This aligns with QLDC's financial year and ensures the outputs can be compared with SNZ estimates moving forward.

A more detailed model structure is shown in Figure 12 below. This shows the information flow through the model.

Figure 12 : Detailed model structure



The following sections summarise the method in each part of the model, for population, visitors, dwellings and rating units.

4.2 Population

The population growth in the main three scenarios are based on the latest SNZ subnational population projections (Dec 2016, 2013 (base) to 2043). The census area unit projections were not available at the time the growth projections were prepared, so the allocation from the previous projections (Oct 2015) were used. These include a low, medium and high series based on births, deaths and migration. The reasons for using the SNZ projections are as follows:

1. They provide a robust births and deaths model which flows through to the age demographic projections. This involves complex analysis of the birth and death rates, and also the impact on an area's age structure from migration into and out of the district.
2. By basing the scenarios purely on an overall population change, the standalone impact of any local growth drivers, and other existing trends in the district do not need to be quantified. The SNZ

projections provide a broad range of projections. Local knowledge can be used to select the most appropriate set of projections.

3. The net migration analysis is continually being improved and updated based on the most recent information. We have previously attempted to improve these with limited success. We have found that linking migration to other drivers increases the complexity of a model but not always the accuracy.
4. The SNZ projections are updated every two to three years to maintain their relevance and usefulness, by incorporating new information about demographic trends and development in methods. The model is easy to update as and when this new information becomes available.

4.3 Visitors

The core method for projecting average day and peak day visitors has been retained from the previous growth model. However, the tourism/visitor forecasts previously provided by the Tourism Strategy Group (previously Tourism Research Council) are now provided by the Ministry of Business Innovation and Employment (MBIE). MBIE visitor forecasts are New Zealand wide and no longer provide Regional Tourism Organisations level (previously Queenstown (Wakatipu) and Wanaka) projections.

To accommodate these shortcomings, the latest MBIE visitor projections have been combined with the last Tourism Strategy Group projections to forecast visitors to the district. Data from the Commercial Accommodation Monitor (CAM) is still used to determine the split of visitors staying in commercial or private accommodation. The model now relies on forecasting the following ratios:

- The international portion of total visitor nights.
- The portion of New Zealand visitor nights staying in Queenstown Lakes.
- The guest night to visitor night ratio – this splits the total visitors into those in commercial accommodation and those in private residences.

The above ratios are set at different levels for the low, medium and high growth scenarios.

A summary of the method used for each type of visitor, on both the peak and average day is shown in the following table.

Table 8 : Methodology for the visitor outputs

Visitor Category	Average Day	Peak Day
Visitors in commercial accommodation	Queenstown Lakes guest nights averaged over 365 days.	Full utilisation of the total available capacity assuming two visitors per unit.
Visitors in private residence	Queenstown Lakes visitor nights less guest nights, averaged over 365 days.	Assumes that all dwellings will house 1.75 and 3.2 visitors in Wakatipu and Wanaka respectively. These figures are derived from the 2004/05 Peak Population Survey (Rationale Ltd).
Day visitors	Based on the ratio of day visitors to visitors nights, with the total averaged over the year.	Assumes 0.09 and 0.13 day visitors per overnight visitor on the peak day, in Wakatipu and Wanaka respectively.

Visitor projections are at the district level, i.e. top down. The district’s visitors in commercial accommodation are allocated to census area units based on existing assumptions in the previous growth model. The district’s total visitors staying in private residences are allocated based on the dwellings in each census area unit.

The district wide average day visitor figures have been reconciled with similar visitor number estimates provide by Qrious, an entity of Spark that uses mobile phone data to capture overnight stays. This analysis of the two methods found the visitor number estimates were very similar, within 5%.

4.4 Dwellings

As discussed in the overview above, while the SNZ projections provide robust population and household projections, they do not project the impact the changes in population structure will have on the overall dwelling growth. The total dwellings are also further broken down into occupied and unoccupied dwellings.

The link between usually resident population and dwelling growth is a household. There can be none, one or multiple households in a dwelling. The population growth is converted to dwelling growth based on the forecast trend for two key variables:

- Household size – this ratio has been decreasing due to an ageing population and a move to smaller families. This trend is projected to continue, resulting in more dwellings being required to house the same number of people.
- Households to dwelling ratio – this ratio accounts for dwellings not occupied by the usually resident population, e.g. holiday homes. The forecast ratio for each census area unit is based on historical data. Where this ratio declines, more dwelling growth occurs, typically driven by holiday home growth. If this ratio increases, less dwelling growth occurs, indicating a shift to residents using more of the dwelling stock.

Once the total dwellings have been projected, they are broken down by type. Each household is assumed to equate to an occupied dwelling. This is not 100% accurate as some dwellings may have more than one household, however any discrepancies are considered to be minor. The difference between dwellings and households are assumed to be the unoccupied dwellings, or holiday homes not usually occupied by the resident population.

4.5 Rating Units

The final purpose of the model is to convert the population and dwelling growth into rating units. The approach differs for each type of rating unit. These are discussed in turn below.

Residential Rating Units

For residential rating units (Residential, Country Dwelling, Mixed Use – Commercial, and Mixed Use – Accommodation) the assumption is that each new dwelling creates a new rating unit. This means that in the long term, the current provision of vacant properties will be replenished as they are utilised. This is done at the census area unit level with the allocation of dwelling growth to the four residential rating unit categories based on the existing proportion.

Commercial Rating Units

The future demand for Commercial rating units is based on the projected number of people working within the applicable industry sectors. This is done at the district level based on the last 12 years of employment data across a range of industry sectors. The allocation of growth from district level to census area unit is based on a combination of historical local employment growth and the existing proportion of Commercial rating units in each census area unit.

The historical data shows that the number of people working in commercial jobs in the district has increased by nearly 4,350 jobs or 4.9% per year. The data represents the workplace address, and not the place of residence of the working population. The workplace address of the jobs makes it more relevant to the demand for Commercial rating units in the district.

The historical employment growth rate is greater than the resident population growth rate over this time (indicating that people who usually live elsewhere are commuting into the district for work). Therefore, it is not considered appropriate to simply align the growth in Commercial rating units to the resident population.

Our approach assumes this employment growth will continue and represents the medium scenario. For the other scenarios the change in usually resident population is used to decrease or increase the projected number of people working in the district.

This is considered the simplest and most appropriate way to project future demand for business related land within the district. A 'sense check' is included to ensure that projected employment demand can be serviced

by the labour force in the district. This includes consideration of factors such as the working age population and people commuting into the district for work from elsewhere. A small proportion of the total employment growth is allocated to the Mixed Use - Commercial rating unit category to ensure there is no double counting.

Accommodation Rating Units

The future demand for accommodation units is based on the projected number of visitors staying in commercial accommodation on the peak day. The average number of visitors in each Accommodation rating unit is assumed to remain the same. This projection is carried out for each ward and summed up to provide the district total.

Vacant Rating Units

The buffer of Vacant rating units is kept in proportion to the rate of growth in the total rating units. For example, if the rate of growth increases, then the number of Vacant rating units also increases to accommodate the additional demand.

Other Rating Units

The remaining two rating unit categories (Primary Industry and Hydro Other) make up only 4% of the total rating units. For simplicity, these rating units are assumed to remain the same.

4.6 Limitations

The SNZ projections extend only to 2043 so linear extrapolation has been used past this point to 2058. This means the projections are less robust beyond 2043. The age demographics have not been extrapolated past 2043 due to their complexity.

The model relies on historical trends from the 1996, 2001, 2006 and 2013 Censuses, specifically household sizes and the household to dwelling ratio. While in most cases the trends are reasonably evident, in some census area units there is significant variation over the last three Censuses. In these cases national and district level trends, and trends in neighbouring or similar census area units have been considered in order to project future trends.

The visitor projections, now provided by MBIE do not provide the same level of detail they have in the past. Therefore, significant assumptions are required to project all components of the visitor projections.

The overflow of growth projected for the areas that reach capacity is distributed to an overflow area for each ward. The capacity figures have not been updated since 2013 and do not consider proposed changes to the district plan. In reality the location of this demand is unknown and may be met within existing areas through RMA processes.

Despite these limitations, the projections are considered appropriate for providing a sound basis for QLDC's long term planning.

Appendix A – Rating Unit Definitions

QLDC's current rating units categories have been used for this review, and are defined below.

Residential - All rating units which are used exclusively for residential purposes, but excluding properties categorised as Primary Industry or Country Dwelling.

Country Dwelling - All rating units of less than 10 hectares, located in any of the Rural Zones (except for the land zoned as Rural Residential north of Wanaka township in the vicinity of Beacon Point Road bounded by the low density residential zone to the south, Penrith Park zone to the north and Peninsula Bay to the east) or Special Zones (excluding Penrith Park; Remarkables Park; Quail Rise; Woodbury Park; Peninsula Bay; and Meadow Park) as shown in QLDC's District Plan, which are used exclusively for Residential purposes.

Commercial - All rating units used exclusively or principally for commercial activities including industrial, retail, transport, utility services, storage, recreation and tourist operations, offices, or rest homes; but excluding properties categorised as Hydro-Electric Power, Accommodation, CBD Accommodation, Primary Industry, or pursuant to clause 11 (Mixed Use Apportioned) or clause 7 (CBD Commercial).

Accommodation - All rating units used exclusively or principally for the accommodation of paying guests on a short term basis including hotels, motels, houses and flats used for such purposes, commercial time share units, managed apartments, bed and breakfast properties, motor camps and home stay properties; but excluding properties categorised as pursuant to clause 11 (Mixed Use Apportioned) or clause 5 (CBD Accommodation).

Mixed Use - Accommodation - All rating units which are used in part, but not exclusively, for residential purposes, and in part, but not principally, for accommodation purposes.

Mixed Use - Commercial - All rating units which are used in part, but not exclusively, for residential purposes, and in part, but not principally, for commercial purposes.

Primary Industry - All rating units:

- Used exclusively or principally for agricultural or horticultural purposes including dairying, stock fattening, arable farming, share sheep, market gardens, vineyards, orchards, specialist livestock, forestry or other similar uses, or
- Which are ten hectares or more in area and located in any of the Rural or Special Zones contained in the QLDC's District Plan as at 1 July of the current rating year.

Appendix B – Historical Growth

Analysis of historical growth trends is a key component of this review and has informed likely growth trends going forward. Given this relationship, an overview of historical growth is discussed below.

The analysis is of growth in population, visitors and dwellings, as consistent historical rating unit data is not readily available. Analysis undertaken has looked at the last 12 years, based on information from the 2001, 2006 and 2013 Censuses. Note the period between the censuses is inconsistent, five and seven years, due to a delay following the Canterbury earthquakes. For reporting purposes, the analysis is at the district and ward level.

Table 9 : Historical population, dwelling and visitor growth (30 June estimate)

Output	2001	2006	2013	Change (2001 - 2013)	Average annual change	Annual average growth rate
District						
Usually Resident Population	17,800	24,100	29,700	11,900	990	4.4%
Total Visitors (average day)	14,700	17,500	17,900	3,200	270	1.7%
Total Visitors (peak day)	42,800	53,000	63,900	21,100	1,760	3.4%
Total Dwellings	10,300	13,100	15,800	5,500	460	3.6%
Occupied Dwellings	7,000	9,500	11,800	4,800	400	4.4%
Unoccupied Dwellings	3,300	3,600	4,000	700	60	1.6%
Wakatipu Ward						
Usually Resident Population	13,000	16,800	20,200	7,200	600	3.7%
Total Visitors (average day)	10,400	12,200	12,200	1,800	150	1.3%
Total Visitors (peak day)	26,300	31,100	36,500	10,200	850	2.8%
Total Dwellings	6,900	8,400	9,800	2,900	240	3.0%
Occupied Dwellings	5,000	6,500	7,800	2,800	230	3.8%
Unoccupied Dwellings	1,900	1,900	2,000	100	10	0.4%
Wanaka Ward						
Usually Resident Population	4,900	7,400	9,500	4,600	380	5.7%
Total Visitors (average day)	4,300	5,400	5,700	1,400	120	2.4%
Total Visitors (peak day)	16,600	22,000	27,400	10,800	900	4.3%
Total Dwellings	3,400	4,700	6,000	2,600	220	4.8%
Occupied Dwellings	2,000	3,000	3,900	1,900	160	5.7%
Unoccupied Dwellings	1,400	1,700	2,100	700	60	3.4%

The usually resident population of the district on 30 June 2013 is estimated to be around 29,700 people. Table 9 shows that the district resident population has grown by around 11,900 people (4.4% per year) in the last 12 years. Most of the growth occurred in the period between 2001 and 2006, before growing at a slower rate more recently.

The majority of the population growth has occurred in the Wakatipu ward, which has more than double the population of Wanaka ward in 2013. However, the Wanaka ward population has grown at 5.7% per year, nearly 2% per year higher than the population growth in the Wakatipu ward.

The total visitors to the district have increased on both the average day and the peak day, most noticeably on the peak day. As with population and dwellings, the rate of growth was higher in the Wanaka ward compared to the Wakatipu ward.

Over the same period, over 5,500 new dwellings have been built - an increase of around 3.6% or 460 dwellings per year. Most of the dwelling growth is in occupied dwellings. The proportion of occupied dwellings has increased from 68% of total dwellings to 75%.

Unlike the population growth, the spread of dwelling growth across the two wards is fairly even, with the Wakatipu ward growing by around 20 dwellings per year more than the Wanaka ward, despite the Wakatipu ward's larger size. This is in part due to higher holiday home growth in the Wanaka ward, increasing by nearly 60 dwellings per year. This is much higher than the Wakatipu ward which has grown by less than 10 unoccupied dwellings per year.

Although the period encompasses 12 years, there are likely to be peaks and troughs between the census years that are not captured in the historical data. The building consents for new residential dwellings over this period provides useful data for each year. The difference between building consents and dwelling growth is to be expected as not all building consents result in a new dwelling and some may be counted twice if design/construction is changed midway through the consenting process. The 2014, 2015 and 2016 building consent data is also shown.

Table 10 : Historical building consents for new residential dwellings

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
492	674	678	834	614	604	699	518	387	422	336	322	430	579	673	887

The average number of new residential building consents over the period is 570 per year. However, during the construction boom in the early-mid 2000s, before the global financial crisis, the average number was over 680 per year. The average over the past six years is around 540 consents per year, with an noticeable increase in the most recent years.

Appendix C – Census Area Unit Projections

The district and ward projections have been rounded to the nearest 100 and the average annual growth figures have been rounded to the nearest 10. The census area unit projections have been rounded to the nearest 10 and the annual average growth figures are not rounded.

Table 11 : District, ward and census area unit projections

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year (2018 to 2048)	40 year (2018 to 2058)
						Growth	Avg annual growth	Avg annual growth rate	Avg annual growth	Avg annual growth
District										
Usually Resident Population	29,700	38,000	49,300	66,400	74,700	11,300	1,130	2.6%	950	920
Total Visitors (average day)	18,000	24,900	31,500	39,000	42,100	6,600	660	2.4%	470	430
Total Visitors (peak day)	63,900	79,300	99,700	126,400	138,700	20,400	2,040	2.3%	1,570	1,490
Total Dwellings	15,800	19,700	24,700	31,600	35,000	5,000	500	2.3%	400	380
Total Rating Units		26,000	30,900	38,800	43,000	4,900	490	1.7%	430	430
Wakatipu Ward										
Usually Resident Population	20,200	25,600	32,600	43,800	49,400	7,000	700	2.4%	610	600
Total Visitors (average day)	12,200	16,900	21,300	27,200	29,800	4,400	440	2.3%	340	320
Total Visitors (peak day)	36,500	44,900	56,800	73,900	81,900	11,900	1,190	2.4%	970	930
Total Dwellings	9,800	12,100	15,300	20,300	22,800	3,200	320	2.4%	270	270
Total Rating Units		16,800	20,100	25,800	29,000	3,300	330	1.8%	300	310
Arrowtown										
Usually Resident Population	2,580	2,930	3,190	3,450	3,580	260	26	0.9%	17	16
Total Visitors (average day)	1,000	1,280	1,430	1,530	1,540	150	15	1.1%	8	7
Total Visitors (peak day)	3,200	3,620	3,960	4,230	4,350	340	34	0.9%	20	18
Total Dwellings	1,360	1,500	1,570	1,570	1,570	70	7	0.5%	2	2
Total Rating Units		1,540	1,600	1,650	1,680	60	6	0.4%	0	0
Arthurs Point										
Usually Resident Population	860	1,120	1,440	2,040	2,340	320	32	2.5%	31	31
Total Visitors (average day)	420	600	760	980	1,060	160	16	2.4%	13	12
Total Visitors (peak day)	1,340	1,680	2,110	2,770	3,060	430	43	2.3%	36	35
Total Dwellings	330	420	530	710	790	110	11	2.4%	10	9
Total Rating Units		520	630	830	920	110	11	1.9%	10	10
Frankton										
Usually Resident Population	1,920	2,090	2,380	2,820	3,040	290	29	1.3%	24	24
Total Visitors (average day)	690	880	990	1,090	1,110	110	11	1.2%	7	6
Total Visitors (peak day)	2,280	2,570	3,020	3,700	4,020	450	45	1.6%	38	36
Total Dwellings	890	980	1,110	1,340	1,450	130	13	1.3%	12	12
Total Rating Units		990	1,130	1,380	1,500	140	14	1.3%	10	10
Frankton East										
Usually Resident Population	670	900	1,360	2,290	2,760	460	46	4.2%	46	47
Total Visitors (average day)	180	270	390	660	770	120	12	3.7%	13	13
Total Visitors (peak day)	660	880	1,330	2,300	2,840	450	45	4.2%	47	49
Total Dwellings	290	400	620	1,110	1,380	220	22	4.5%	24	25
Total Rating Units		670	970	1,640	2,000	300	30	3.8%	30	30

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year (2018 to 2048)	40 year (2018 to 2058)
						Growth	Avg annual growth	Avg annual growth rate	Avg annual growth	Avg annual growth
Glenorchy										
Usually Resident Population	380	480	640	880	1,000	160	16	2.9%	13	13
Total Visitors (average day)	310	430	560	720	770	130	13	2.7%	10	9
Total Visitors (peak day)	910	1,120	1,440	1,870	2,070	320	32	2.5%	25	24
Total Dwellings	220	280	360	480	530	80	8	2.5%	7	6
Total Rating Units		460	460	570	630	0	0	0.0%	0	0
Jacks Point										
Usually Resident Population	320	1,010	2,050	3,630	4,400	1,040	104	7.3%	87	85
Total Visitors (average day)	120	250	540	870	970	290	29	8.0%	21	18
Total Visitors (peak day)	380	1,010	1,910	3,180	3,780	900	90	6.6%	72	69
Total Dwellings	150	470	920	1,570	1,870	450	45	6.9%	37	35
Total Rating Units		840	1,120	1,760	2,060	280	28	2.9%	30	30
Kelvin Heights										
Usually Resident Population	1,080	1,330	1,660	2,120	2,340	330	33	2.2%	26	25
Total Visitors (average day)	510	670	810	910	940	140	14	1.9%	8	7
Total Visitors (peak day)	1,530	1,840	2,210	2,590	2,740	370	37	1.8%	25	23
Total Dwellings	620	730	870	980	1,030	140	14	1.8%	8	8
Total Rating Units		1,530	1,770	2,110	2,260	240	24	1.5%	20	20
Kingston South										
Usually Resident Population	250	280	350	410	430	70	7	2.3%	4	4
Total Visitors (average day)	230	290	360	410	420	70	7	2.2%	4	3
Total Visitors (peak day)	620	710	850	960	1,010	140	14	1.8%	8	8
Total Dwellings	200	220	250	250	250	30	3	1.3%	1	1
Total Rating Units		280	280	280	280	0	0	0.0%	0	0
Lake Hayes										
Usually Resident Population	340	370	490	680	770	120	12	2.8%	10	10
Total Visitors (average day)	140	190	250	390	460	60	6	2.8%	7	7
Total Visitors (peak day)	450	500	670	940	1,080	170	17	3.0%	15	15
Total Dwellings	190	210	290	410	470	80	8	3.3%	7	7
Total Rating Units		290	320	450	520	30	3	1.0%	10	10
Lake Hayes South										
Usually Resident Population	1,730	2,970	4,220	5,450	5,490	1,250	125	3.6%	83	63
Total Visitors (average day)	260	450	690	880	860	240	24	4.4%	14	10
Total Visitors (peak day)	1,120	1,870	2,630	3,350	3,360	760	76	3.5%	49	37
Total Dwellings	540	920	1,300	1,650	1,650	380	38	3.5%	24	18
Total Rating Units		1,120	1,430	1,640	1,650	310	31	2.5%	20	10
Outer Wakatipu										
Usually Resident Population	690	880	1,150	1,530	1,710	270	27	2.7%	22	21
Total Visitors (average day)	240	320	400	470	490	80	8	2.3%	5	4
Total Visitors (peak day)	790	960	1,180	1,390	1,460	220	22	2.1%	14	13
Total Dwellings	360	440	540	630	650	100	10	2.1%	6	5
Total Rating Units		650	680	770	810	30	3	0.5%	0	0
Queenstown Bay										
Usually Resident Population	2,070	2,540	2,900	3,390	3,620	360	36	1.3%	28	27
Total Visitors (average day)	3,310	4,610	5,730	7,190	7,830	1,120	112	2.2%	86	81
Total Visitors (peak day)	8,960	10,870	13,430	16,650	18,030	2,560	256	2.1%	193	179
Total Dwellings	890	1,060	1,130	1,150	1,150	70	7	0.6%	3	2
Total Rating Units		1,850	2,120	2,510	2,690	270	27	1.4%	20	20

Output	2013	2018	2028	2048	2058	10 year (2018 to 2028)			30 year (2018 to 2048)	40 year (2018 to 2058)
						Growth	Avg annual growth	Avg annual growth rate	Avg annual growth	Avg annual growth
Queenstown Hill										
Usually Resident Population	3,700	4,410	5,200	6,210	5,890	790	79	1.7%	60	37
Total Visitors (average day)	3,700	5,190	6,500	8,630	9,720	1,310	131	2.3%	115	113
Total Visitors (peak day)	10,400	12,680	15,980	20,700	21,920	3,300	330	2.3%	267	231
Total Dwellings	2,090	2,550	3,150	4,150	4,150	600	60	2.1%	53	40
Total Rating Units		3,770	4,620	5,700	5,880	850	85	2.1%	60	50
Sunshine Bay										
Usually Resident Population	2,480	2,790	3,280	3,990	3,990	490	49	1.6%	40	30
Total Visitors (average day)	780	1,000	1,160	1,340	1,390	160	16	1.5%	11	10
Total Visitors (peak day)	2,640	3,020	3,610	4,440	4,550	590	59	1.8%	47	38
Total Dwellings	1,080	1,210	1,420	1,720	1,720	210	21	1.6%	17	13
Total Rating Units		1,210	1,400	1,610	1,620	190	19	1.5%	10	10
Wakatipu Basin										
Usually Resident Population	1,160	1,470	2,020	2,260	2,180	550	55	3.2%	26	18
Total Visitors (average day)	350	480	730	1,030	1,080	250	25	4.3%	18	15
Total Visitors (peak day)	1,210	1,540	2,180	2,640	2,660	640	64	3.5%	37	28
Total Dwellings	580	750	1,070	1,280	1,280	320	32	3.6%	18	13
Total Rating Units		1,140	1,440	1,600	1,620	300	30	2.4%	20	10
Wakatipu Overflow										
Usually Resident Population	0	0	280	2,700	5,830	280	28	n/a	90	146
Total Visitors (average day)	0	0	0	120	360	0	0	n/a	4	9
Total Visitors (peak day)	0	0	250	2,230	5,000	250	25	n/a	74	125
Total Dwellings	0	0	140	1,270	2,860	140	14	n/a	42	72
Total Rating Units		0	140	1,270	2,860	140	14	n/a	40	70
Wanaka Ward										
Usually Resident Population	9,500	12,500	16,700	22,500	25,400	4,200	420	2.9%	330	320
Total Visitors (average day)	5,700	8,000	10,200	11,800	12,300	2,200	220	2.5%	130	110
Total Visitors (peak day)	27,400	34,400	43,000	52,400	56,700	8,600	860	2.3%	600	560
Total Dwellings	6,000	7,600	9,400	11,300	12,200	1,800	180	2.1%	120	120
Total Rating Units		9,200	10,800	13,000	14,100	1,600	160	1.6%	130	120
Hawea										
Usually Resident Population	2,280	2,850	3,850	5,810	6,810	1,000	100	3.1%	99	99
Total Visitors (average day)	750	1,000	1,230	1,530	1,600	230	23	2.1%	18	15
Total Visitors (peak day)	4,620	5,650	7,320	10,230	11,560	1,670	167	2.6%	153	148
Total Dwellings	1,250	1,520	1,980	2,770	3,130	460	46	2.7%	42	40
Total Rating Units		1,800	2,240	3,050	3,380	440	44	2.2%	40	40
Matukituki										
Usually Resident Population	400	510	610	830	930	100	10	1.8%	11	11
Total Visitors (average day)	900	1,280	1,650	2,290	2,690	370	37	2.6%	34	35
Total Visitors (peak day)	2,860	3,590	4,670	6,770	8,030	1,080	108	2.7%	106	111
Total Dwellings	230	310	420	760	1,000	110	11	3.1%	15	17
Total Rating Units		450	600	1,020	1,310	150	15	2.9%	20	20
Wanaka										
Usually Resident Population	6,820	9,140	12,190	15,870	17,620	3,050	305	2.9%	224	212
Total Visitors (average day)	4,100	5,670	7,300	8,020	7,990	1,630	163	2.6%	78	58
Total Visitors (peak day)	19,910	25,210	30,990	35,430	37,120	5,780	578	2.1%	341	298
Total Dwellings	4,510	5,760	7,020	7,810	8,090	1,260	126	2.0%	68	58
Total Rating Units		6,930	7,930	8,930	9,370	1,000	100	1.4%	70	60

Appendix D – Census Area Unit Maps

A census area unit (CAU) is a geographical region for which census statistics are published by Statistics New Zealand. There are currently 2,020 census area units within New Zealand.

Each census area unit is a single region with a unique name that refers to a geographical feature. The census area units within main or secondary urban areas generally coincide with suburbs or parts of suburbs. SNZ defines the boundaries of each census area unit to align with the boundaries of territorial authorities. The census area units are grouped into wards. The Queenstown Lakes District contains the following census area units:

Table 12 : Queenstown Lakes District Wards and Census Area Units

Wakatipu ward (includes Wakatipu and Arrowtown wards)	Wanaka ward
Arrowtown	Hawea
Arthurs Point	Inland Water-Lake Hawea
Frankton	Inland Water-Lake Wanaka
Frankton East	Matukituki
Glenorchy	Wanaka
Inland Water-Lake Wakatipu	
Jacks Point	
Kelvin Heights	
Kingston South	
Lake Hayes	
Lake Hayes South	
Outer Wakatipu	
Queenstown Bay	
Queenstown Hill	
Sunshine Bay	
Wakatipu Basin	

The following figures show the current boundaries for the Queenstown Lakes District census area units.

Figure 13: Wakatipu Ward

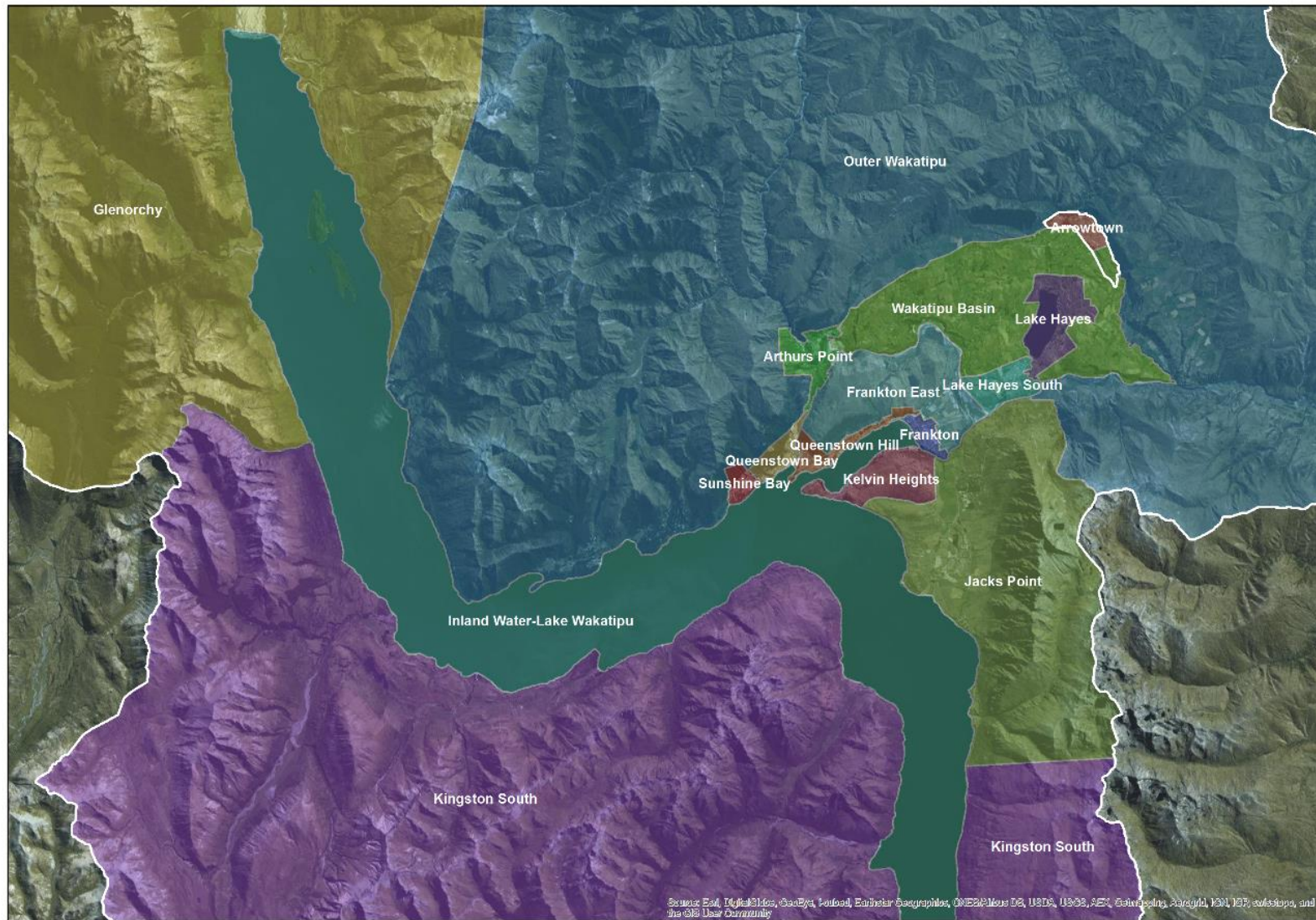


Figure 15 : Wanaka Ward

