

Queenstown Lakes Spatial Plan

Scenario Analysis Report

MARCH 2021

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Introduction

1.1 PURPOSE

This report describes the methodology and results of scenario analysis undertaken to inform the development of the Queenstown Lakes Spatial Plan.

This report has the following sections:

- > **Section 1:** Introduces the project, and the role of scenario analysis in spatial planning
- > **Section 2:** Scenario selection and development
- > **Section 3:** Assessment methodology and criteria, including outlining key data sources and methods used to assess scenarios against each criterion
- > **Section 4:** Evaluation and conclusion

1.2 SCENARIO ANALYSIS IN SPATIAL PLANNING

Scenario analysis in the spatial planning process helps to develop an understanding of:

- > How different growth outcomes affect the goals and objectives identified by partners and stakeholders
- > Partner, community and stakeholder views about desirable outcomes for the future of an area
- > The possible impact of wider environmental and social trends on an area – such as climate change, or an increase in working from home
- > Potential policy levers and investments required to achieve desirable growth outcomes

Spatial planning scenarios take a long-term perspective of growth in the area but are not proposals for the future of a place; they serve to test different possible futures. Scenario analysis explores both how current commitments and plans shape short-term and medium-term direction and outcomes that may occur (“path dependency”) while recognising the uncertainties that are found in many of the drivers of growth.

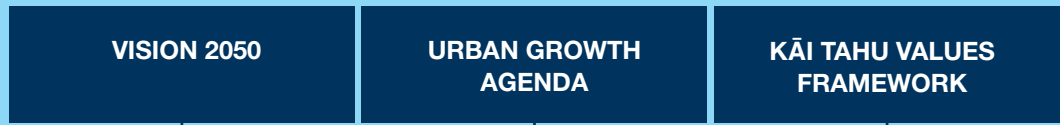
1.3 THE QUEENSTOWN LAKES SPATIAL PLAN

The Queenstown Lakes Spatial Plan is an initiative of the Whaiora Grow Well Partnership between the Queenstown Lakes District Council (QLDC), Central Government and Kāi Tahu. The Spatial Plan aims to establish an integrated, long-term, collaborative strategy that manages growth so that it improves community wellbeing, protects the environment and maintains a world-class visitor experience.

Whaiora in Te Reo Māori translates to “in the pursuit of wellness” and has been adopted as both the overarching goal of the Spatial Plan and the name for the Queenstown Urban Growth Partnership between the Queenstown Lakes District Council, Central Government and Kāi Tahu.

Three principles and five spatial outcomes guide the direction of the Spatial Plan to Grow Well|Whaiora and address the challenges and opportunities facing the Queenstown Lakes area. The Spatial Plan also identifies strategies and key initiatives to achieve the outcomes. These were developed and tested with the community, and are summarised in the following diagram.

The Whaiora | Grow Well partnership and Spatial Plan contributes towards delivering...



The Queenstown Lakes Spatial Plan

GOAL: Whaiora | Grow Well

PRINCIPLES	HAUORA WELLBEING	AUMANGEA RESILIENCE	WHAKAUKU SUSTAINABILITY
	Decisions about growth recognise social, economic, environmental and cultural considerations	Ensuring communities and visitors are resilient to shocks of the future, including adapting to climate change	Programmes and activities are delivered according to sustainable development principles and work towards zero emissions

SPATIAL ELEMENTS: Illustrate how and where the area will grow

OUTCOMES	Consolidated growth and more housing choice	Public transport, walking and cycling are everyone's first travel choice	A sustainable tourism system	Well-designed neighbourhoods that provide for everyday needs	A diverse economy where everyone can thrive
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STRATEGIES	1. Increase density in appropriate locations 2. Deliver responsive and cost-effective infrastructure 3. Improve housing diversity and choice 4. Provide more affordable housing options	5. Ensure land use is concentrated, mixed and integrated with transport 6. Coordinate a programme of travel demand initiatives 7. Prioritise investment in public transport and active mode networks	8. Improve coordination across the tourism system 9. Ensure infrastructure supports a great visitor experience 10. Promote a car free destination	11. Create well-connected neighbourhoods for healthy communities 12. Design to grow well 13. Enhance and protect the Blue-Green Network	14. Diversify the economy 15. Make spaces for business success 16. Establish efficient and resilient connections
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Priority initiatives

JOINT WORK PROGRAMME: Implementation of the partnership's priority initiatives

02

Scenario selection and development

2.1 SCENARIO ELEMENTS AND VARIABLES

The scenario assessment aims to develop a greater understanding of the implications of long-term growth on infrastructure provision, the environment, cultural and social values in order to inform possible growth management approaches in the Spatial Plan. The elements used to define the scenarios were selected as they relate to infrastructure provision or the impact of urbanisation on environmental and cultural and social values. The table below outlines the elements used to define the scenarios, and key variables are explained further in the following text.

TABLE 1: SCENARIO ELEMENTS AND VARIABLES		Variable	Explanation
	Evaluation year / rate of growth	✗	All scenarios have a single, consistent evaluation year (2050), equivalent to 30 years forecast growth
	Quantum and type of growth	✗	All scenarios use a consistent amount of growth across households, jobs and visitor accommodation units, approximately equal to the QLDC 2018 (Dec) growth projections
	The location / distribution of growth (at different geographic scales)	✓	All scenarios have a consistent distribution of growth between the sub-areas of the Wakatipu and Wānaka Wards and Central Otago area ¹ . Each scenario varies the location/distribution of growth within each of these areas sub-areas (wards)
	Urban form / density (such as dwelling typology)	✓	Each scenario varies the extent and location of high, medium and low-density housing typologies, visitor accommodation and job locations
	Relative accessibility between household and employment (provided by Transport networks and services)	✓	Each scenario varies the transport network to reflect the different distributions of growth and extent of the urban area. (Note: the cost of servicing and performance of the transport network are evaluation criteria)
	Ability to service with three waters, and social Infrastructure provision	✗	All scenarios assumed that providing urban three waters and social infrastructure services is technically feasible. (Note: the efficiency and cost of servicing is an evaluation criteria)
	Environmental characteristics of the area	✗	All scenarios use a consistent analysis of environmental characteristics and constraints
	Airport	✗	All scenarios assume Queenstown Airport remains as the primary airport and operates within current noise restrictions, and there is commercial use at Wānaka Airport (noting that this is subject to community consultation and planning)

2.1.1 Type of growth

The scenarios considered the type of growth across three variables:

- > **Houses:** this includes all resident and holiday houses including apartments, duplexes, units and standalone houses
- > **Jobs:** those that are quantified by the unit of Modified Employment Count (MEC). MEC is a combination of the Statistics New Zealand (SNZ) employee counts reported in the Business Directory (by ANZSIC) combined with Market Economics estimates of working proprietors by ANZSIC that are excluded from the employee count. The MEC growth was taken from the NPS-UDC 2016 business capacity report² and adjusted to accommodate the higher growth projections used in the October 2018 projections and the latest 2018 starting point from Market Economics
- > **Commercial Visitor Accommodation (VA) Stay Units:** this includes units in hotels, motels, campgrounds and other commercial accommodation providers. These are based on the October 2018 growth projections with adjustments to reflect the latest Commercial Accommodation Monitor (CAM) data

2.1.2 Evaluation year, quantum and type of growth

All scenarios have use 2050 population, employment and visitor estimates, equivalent to approximately 30 years of growth based current (pre-COVID19) forecasts. This reflects a long-term planning horizon that is consistent with the Local Government Act 2002 requirements for Infrastructure Strategies and the National Policy Statement for Urban Development 2020. It also aligns with QLDCs Vision 2050.

All scenarios were informed by population, employment and visitor estimates from QLDC growth projections adopted in December 2018. Estimates for areas in Central Otago District Council were derived from the Cromwell Masterplan.

The 2018 projections are summarised by sub-areas in the following table. The equivalent resident population is also shown for illustrative purposes.

TABLE 2: SUMMARY OF GROWTH ASSUMPTIONS

VARIABLE	AREA	2018	30 YEAR CHANGE	2050
Houses	Total Spatial Plan Area	24,610	18,900	43,510
	Wakatipu Ward	13,100	10,000	23,100
	Wānaka Ward	7,800	6,900	14,700
	Cromwell and Surrounds	3,710	2,000	5,710
Jobs (MECs)	Total Spatial Plan Area	35,700	19,700	55,400
	Wakatipu Ward	23,000	12,000	35,000
	Wānaka Ward	7,900	5,000	12,900
	Cromwell and Surrounds	4,800	2,700	7,500
Visitor stay units	Total Spatial Plan Area	11,210	11,330	22,540
	Wakatipu Ward	7,720	8,200	15,920
	Wānaka Ward	2,420	2,500	4,920
	Cromwell and Surrounds	1,070	630	1,700
Resident population	Total Spatial Plan Area	45,900	38,700	84,600
	Wakatipu Ward	27,200	22,800	50,000
	Wānaka Ward	12,300	12,100	24,400
	Cromwell and Surrounds	6,400	3,800	10,200

²QLDC Business Development Capacity Assessment 2017, 8 November 2018, M.E Consulting.

2.1.3 Location and Distribution of growth

The scenarios have a consistent distribution of growth between the Wakatipu and Wānaka Wards and the Cromwell and Surrounds area as outlined in the table above (e.g. house growth in Wānaka is 6,900 houses in all scenarios). Varying the distributions of growth at the ward scale was considered to result in too many iterations of similar scenarios requiring more resource and time to evaluate for little benefit.

Within each of the three sub-areas different distributions of growth were defined by allocating numbers of households, jobs or visitors across different locations (defined by Statistics New Zealand CAUs, modified in some instances). In simple terms, more of the growth was 'pushed' into certain areas with adjustments made in the remaining areas in order to balance the total amount of growth within each sub-area.

The distribution of growth was informed by:

- > The planning framework established by QLDC's Proposed District Plan (although not limited to the zoning outcomes of the PDP)
- > Spatial analysis of land use and environmental constraints (see appendix A)

- > A stocktake of current developments underway, committed or planned proposals – for example; Lakeview, Coneburn Industrial Zone, Coneburn Special Housing Area – where there was a high degree of certainty that growth would occur in a specific location (and therefore growth couldn't be allocated elsewhere). This is significant in the Queenstown Lakes District as there are many large developments currently underway that are yet to be completely 'built out'

- > The quantum and distribution of residential and business development capacity identified in the 2018 Housing and Business Capacity Assessment. This informed consideration of the amount of growth that could theoretically occur within the PDP framework and that was commercially feasible in different locations

- > Jobs per house or resident – to ensure the ratio of jobs to residents or houses was realistic

- > Distribution between industrial and commercial jobs – the QLDC business capacity modelling included estimates of the split between commercial and industrial jobs. Location options for industrial activities are more limited, so the distribution ensured industrial jobs were allocated to realistic locations

- > The scenarios were reviewed by Market Economics. Some areas were identified where further delineation of the variables could be considered, e.g. housing type, age profile. However, it was acknowledged that would add more complexity to the scenario development and evaluation and, in general, the approach was appropriate for the purpose of the Spatial Plan

2.1.4 Urban Form and distribution

The assumed urban form (scale and type of buildings and structures) determines the density of households (population) or business activities and subsequently the land area needed to accommodate the amount of growth in a given location. The scenarios' urban form assumptions for housing referred to the extent of higher density typologies (apartments), medium density typologies (terraces, attached houses, low-rise apartments) or low-density detached dwellings. For business activities there was only two categories – centres (catering for retail / commercial / office activities) and industrial (where industrial activities occur)

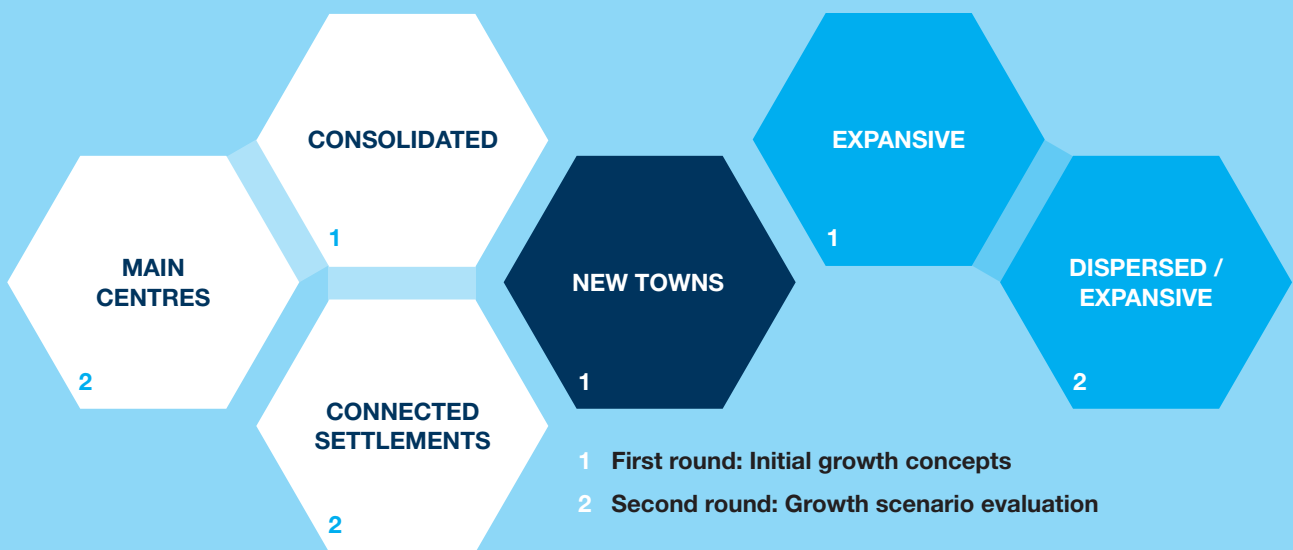
2.1.5 Transport networks

The transport network was assumed to change in response to the variables discussed above, the level of service and extent of the public transport network that could be supported by different spatial distributions of population and activities.

2.2 DEVELOPING SCENARIOS

The scenarios were developed in two stages involving engagement with key stakeholders and partners across iwi, government, council and third tier infrastructure providers. The process is summarised in the diagram below:

DIAGRAM 1: SCENARIO DEVELOPMENT PROCESS



2.2.1 First stage - initial growth concepts

The first stage explored three broad concepts for how growth could be accommodated with a range of stakeholders from across government, council, Kāi Tahu and infrastructure providers. The intent was for the initial concepts to inform development of more detailed scenarios for the second stage evaluation.

The three initial broad concepts were:

- > An intensification concept, where there was strong market demand for high and medium density living options located within and close to the existing centres
- > An expansion concept, where there was market demand for lower density detached living options in more suburban type developments
- > A new town concept, where a large-scale intervention occurs to create a geographically discrete new town located close to the existing urban area of Queenstown

The concepts were developed and tested in a series of workshops between April and June 2019 where the advantages and disadvantages were considered against a baseline of the existing QLDC growth projections (and associated urban form) and the modelled impact on a 'do minimum' transport network.

The conclusion of the first stage of the assessment was that the **intensification concept** was the most favourable option because it was likely to:

- > Provide for the greatest housing choice
- > Utilise existing infrastructure networks
- > Provide for good access public open space with potential for this to be incorporated into the development of these areas

- > Generally avoid hazards
- > Align with known intentions of developers wanting to develop their properties more intensively
- > Allowed for the development of new schools
- > Promoted a quality public transport network
- > Protected the landscape and character of the Wakatipu Basin and wider District
- > Contained effects on wāhi tūpuna to those that are already highly modified

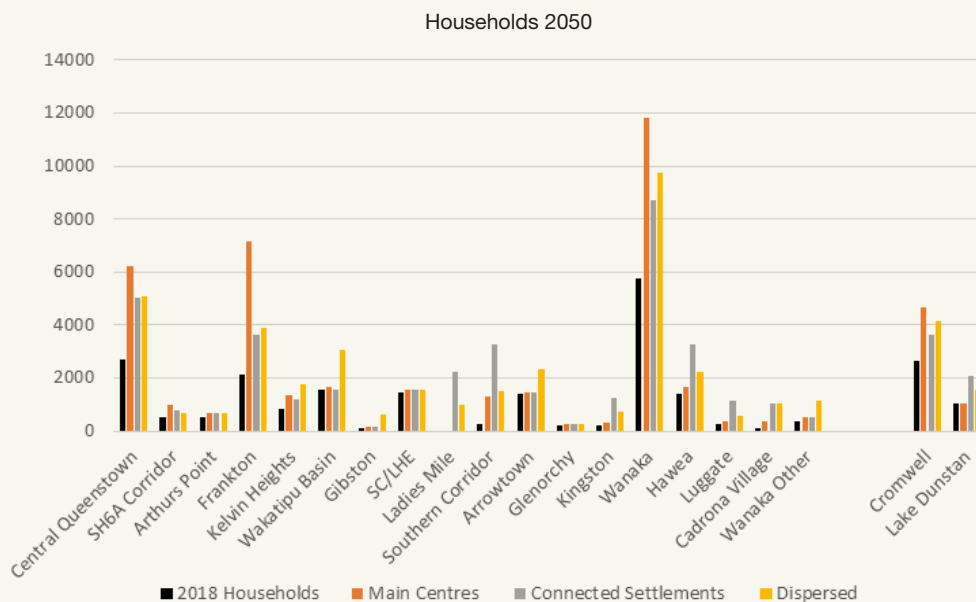
The new towns concept was considered challenging from an implementation and community acceptance perspective and was discounted from the more in-depth second round evaluation process.

2.2.2 Second stage – detailed scenarios

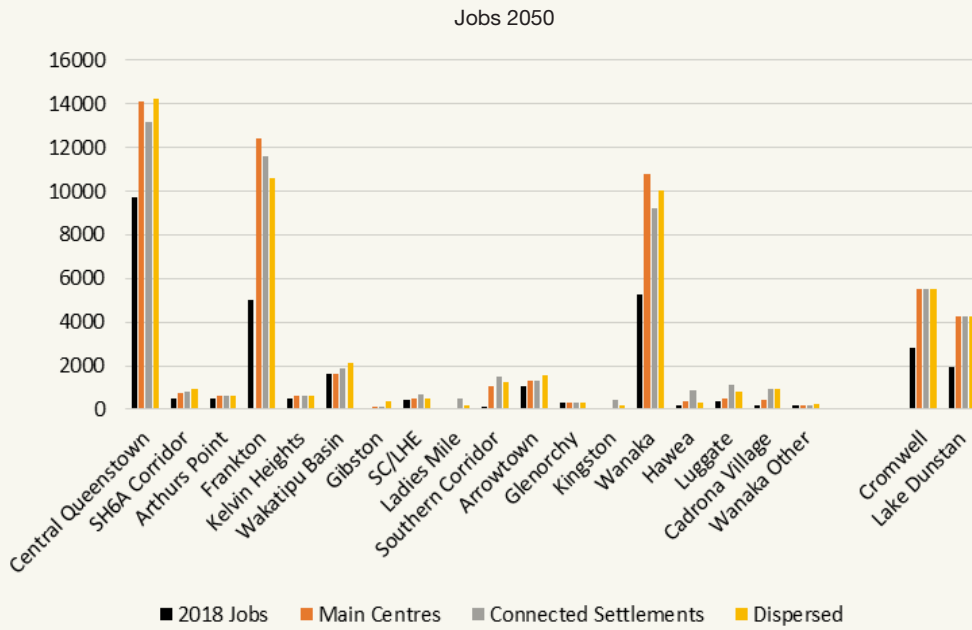
Informed by the conclusions of the first stage, detailed scenarios were developed by the project team. Two variations of the intensification concept were developed – the **Main Centres** scenario and the **Connected Settlements** scenario. Although the expansion concept performed poorly in the initial round, a **Dispersed** scenario was retained for the second round given it was a plausible outcome based on historical growth trends in the area. In addition, it was concluded that the second stage should incorporate community engagement on the scenarios.

The following graphs outline the distribution of households and jobs in the three scenarios:

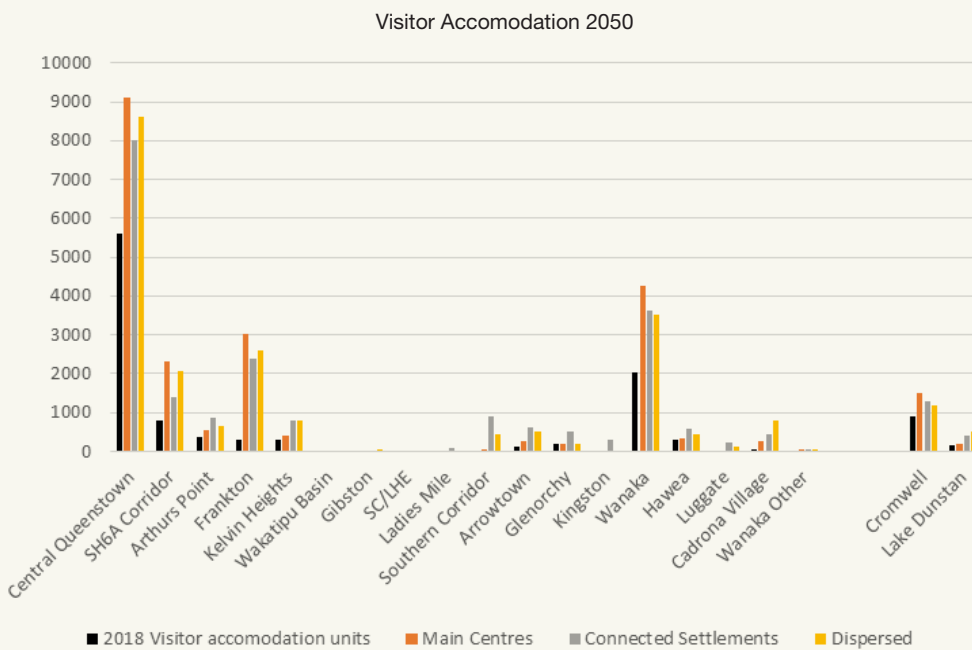
GRAPH 1: DISTRIBUTION OF HOUSEHOLDS (2018) AND ASSUMED HOUSEHOLD GROWTH (2050)



GRAPH 2: DISTRIBUTION OF JOBS (2018) AND ASSUMED JOB GROWTH (2050)



GRAPH 3: DISTRIBUTION OF VISITOR ACCOMMODATION (2018) AND ASSUMED VISITOR ACCOMMODATION GROWTH (2050)

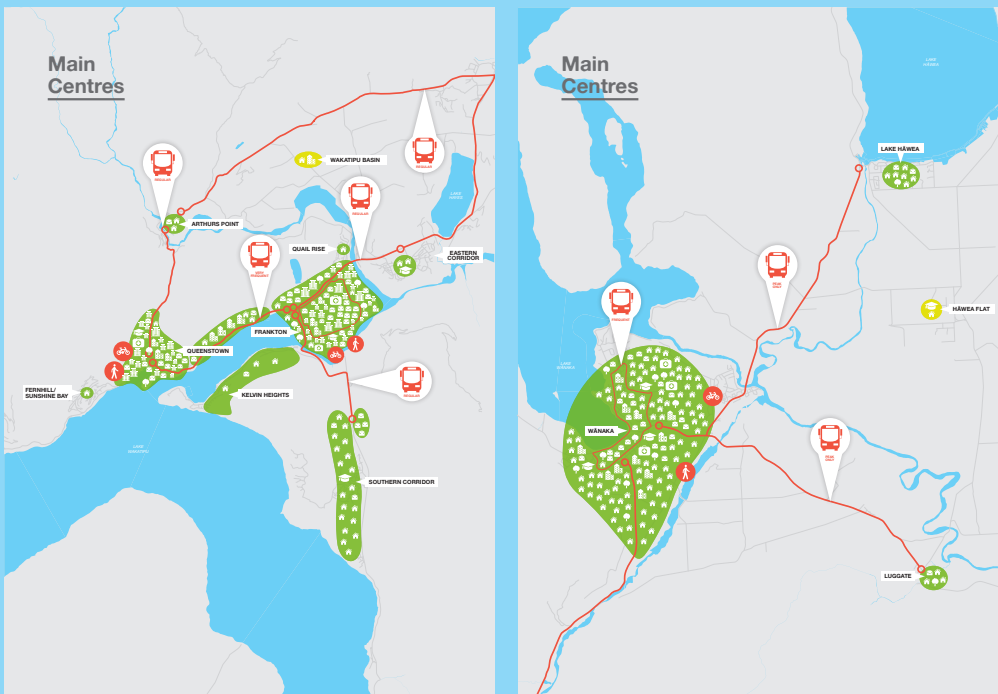


The key features of the scenarios are described next.

2.2.3 Main Centres

The Main Centres scenario focuses household, employment and commercial visitor accommodation growth within the existing urban areas of Queenstown and Wanaka. In this scenario, much growth is accommodated through intensification in the Queenstown Town Centre and Frankton in the Wakatipu Basin, and within Wānaka and Cromwell town centres. There is little job growth outside of the main centres.

MAP 1: CONSULTATION MAPS FOR THE MAIN CENTRES SCENARIO



2.2.3.1 Wakatipu

- > Most household growth (81%) occurs in the Queenstown Town Centre, Frankton and the SH6A corridor through higher density urban form (such as apartments)
- > Moderate household growth occurs across Kelvin Heights and the Southern Corridor/ Te Tapuae (14%) in medium and low-density urban form within the areas enabled by the Proposed District Plan
- > Ladies Mile/Te Putahi is not urbanised
- > A small amount of household growth (3%) occurs across the remaining settlements of Arthurs Point, Arrowtown, Glenorchy and Kingston
- > Job growth is concentrated in the Town Centre and Frankton (approximately 89%), with Coneburn providing for industrial uses that are displaced by intensification and redevelopment in these areas
- > Visitor accommodation growth is largely concentrated in the Town Centre, Frankton and along the SH6A corridor, with a small amount of growth occurring in Arrowtown and the Wakatipu Basin
- > The Queenstown Town Centre and Frankton are connected by a rapid transit service, and public transport to other areas remains at current service levels

2.2.3.2 Upper Clutha

- > Most household growth (88%) occurs within the Wānaka urban area (including Three Parks, Northlake and west Wānaka) through medium density urban form
- > A small amount of household growth (9%) occurs in Hāwea, Luggate and Cardrona within the areas enabled by the Proposed District Plan
- > There is low uptake by the market of lower density residential areas on the periphery of Wānaka

- > Job growth is concentrated in the Town Centre and Three Parks, with a small amount occurring elsewhere in Cardrona, Luggate and Hāwea
- > Visitor accommodation growth is concentrated in the Town Centre and Three Parks, with a small amount of growth in Cardrona
- > There are frequent public transport services within the urban area of Wānaka, and peak services to other settlements

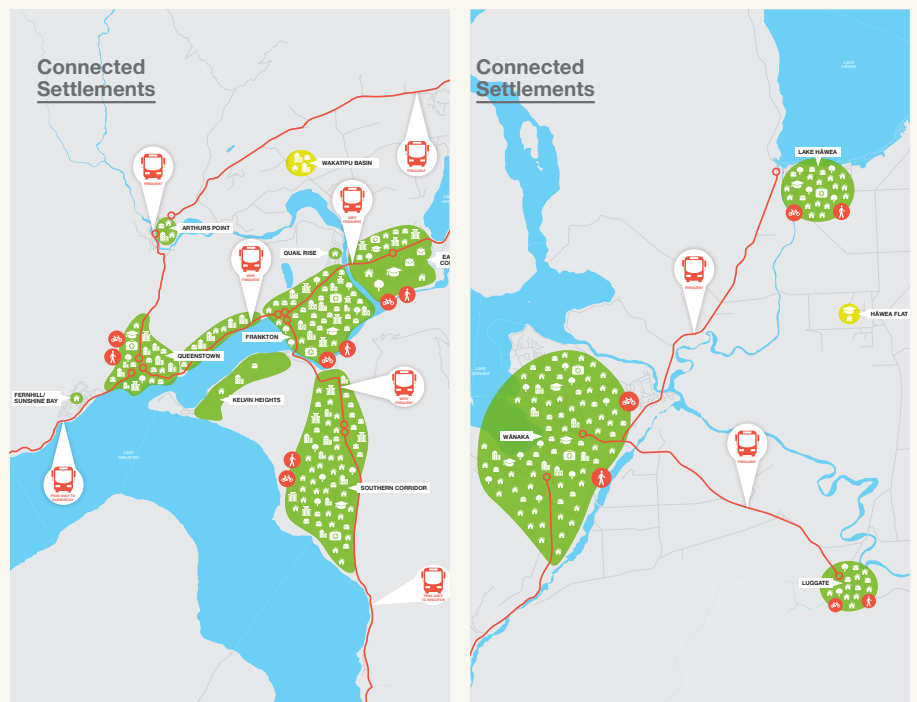
2.2.3.3 Cromwell

- > Uptake of infill and redevelopment opportunities in central Cromwell as envisioned by the Masterplan
- > Jobs and visitor accommodation growth occurs across the wider Lake Dunstan area, particularly in viticulture and horticulture

2.2.4 Connected Settlements

The Connected Settlements scenario focuses growth around established centres within the existing urban area, new centres in greenfield locations (such as Ladies Mile) and smaller existing settlements (such as Kingston and Hāwea). Growth occurs at a scale that supports the provision of local services (schools, community facilities, retail) and public transport connections to the main centres (Queenstown, Frankton, Wānaka). Most of the employment and commercial opportunities remain located in the main centres, with some jobs in the settlements due to the increased provision of local services.

MAP 2: CONSULTATION MAPS FOR THE CONNECTED SETTLEMENTS SCENARIO



2.2.4.1 Wakatipu

- > Queenstown Town Centre and Frankton remain as the two largest centres in Wakatipu, but secondary centres emerge at the Eastern Corridor/Te Pūtahi and Southern Corridor/Te Tapuae that support local retail and employment opportunities, along with community facilities
- > Household growth is more evenly spread across the Town Centre (21%), Frankton and the SH6A Corridor (17%), Ladies Mile/Te Putahi (20%) and across the Southern Corridor/Te Tapuae (27%)
- > The urban area of the Wakatipu expands at Ladies Mile/Te Putahi and in the Southern Corridor/Te Tapuae (between Coneburn and the Kawarau River, and between Homestead Bay and Jack's Point), beyond the area enabled by the Proposed District Plan
- > Higher density urban form occurs within the Town Centre and Frankton through infill and redevelopment, while a mix of urban form (low to high) occurs in the Eastern Corridor/Te Pūtahi and Southern Corridor/Te Tapuae relative to the access to public transport networks

- > Kingston grows up to the capacity enabled in the Proposed District Plan, accommodating 8% of household growth
- > A small amount of growth occurs in Arthurs Point, Arrowtown and Glenorchy within the areas enabled by the Proposed District Plan
- > Most jobs are concentrated in the Town Centre and Frankton, but there is a greater provision of job opportunities in the Eastern Corridor/Te Pūtahi and Southern Corridor/Te Tapuae due to more local services and facilities supported by the larger populations in these areas
- > Visitor accommodation is primarily located in the Town Centre but with a greater spread across Frankton and Southern Corridor/Te Tapuae (Kelvin Heights, Jacks Point) and Arrowtown than the Main Centres scenario
- > Frequent public transport services connect the Town Centre, Frankton, Eastern Corridor/Te Pūtahi and Southern Corridor/Te Tapuae, with regular public transport to all other settlements

2.2.4.2 Upper Clutha:

- > Wānaka Town Centre and Three Parks is the main centre in the Upper Clutha. Hāwea and Luggate both grow to become much larger settlements (beyond the area enabled by the Proposed District Plan) with populations that can support more local services and facilities.
- > Household growth occurs more evenly across the existing urban area of Wānaka (43%), Hāwea (27%), Luggate (13%) and Cardrona (14%).
- > Cardrona Village grows into an alpine resort, with supporting growth in visitor accommodation and jobs
- > Jobs and visitor accommodation are concentrated in the Wānaka Town Centre, with some employment opportunities supported by the larger population in Hāwea, Luggate and Cardrona
- > A public transport network connects Wānaka, Hāwea, Luggate and Cardrona

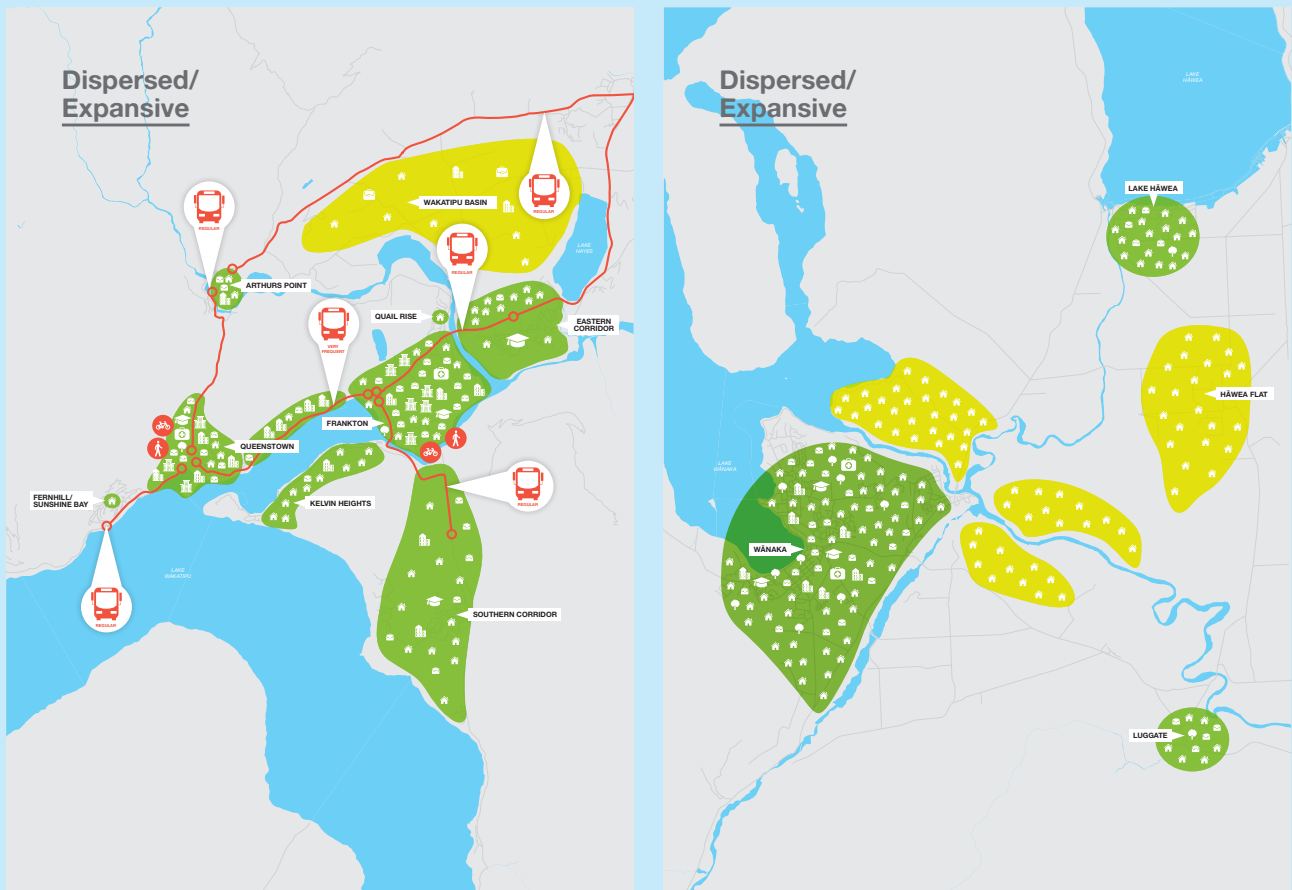
2.2.4.3 Cromwell:

- > Uptake of redevelopment and infill within the Cromwell Town Centre, with some growth in settlements around Lake Dunstan

2.2.5 Expansive

The expansive scenario focuses on lower-density residential growth (detached housing) across an enlarged urban area, and uptake of large lot / peri-urban development in the surrounding areas (such as the Wakatipu Basin, Hāwea Flat etc). Jobs are concentrated within the main centres. This scenario is largely a continuation of the current growth management approach.

MAP 3: CONSULTATION MAPS FOR THE DISPERSED SCENARIO



2.2.5.1 Wakatipu

- > The urban area expands at Ladies Mile/Te Putahi, south of Arrowtown and in the Southern Corridor/Te Tapuae (between Coneburn and the Kawarau River, and between Homestead Bay and Jack's Point)
- > The Town Centre (21%) and Frankton (16%) see a moderate amount of growth through the uptake of high / medium density development opportunities
- > Growth is more evenly spread elsewhere across the expanded urban area predominately in low density urban form, including Kelvin Heights (8%), Ladies Mile/Te Putahi (9%), Southern Corridor/Te Tapuae (11%) and Arrowtown (8%)
- > There is a proliferation of large lot / lifestyle development across the Wakatipu Basin and in the Gibbston Valley, accounting for 19% of growth
- > Jobs are concentrated in the Town Centre, Frankton and Coneburn and a small amount of job growth at Jack's Point
- > Visitor accommodation is dispersed across the urban area
- > A frequent public transport service connects the Town Centre and Frankton, in other areas public transport service levels remain as they are today

2.2.5.2 Upper Clutha

- > The urban area of Wānaka expands to the south towards the Cardrona Valley and low density infill development occurs across Wānaka, together accommodating 58% of household growth
- > Significant growth occurs in Hāwea (12%) and Cardrona (14%) in low density urban form beyond the area enabled by the Proposed District Plan. Less growth occurs at Luggate (4%), through a small expansion of the urban area
- > There is a proliferation of large lot / lifestyle development across the wider Upper Clutha Basin, accounting for 11% of growth
- > Jobs are concentrated within the Town Centre (including Three Parks) with minor job provision in Hāwea, Luggate and Cardrona
- > No public transport network servicing the Upper Clutha

2.2.5.3 Cromwell

- > Uptake of infill and redevelopment opportunities across Cromwell Town Centre in low density urban form and further growth in settlements around Lake Dunstan

Evaluation criteria and assessment process

3.1 SPATIAL PLAN STRATEGIC FRAMEWORK

The scenario assessment aims to develop a greater understanding of the implications of long-term growth. The strategic framework for the Spatial Plan identifies the principles and outcomes the Spatial Plan aims to achieve, and the associated strategies and actions required to deliver these. The framework responds to community aspirations, local spatial challenges / opportunities in the Queenstown Lakes as well as government and Kāi Tahu policy objectives.

The evaluation criteria used in the scenario analysis were designed to relate specifically to these outcomes and in order to test alternative scenarios against each of the outcomes.

3.2 EVALUATION CRITERIA:

The principles and outcomes of the Spatial Plan strategic framework were translated into a series of evaluation criteria at a series of technical workshops held in December 2019 through February 2020. These criteria are both qualitative and quantitative, and are intended to be:

- > Relevant: Criteria should relate to the Spatial Plan's strategic framework and capture the main advantages and disadvantages of alternative scenarios
- > Measurable: It is desirable to quantify effects where possible. Due to the timeframe and resourcing, measures needed to rely on existing data and models
- > A broad range of criteria were selected, but the project team was careful to limit these as a large number of criteria would be difficult to calculate within the project timeframes and may be confusing for people to interpret

The evaluation criteria are grouped into six groups, covering the broad areas of interest to the Spatial Plan:

- > Culture and Environment
- > Transport
- > Social Infrastructure
- > Housing
- > Infrastructure
- > Other / general

The evaluation criteria are explained further in the following table.

TABLE 3: EVALUATION CRITERIA

CULTURE AND ENVIRONMENT	
Criteria	Explanation
Wāhi Tūpuna	Magnitude of development within and proximity to identified Wāhi Tūpuna sites
Impact on Outstanding Natural Landscapes and /or Outstanding Natural Features	Quantity of land identified as an ONL or ONF converted to urban uses. Infrastructure needed to service urban areas traversing ONL or ONF areas
Other landscape impacts (for example, rural character area)	Quantity of land converted to urban development in the Wakatipu Basin Rural Character Zone, Gibbston Basin Character Zone or within the Upper Clutha Basin
Historic Heritage	Magnitude of development and proximity to identified historic heritage features
Rural production	Quantity of land identified as Land Use Classification 1,2 or 3 converted to urban development. Proximity of population to areas of LUC 1,2,3
Water quality	Extent of imperviousness and run-off resulting from urban areas, including during construction. Opportunities to retrofit or provide for treatment as a result of development
Water quantity	Impact on the use of potable water, and water sources
Biodiversity	Impact on areas of biodiversity value and green space
Emissions	Emissions resulting for land transport, as measured by total V _k T
TRANSPORT	
Criteria	Explanation
Private vehicle use	Mode share between private vehicles, public transport, walking and cycling
PT, walking and cycling	Mode share between private vehicles, public transport, walking and cycling
Vision zero (safety)	Increase of traffic in high risk locations
Access to everyday needs by walking and cycling	Ability to access local social infrastructure and retail within a walking or cycling distance of residential areas.
Access to retail, schools and leisure activities within 20 minutes by public transport, walking and cycling	Balance of household and job locations, as well as urban form and population density to support public transport, walking and cycling

TABLE 3: EVALUATION CRITERIA *continued*

OTHER / GENERAL	
Criteria	Explanation
Provision of industrial land	Opportunities to provide additional sites suitable for industrial and businesses requiring large footprint premises
Natural hazard risk	Magnitude of development and concentration of future population in locations subject to natural hazards
Market deliverability	Variance between the urban outcomes currently being delivered by the market and what would need to be delivered to achieve the urban form in the scenario

SOCIAL INFRASTRUCTURE	
Criteria	Explanation
Education facilities	Access to education facilities, including the ability to provide additional facilities and services to the meet future community needs
Health facilities	Access to health facilities, including the ability to provide additional facilities and services to the meet future community needs
Community facilities	Access to community facilities, including the ability to provide additional facilities and services to the meet future community needs.
Public open space	Access to public open space, including the ability to provide additional facilities and services to the meet future community needs
Local retail	Access to local retail (basic retail shops), including the ability to provide additional facilities and services to the meet future community needs

HOUSING	
Criteria	Explanation
Mix of housing typologies	The likely provision of different types of dwelling (apartments, terraces, duplex, detached)
Price points	The likelihood of creating housing at a variety of price points

INFRASTRUCTURE	
Criteria	Explanation
Makes use of headroom in existing or committed infrastructure	The extent to which existing infrastructure networks (including committed investments) can service the anticipated growth
Additional infrastructure cost (capital)	The additional capital cost for infrastructure required to service the anticipated growth

3.3 SUBJECT MATTER EXPERT ASSESSMENT PROCESS

The scenarios were evaluated during a series of workshops by subject matter experts from across the council, government, Iwi and other key stakeholders, including relevant infrastructure providers. The evaluation was informed by a range of information, data and analysis, including:

- > Spatial analysis of development capacity (including feasibility)
- > A stocktake of current development proposals (consented and known)
- > Spatial analysis of environmental and land-use constraints
- > Analysis of the available capacity of three waters infrastructure, social infrastructure and power and telecommunications
- > Additional expert opinion was sought from the transport modelling team engaged for the Way to Go Business Case programme that was occurring concurrently with the Spatial Plan. The Spatial Plan scenarios were not modelled at this stage as the Way to Go team advised they could deduce conclusions about the likely transport effects from the modelling results of the first-round concept stage along with their learnings from numerous earlier modelling rounds and sensitivity tests undertaken for the business case work. The Spatial Plan scenarios were modelled post business case finalisation (Sep 2020)

3.4 RATING SCALE

The rating scale used for the evaluation is outlined in the following table. The scale is intended to illustrate how the scenarios performs against each criterion and relative to each other. No weighting or scoring was allocated to the criteria, as the objective of the exercise was to understand the relative advantages and disadvantages of aspects of each scenario, rather than a single scenario in its entirety.

KEY	RATING	MEANING
	Largely better	Provides a considerable amount of improvement so that over the 30-year period positive change is noticeable
	Better	Provides some improvement and will be noticeably different over the 30-year period
	Neutral	No discernible or positive or negative difference
	Worse	Is somewhat worse over the 30-year period
	Largely worse	Is considerably worse so that in 30 years' time there be a noticeable negative difference across the area

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Evaluation results

The results of the evaluation from the Subject Matter Expert group are outlined in the following tables.

TABLE 4: SUBJECT MATTER EXPERT EVALUATION RESULTS

CULTURE AND ENVIRONMENT				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Impact on Wāhi Tūpuna				The Connected Settlements approach allows for less intensification which could be preferable for managing effects on the wāhi tūpuna waterbodies, and meeting objectives for getting wastewater and stormwater out of them. With the exception of the highly modified wāhi tūpuna of Hāwea, Wānaka, and Queenstown town centres, the only land-based wāhi tūpuna heavily affected by the connected settlements model is Tititea
Impact on outstanding natural landscapes and outstanding natural features				Urban development is located outside of any areas identified as an outstanding natural landscape or outstanding natural feature across all scenarios
Other landscape effects – sensitive areas and landscapes (for example, rural character area)				Both Main Centres and Connected Settlements avoid development in the identified character areas of the Wakatipu Basin, Gibbston Valley and Upper Clutha. Dispersed results in greater greenfield and rural residential development that has the potential to compromise landscapes of the Wakatipu Basin and Upper Clutha, Cardrona and Arrowtown
Historic heritage				All scenarios have potential impacts on identified historic heritage sites that would need to be avoided or mitigated during the development process. Main Centres has the potential to impact on heritage values in the Queenstown and Wānaka Town Centres due to greater intensification. Connected Settlements has the potential to impact on heritage sites in the Eastern Corridor/Te Pūtahi. Dispersed has the potential to impact on heritage sites located to the south or Arrowtown and across the wider Wakatipu and Upper Clutha areas
Rural production				Main Centres has the least conversion of land from rural to urban uses and locates more population further away from rural activities, therefore reducing the likelihood of reserve sensitivity issues. Connected Settlements results in conversion of LUC 2 / 3 rural land to urban in the Eastern and Southern Corridor/Te Tapuae. More population is located at the urban-rural fringe, creating greater potential for reverse sensitivity issues. In addition to the urbanised area under the Connected Settlements , Dispersed has the potential to adversely impact Gibbston, Wakatipu Basin and Upper Clutha through greater large lot development resulting in fragmentation of rural land holdings and increased risk of reverse sensitivity impacts
Water quality				Main Centres results in greater a greater proportion of impervious surface, albeit in the smallest overall urban area. It would be potentially challenging to retrofit treatment into intensively developed areas. More greenfield development in both Connected Settlements and Dispersed results in greater sedimentation during construction and more catchments would be impacted by urban run-off. There are greater opportunities to integrate treatment into new developments, and there would be a lower proportion of impervious service, albeit a larger urban footprint than Main Centres

TABLE 4: SUBJECT MATTER EXPERT EVALUATION RESULTS *continued*

CULTURE AND ENVIRONMENT				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Emissions (ground transport only)				Main Centres – vehicle kilometres travelled reduce by 3%, no significant increase or decrease in delays and 5-16% reduction in congestion kilometres and intersection counts. Connected Settlements – vehicle kilometres travelled reduce by 1%, 15% reduction in delays, 9 to 19% reduction in congestion and intersection counts. Dispersed – vehicle kilometres travelled increase by 7%, 10% reduction in delays, 26% increase in congestion and 7% reduction in intersection counts
Water quantity				More intensive housing reduces requirement for irrigation (smaller private gardens), and therefore Main Centres is expected to reduce overall water usage, whereas Dispersed would increase usage
Biodiversity				Main Centres has the smallest urban footprint and consumes the least amount of green space. More development is located in areas with compromised biodiversity values. Connected Settlements and Dispersed both result in greater loss of greenspace, although there may be some potential to offset this through environment enhancement as areas are converted to urban or rural residential
TRANSPORT				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Private vehicle use				Main Centres provide for greatest live, work, play opportunities within walking/cycling distances and supported the highest level of service for public transport. Connected Settlements provides public transport, walking and cycling access to larger proportion of the population. Dispersed results in a density of population and urban form that is unlikely to enable an effective public transport system or walking and cycling
PT, walking and cycling				
Vision zero (safety)				Overall, the Main Centres and Connected Settlements provide a similar result with increases and decreases of traffic volumes expected to be fairly modest and largely offset each other from a safety perspective. Dispersed increases demand on high-risk arterial roads
Access to everyday / basic needs by walking and cycling				Connected Settlements provides sufficient population to support local retail, education, health and community facilities within easy access of the greatest number of households (more than Main Centres)
Access to retail, schools and leisure activities within 20 minutes by public transport, walking and cycling				Main Centres has the greatest balance between the location of jobs and households, with urban form and population density that supports the highest-level of public transport services and accessibility by active modes. Connected Settlements has less balance between the location of jobs and households meaning more travel between the centres / settlements to employment is needed. Population density and urban form support good levels of public transport services and active modes, but less than in Main Centres . Dispersed has the greatest imbalance between the location of jobs and households, low population density and urban form results in a high reliance on private vehicles for most trips

OTHER				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Provision of industrial land				Main Centres requires conversion of current industrial land in Frankton and Gorge Road to residential / mixed use. There is greater potential to provide for industrial uses in new greenfield areas that would be urbanised under Connected Settlements and Dispersed
Natural hazard risk				Main Centres concentrates population in the Queenstown Town Centre, which is subject to flooding, Geotech and Contamination hazards in some locations. Connected Settlements and Dispersed enables growth in areas that are less prone to hazards, and at a lower concentration of people and property. Note: there are areas identified as liquefaction risk in the Southern Corridor/Te Tapuae that would be urbanised under both Dispersed and Connected Settlements . The rating assuming these areas can be avoided, or the risk acceptably mitigated, if this area is developed
Market deliverability				Main Centres requires the most significant change from the low density, detached housing that the market is currently predominately delivering. Note that under Main Centres some greenfield areas currently enabled under the proposed district plan would not be fully developed within the timeframe of the scenario assessment. Connected Settlements provides for more greenfield and lower density development than Main Centres, but poses retrofitting challenges and the need to amend existing plans in order to provide for the assumed mix of activities and urban form. Dispersed requires the least change from the predominately low density, detached housing typologies currently being delivered by the market

HOUSING				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Mix of housing typologies				Both Main Centres and Connected Settlements are likely to increase provision of apartments and terrace typologies, which when combined with the detached housing in the existing stock, provide for the greatest mix of housing typologies. Under Dispersed most new housing would be detached typologies which is consistent with the existing housing stock
Price points				Main Centres increases the provision of smaller housing typologies such as apartments and terraced housing, which would be reflected in a greater range of price points than the predominately large detached housing typologies under Dispersed . Connected Settlements is likely to result in the greatest the mix of both housing typology (including size) and location, including locations which have less accessibility to jobs and lower amenities. Both typology and location are significant variables of housing price and will therefore result in the greatest variation in price point

TABLE 4: SUBJECT MATTER EXPERT EVALUATION RESULTS *continued*

SOCIAL INFRASTRUCTURE				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
Schools				Main Centres poses challenges for secure new sites to provide for additional school capacity in the Queenstown Town Centre and Frankton. If new schools are located in Eastern or Southern Corridor/Te Tapuae, then students living in the main centres would need to travel to these locations. It is likely to be easier to secure sites for new school close to residential growth areas in the Connected Settlements due to greater provision of greenfield land, but a reasonable amount of travel would be needed to make efficient use of the network from residents of smaller settlements or in more remote locations. Dispersed is unlikely to result in enough population to service local schools in smaller settlements and lower concentration of population in the main urban areas is likely to result in more travel by students to schools
Health facilities				Main Centres provides good access to health services for residents in the centres, but other residents will need to travel to access centralised services. Connected Settlements provides sufficient population that may support additional basic health services in the Southern Corridor/Te Tapuae, Eastern Corridor/Te Pūtahi and Hāwea. Dispersed is unlikely to result in enough population to support health facilities outside of the existing centres, and therefore requires the greatest number of residents to travel to access centralised facilities
Community facilities				Residents of the Main Centres would have access to facilities providing a high level of service, but residents outside of these areas would need to travel further to access community facilities. Connected Settlements provides sufficient population to support local community facilities offering a moderate level of service within easy access of the highest proportion of the population. Dispersed provides insufficient population to support community facilities outside of existing centres, requiring a greater proportion of the population to travel to access community facilities
Public open space				Under Main Centres residents would have good access to existing public open spaces, but it may be challenging and/or expensive to retrofit additional green space into the main centres. Lower density urban form in the Dispersed and Connected Settlements and more greenfield development provides for greater open space acquisition opportunities, and opportunities to improve access for residents of existing developments
Local retail				Main Centres provides a high level of service to those who reside in the centres, but people living outside these areas would have to travel to the main centres to access basic retail opportunities. Connected Settlements provides sufficient population to support a basic retail offer within short access to a large portion of the population. Dispersed is unlikely to support local retail outside of the existing centres, requiring most of the population to travel in order to access basic needs

INFRASTRUCTURE				
Criteria	Main centres	Connected settlements	Dispersed	Explanation
<i>Makes use of existing headroom / capacity in existing or committed infrastructure</i>				
Three waters				Main Centres generally aligns with existing and planned capacity (with local variations). Growth in Queenstown and Wānaka Town Centres is greater than existing capacity and would require some sizing pipe upgrades, but source and treatment capacities are sufficient. Under Connected Settlements several areas exceed planned capacity, including Cardrona, Luggate and both the Eastern and Southern Corridor/Te Tapuae (current capacity would provide for about 50-60% of growth). Additional investment in new trunk infrastructure needed to service these areas. No services are planned for more remote locations where growth is enabled under Dispersed , such as Gibbston
Transport				Main Centres reduces impact on chokepoints and decreases traffic growth through increased public transport and active mode, supported by the committed public transport improvements between the main centres at Frankton and Queenstown Town Centre. Connected Settlements and Dispersed both increases movement over key chokepoints, such as the Shotover Bridge, Kawarau Bridge and Albert Town Bridge
Social (community facilities and open space)				Main Centres use more centralised assets, some of which are already established but may need to be upgraded or capacity increased. Connected Settlements has greater utilisation of a larger network of facilities resulting in additional capital and operational costs. Dispersed requires largest network of facilities but lowest utilisation (and therefore greatest operational costs)
Telecommunications				Main Centres and Connected Settlements can largely be service from existing sites, whereas Dispersed would require establishing new sites to service Gibbston and Lake Dunstan
Power				Main Centres can be serviced through upgrades of existing networks at a relatively moderate cost. Connected Settlements requires further upgrades to service the Southern and Eastern Corridor/Te Pūhahi as well as Kingston in order to provide capacity and security of supply. Dispersed is considered the most expensive to service as requires the largest network servicing lower population density and would require upgrades to service Arrowtown, and more remote communities such as Cardrona
<i>Cost to service (high level capex – in addition to existing or committed infrastructure)</i>				
Three waters				Main Centres – most household growth can be accommodated with the current network with planned upgrades. Further investment likely to be needed to service the Queenstown Town Centre. Connected Settlements – most household growth can be accommodated within the existing / planned network, but further investment would be needed to provide capacity to Cardrona, Luggate, Ladies Mile/Te Putahi and the Southern Corridor/Te Tapuae. Dispersed – most household growth can be accommodated within the existing network but it would be expensive to service to the wider Wakatipu Basin, Upper Clutha and Gibbston Valley if these areas were to be connected to reticulated services
Transport				Main Centres is largely serviced by committed improvements in public transport. Connected Settlements requires significant expansion of a frequent public transport network to service the Eastern and Southern Corridors, including potential bridges. Dispersed will require more bridges to provide road capacity at key pinch points. Note: Connected Settlements results in higher operational costs for public transport than Main Centres due to a larger network and lower population density
Social				Main Centres and Dispersed will require upgrades to provide additional capacity at fewer centralised facilities, whereas Connected Settlements requires additional facilities to be established to supplement the existing network

4.1 COMMUNITY ENGAGEMENT

In November 2019 a series of community workshops were attended by more than 200 people from across the Queenstown Lakes Area. Participants were asked to assess the growth options against themes the community had identified as important from earlier consultation exercises. From across the workshops, the connected settlements option was the most supported by the participants. Refer to the Spatial Plan Community Engagement Report for more information.

4.2 CONCLUSION

The conclusion is based on both the evaluation of the subject matter expert group and community engagement. Both the main centres and connected settlements scenarios performed well against the evaluation criteria and received much more support (than the dispersed scenario) from the community members who attended the workshops in Nov 2019.

The main centres and connected settlements scenarios each have relative advantages and disadvantages, which are explained further here:

4.2.1 Main centres



- + Provides access to a **high level of service** to a moderate proportion of the population. Residents in the main centres would have good access to facilities offering a very high level of service that can be supported by the concentration of population / users. However, residents outside of the main centres would need to travel to the main centres to access many facilities and services as there would be insufficient population outside of the main centres to support the provision of local facilities and services
- + **Good environmental outcomes**, largely due to having the smallest urban footprint and therefore less impact on landscape, rural production, water and biodiversity values. It is also the most beneficial in terms of emissions and confines effects to the land-based wāhi tūpuna that are already highly modified
- + Most **cost-effective to service** with infrastructure, as requires the least expansion of infrastructure networks and greater economies of scale can be achieved through centralised, higher capacity infrastructure systems
- + **Greatest potential to reduce travel demand** as the concentration of population would support a high level of service for public transport, and greater live-work-play opportunities within distances accessible by walking and active modes
- + **Protects rural land**, due to having the smallest urban footprint of the scenarios



- Likely to be **most difficult to deliver**, as requires the largest shift from the type of housing products currently being delivered by the market
- Some **infrastructure would be challenging and disruptive** to retrofit into existing centres due to the cost / availability of land, including for new social infrastructure facilities
- **Poor alignment with areas already zoned for development**, the Proposed District Plan enables significant greenfield development in the Southern Corridor/Te Tapuae and Wānaka that would continue to develop even if the main centres scenario was a preferred option

4.2.2 Connected settlements



- + Provides access to **moderate level of service to a large proportion of the population**. There would be sufficient population in the connected settlements to support a higher provision of local facilities and services in these locations. As much of the population would live in either a centre or connected settlement, a higher proportion of the population would have better access to facilities and services than in the main centres scenario. Less population in the main centres would result in a lower level of service for residents in these locations than would be likely under the main centres scenario
- + Likely to result in the **greatest range of housing typologies and price points**. The connected settlements scenario would enable higher and medium density housing across both the main centres and connected settlements. The broad range of locations where these typologies are enabled would result in greater diversification of both housing typology and location across the market, which would likely translate into the widest range of prices
- + The connected settlements scenario was considered **beneficial from a social licence perspective** for tourism. This scenario provides greater opportunities for the local community to reside in settlements and access facilities and spaces located away from the main hubs of tourism activity, which tend to be concentrated in the main centres
- + **Good potential to reduce travel demand** through the provision of local services and facilities within distances suitable for travel by active modes, and through provision of public transport (albeit at a lower service level than the main centres scenario) to a large portion of the population
- + Generally **avoids the wāhi tūpuna** that are not already highly modified – with the exception of Tititea, beneath Kawarau (the Remarkables). Provides opportunities to use the blue green network and new public spaces to enhance Kāi Tahu values through biodiversity connection and restoration. Higher likelihood of improving water quality outcomes for the water-based wāhi tūpuna through 3 waters planning
- + More greenfield development provides **greater opportunities to incorporate new sites for industrial and business land**. Less intensification than the main centres scenario would reduce urban land values and the displacement of lower value uses from established sites

- + Greater population near existing settlements (for example Shotover Country / Lake Hayes Estate or Hāwea) would support greater provision of local shops, facilities and services. This has the **potential to remedy existing issues**, such as high levels of private vehicle mode share and poor access to social infrastructure and facilities in these developments
- + Considered to be **closer to what market is currently delivering**, as there is a greater provision of lower and medium density typologies than the Main Centres scenario



- Similar to the Main Centres scenario, it may be challenging to retrofit / integrate some of the changes needed into existing and planned settlements, particularly where structural infrastructure is already in place and structure / masterplans are already operative
- Requires significant expansion of the frequent transit network (beyond currently planned investments) and achieving behavioural change / mode shift to deliver the environmental and transport benefits of the scenario

The subject matter expert group noted the benefits of the connected settlements scenario rely on several specific conditions to be met. Without these conditions, the connected settlements scenario would perform much more poorly, and becomes a variation of the dispersed scenario.

These conditions were:

- > The connected settlements must be connected by quality, frequent public transport services that would enable a high degree of mode shift from private vehicles
- > The connected settlements need to be of a scale that can sustain local services including school/s, healthcare, mix of open space, recreation and community facilities and local shops – supermarket, café
- > Urban design and planning of the settlements needs to create walking and cycling friendly environments, provide for a mix of land uses and densities and reflect Kāi Tahu identity through planting and design
- > Behaviour change of existing and new residents is needed, notably in relation to transport mode shift

4.3 TAKE-OUTS FOR THE PREFERRED SPATIAL PLAN OPTION

Compatible elements from both the Main Centres and Connected Settlements scenarios are recommended to be taken forward into the preferred option for the draft Spatial Plan, including:

- > A focus on intensification through increasing density in the Tāhuna /Queenstown Town Centre, Wānaka Town Centre and Te Kirikiri / Frankton
- > Enabling growth along frequent public transport corridors in high and medium urban forms
- > Supporting the growth of settlements that have the potential to reach a critical mass that will support public transport and the provision of local services and community facilities
- > Avoiding expansive, low density growth across the Wakatipu Basin, Gibbston Valley and Upper Clutha Basin

Appendix A: Spatial analysis of land use and environmental constraints

Spatial analysis of available geospatial information was undertaken to identify the location of environmental and cultural values, along with areas subject to hazards, to inform development of the Spatial Plan’s growth management approach and the development and evaluation of scenarios.

The analysis aims to broadly identify two categories of areas:

These conditions were:

- > **Protected:** areas currently protected from urban development. These are often areas with intrinsic environmental, historic or cultural values that are incompatible with urban development
- > **Constraint:** areas where there are values or characteristics requiring careful consideration if urban development were to occur. These could be hazards, such as flooding or liquefaction prone areas, but also areas with important environmental / cultural features that are not entirely incompatible with urban development. Urban development in these areas may involve a degree of trade-off with these values or incur additional cost

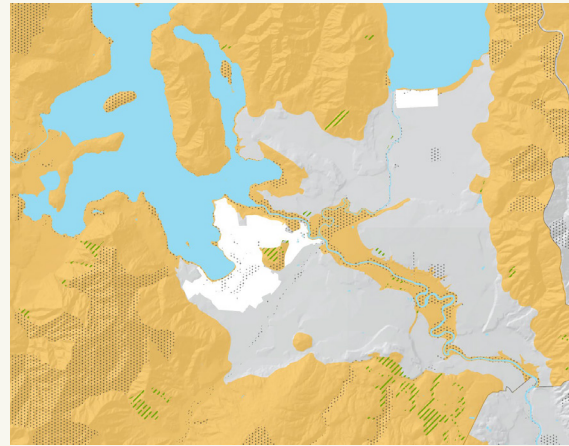
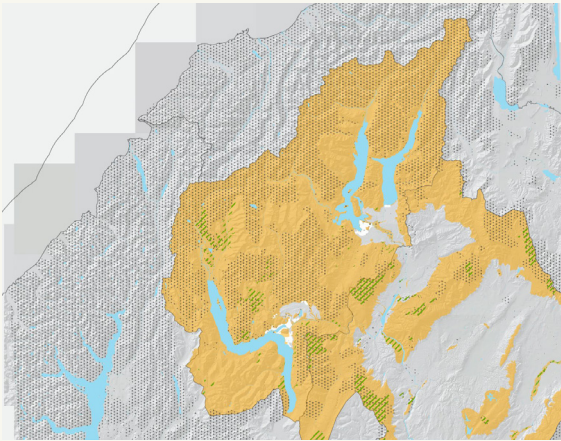
The geospatial information used to inform this analysis were sourced primarily from QLDC, CODC and LINZ datasets and are outlined in the table below. To assist interpretation and to inform the Spatial Plan and scenario analysis similar datasets were aggregated into layers and presented in a series of thematic maps.

THEME	LAYER	DATASET	PROTECTED / CONSTRAINT
Natural values	Landscape	Outstanding natural features	Protected
		Outstanding natural landscape	Protected
	Biodiversity	Significant natural areas	Protected
	Open space	Protected areas (reserves)	Protected
		QEII covenant areas	Protected
Cultural values	Kāi Tahu	Nohoanga ³	Constraint
		Wāhi Tūpuna	Constraint
		Ka Ara Tūpuna	Constraint
	Character	Wakatipu Basin Rural Amenity Zone	Constraint
		Gibbston Character Zone	Constraint
		Significant Amenity Landscape	Constraint
	Historic Heritage	Heritage Buildings	Protected
		Historic precinct	Protected
		Heritage Landscape	Protected
		Historic Heritage Features	Protected
	Rural production	Historic Heritage Overlay	Protected
LUC 1-3		Constraint	
Hazards	Infrastructure	Wānaka Airport Outer Control Boundary	Constraint
		Queenstown Airport Noise Boundary (Ldn65, Ldn55)	Constraint
		National Transmission Grid Corridor	Constraint
	Flooding	Flooding – dam burst	Constraint
		Flooding - rainfall	Constraint
	Contamination	Potentially contaminated sites	Constraint
	Geotechnical	Alluvial Fan – Hazard Area	Constraint
		Liquefaction Risk (LUC2, LUC3)	Constraint
Landslide areas - Rockfall		Constraint	

³All are mapped as Wai Tupuna

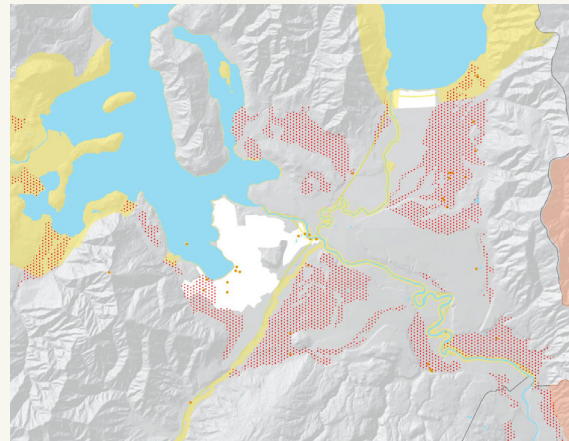
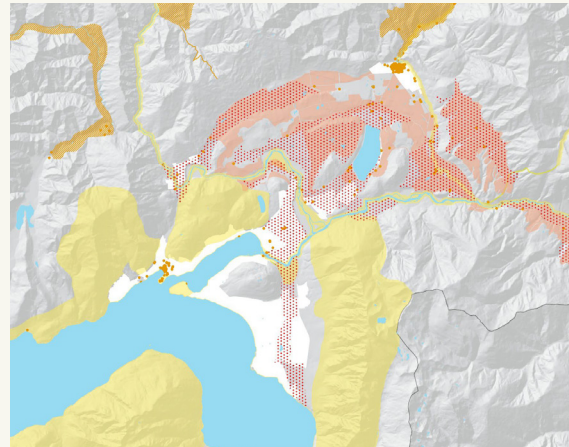
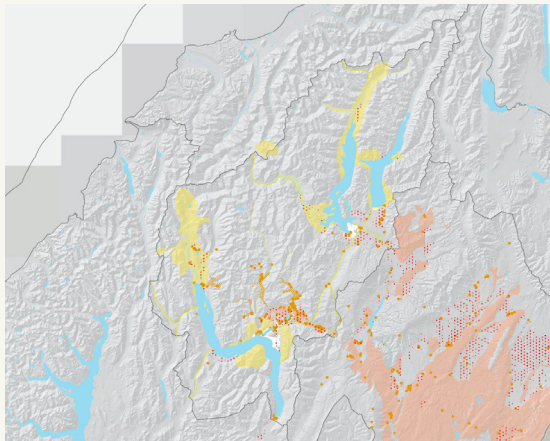
Natural values:

-  Landscape (ONL / ONF)
-  Open Space
-  Biodiversity
-  Existing urban area
-  Existing non-urban area
-  Water



Cultural values:

-  Kāi Tahu
-  Historic Heritage
-  Character
-  Productive Soil
-  Existing urban area
-  Existing non-urban area
-  Water



Hazards:

-  Geotechnical
-  Flooding
-  Contamination
-  Infrastructure
-  Existing urban area
-  Existing non-urban area
-  Water

Note: Numerous additional hazards located in alpine areas are not shown on these maps and have been excluded from the analysis for the purpose of the spatial plan due to the inherent unsuitability of these areas for urban development.

