Notice is hereby given that an ordinary meeting of the Horowhenua District Council Strategy Committee will be held on:

Date:	**Wednesday 16 August 2017**
Time:	**4.00 pm**
Meeting Room:	**Council Chambers**
Venue:	**126-148 Oxford St**
	Levin

Strategy Committee

OPEN AGENDA

MEMBERSHIP

Mayor	Mr Michael Feyen	
Deputy Chairperson	Mrs Victoria Kaye-Simmons	
Councillors	Mr Wayne Bishop	
	Mr Ross Brannigan	
	Mr Ross Campbell	
	Mr Neville Gimblett	
	Mr Barry Judd	
	Mrs Jo Mason	
	Mrs Christine Mitchell	
	Ms Piri-Hira Tukapua	
	Mr Bernie Wanden	
Reporting Officer	Mr David Clapperton	(Chief Executive)
Meeting Secretary	Mrs Karen Corkill	

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Full Agendas are available on Council's website
www.horowhenua.govt.nz

Full Agendas are also available to be collected from:
Horowhenua District Council Service Centre, 126 Oxford Street, Levin
Foxton Service Centre/Library, Clyde Street, Foxton,
Shannon Service Centre/Library, Plimmer Terrace, Shannon
and Te Takere/Library, Bath Street, Levin

ITEM TABLE OF CONTENTS PAGE

PROCEDURAL

REPORTS

1 Apologies

2 Public Participation

Notification to speak is required by 12 noon on the day of the meeting. Further information is available on www.horowhenua.govt.nz or by phoning 06 366 0999.

3 Late Items

To consider, and if thought fit, to pass a resolution to permit the Council to consider any further items which do not appear on the Agenda of this meeting and/or the meeting to be held with the public excluded.
Such resolution is required to be made pursuant to Section 46A(7) of the Local Government Official Information and Meetings Act 1987, and the Chairperson must advise:

(i) The reason why the item was not on the Agenda, and
(ii) The reason why the discussion of this item cannot be delayed until a subsequent meeting.

4 Declaration of Interest

Members are reminded of their obligation to declare any conflicts of interest they might have in respect of the items on this Agenda.

5 Confirmation of Minutes

5.1 Meeting minutes Strategy Committee, 5 July 2017

6 Announcements

Growth Response Projects Update

File No.: 17/392

1. Purpose

To provide a status update on the Growth Response work programme with a focus on providing up to date information on current key projects and planning.

2. Recommendation

2.1 That Report 17/392 Growth Response Projects Update is received.

2.2 That this matter or decision be recognised as not significant in terms of s76 of the Local Government Act 2002.

3. Background/Current Status

Otaki to North Levin (O2NL)

Submission to NZTA's first round of engagement on the NZTA Roads of National Significance O2NL project endorsed at Council Strategy Committee meeting (5th July 2017). This submission has been received by NZTA. Like the local community, Council is patiently waiting to see how its submission has been considered in developing the corridor options for the next round of engagement. Council will continue to be actively involved with the Community and NZTA in what is one of the most significant projects ever undertaken in Horowhenua as it moves towards the next round of engagement in October 2017. Currently reviewing Terms of Reference for interaction with NZTA and the Community through the following groups:

- Project Reference Group (Community, Iwi, Council and NZTA) - To serve as the key mechanism for stakeholder and community input into the decision making process.
- Project Steering Group (Council and NZTA) – To allow NZTA and HDC Officers to work together collaboratively to exchange information and share views on a range of topics related to the project and the Horowhenua District.
- Project Governance Group (Council and NZTA) – To collectively monitor the setup and management of project to ensure the realisation of benefits in the best interests of respective organisations. Provides an avenue for escalation of issues that may affect or hinder the project. Includes combination of Elected members and Officers.

Levin Town Centre Redevelopment

Completion of initial public consultation carried out in 2016 to establish key issues to be incorporated into the Levin Town Centre Strategy. Working Draft Levin Town Centre Strategy to be taken back to Council in the second half of 2017 including consideration of the following issues prior to the next round of public engagement:

- Impact of 1 July 2017 Earthquake Prone Building legislation on the Levin Town Centre and wider district.
- Potential methods for Council to facilitate/influence the project.
- Effects and timing of a possible Levin Bypass (RONS O2NL).
- Engagement with Building/Land Owners and occupiers.
- Engagement with Iwi and Community

- Integration with other Council strategies.

Horowhenua Growth Strategy

This project involves a review of the Horowhenua Development Plan 2008.

A working draft Growth Strategy has been prepared. It is in the process of being extended out to 2040 to align with the strategic work Council is developing Horowhenua 2040 and the Long Term Plan 2018-2038.

The review undertaken and based on assumptions of the forecasted population and the distribution of it, has identified that to accommodate the potential forecasted growth additional land will need to be released through rezoning land in the District Plan for future residential and greenbelt residential development.

4. Issues for Consideration/Planning

Otaki to North Levin (O2NL)

Confirmation was given to Council Officers on 1st August 2017 that NZTA are currently finalising a report summarising the first round of engagement. The main objective from the engagement process was to identify key concerns/issues from Council, Iwi and the Community which need to be considered as part of the option(s) investigation/analysis. A consistent theme identified throughout the engagement to date has been for more transparency around NZTA processes. In response to this NZTA are planning to conduct a Multi Criteria Analysis (MCA) on the O2NL project with key stakeholders attending the workshop to be held over two days - 22nd and 29th August. Invites were sent out on 3rd August to members of the Project Reference Group (PRG) which includes Community, Iwi and Council representatives.

The MCA is to be conducted following identification of corridor options by NZTA for the new expressway but prior to public consultation; therefore attendees will be expected to treat all information sensitively and with respect due to the potential impacts of options on land owners and communities.

The MCA process is used to evaluate potential options against a range of different criteria (often competing) to assess whether an option meets the stated objectives. Examples of some of the criteria commonly considered include:

- Landscape/Visual Impact
- Ecological Risk
- Archeological Risk
- Cultural Values
- Productive Land Values
- Impact on Dwellings
- District Plan Impacts
- Project Objectives (NZTA)
- Property Degree of Difficulty
- Engineering Considerations including Natural Hazards
- Cost

A range of weightings are then applied to reflect the importance of criteria along with sensitivity and other check measures. The expected result is the identification of any unsuitable options (Usually referred to as a fatal flaw) and also a better performing option(s) when compared with others. It should be noted that the MCA is an important tool in assessing options, however is not the only factor that will determine the best performing corridor option to be presented to the NZTA Board in early 2018.

In response to this Council Officers are focusing on the following prior to this month's MCA workshops:

- Providing up to date information to Council Staff with a presentation on project status and next steps at 9th August All Staff Meeting.
- Additional messaging to public around the status and NZTA process for this project.
- Review of Council submission to identify all 'alignment influenced' objectives that will need to be considered as part of the MCA process. A request has been made to NZTA for the supply of proposed alignments and criteria prior to the MCA workshop to allow adequate time for assessment and a briefing with Council Elected members. A date for this briefing will be set once NZTA confirm if and when required information will be made available to Council. The purpose of the Council briefing would not be to establish a Council position or preferred alignment, but would focus on informing Elected Members of the different expressway corridors being considered in the MCA process and the effects on district wide outcomes or issues deemed as requiring further investigation by NZTA or Council.

Primary focus will then shift to a number of other activities prior to full public consultation scheduled to commence in October 2017:

- Development of an engagement strategy to determine the level of support Council could provide to Iwi and the Community during the next round of public engagement for their submissions and additionally Council's method for engaging on its submission.
- Understanding NZTA process and timing for identification and assessment of interchange options.
- Integration with other Council projects eg. Levin Town Centre and Growth Strategy.
- Review traffic modelling and economic impact assessments commissioned by NZTA.

Levin Town Centre (LTC) Redevelopment

Current work being undertaken to allow next stage of public consultation to progress in the second half of 2017:

- Further investigation to understand the impacts of 1 July 2017 Earthquake Prone Building legislation. Engagement with building owners will be aligned with the next stage of engagement on the LTC Strategy.
- Review of draft Engagement Strategy to understand requirements of numerous stakeholders including Building Owners, Businesses, Community and Iwi. Goal for the next stage of engagement is to get feedback and 'buy-in' on proposals that can be progressed and championed by key stakeholders to take advantage of a once in a lifetime opportunity to redefine the future of Levin's town centre.
- Understanding the effects of a potential Levin bypass and associated opportunities for revocation and redevelopment that can be captured in the LTC Strategy.
- Investigation of options for council to influence the project outcomes including managing the effects of Earthquake Prone Buildings or redevelopment potential.

Horowhenua Growth Strategy

Focus for progression of Strategy in second half of 2017 covers the following:

- Engagement with key stakeholder and landowners potentially affected by the Growth Strategy.
- Commission and/or undertake technical assessments for proposed growth areas.
- Preparation of Structure Plans for future growth areas.
- Analyse feedback from engagement.
- Prepare Growth Strategy for adoption by Council and to guide the development of a plan change to the District Plan.
- Understanding any effects of potential NZTA expressway alignment options.

Attachments

There are no attachments for this report.

Confirmation of statutory compliance

In accordance with section 76 of the Local Government Act 2002, this report is approved as:

a. containing sufficient information about the options and their benefits and costs, bearing in mind the significance of the decisions; and,
b. is based on adequate knowledge about, and adequate consideration of, the views and preferences of affected and interested parties bearing in mind the significance of the decision.

Signatories

Author(s)	Daniel Haigh **Growth Response Project Manager**	

Approved by	David Clapperton **Chief Executive**	

Project Lift - Quality Care and Lifestyle for Older People

File No.: 17/398

1. Purpose

To provide the Horowhenua District Council Strategy Committee with an update regarding Project Lift – Quality Care and Lifestyle for Older People.

2. Recommendation

2.1 That the Report Project Lift - Quality Care and Lifestyle for Older People be received.

2.2 That this matter or decision be recognised as not significant in terms of s76 of the Local Government Act 2002.

2.3 That the Strategy Committee endorses the Project Lift Master Plan.

3. Issues for Consideration

As included in the accompanying document: Project Lift Master Plan.

Attachments

No.	Title	Page
A	Project Lift Master Plan *(Under Separate Cover)*	

Confirmation of statutory compliance

In accordance with section 76 of the Local Government Act 2002, this report is approved as:

a. containing sufficient information about the options and their benefits and costs, bearing in mind the significance of the decisions; and,
b. is based on adequate knowledge about, and adequate consideration of, the views and preferences of affected and interested parties bearing in mind the significance of the decision.

Signatories

Author(s)	Shanon Grainger **Economic Development Manager**	

Approved by	David Clapperton **Chief Executive**	

Updated Socio-economic Growth Assumptions for Horowhenua

File No.: 17/399

1. Purpose

To provide the Horowhenua District Council Strategy Committee with the final SensePartners Socio-Economic Projections Report for Horowhenua.

2. Recommendation

2.1 That Report 17/399 Updated Socio-economic Growth Assumptions for Horowhenua be received.

2.2 That this matter or decision be recognised as not significant in terms of s76 of the Local Government Act 2002.

2.3 That the Strategy Committee recommends to Council the adoption of the Horowhenua's updated socio-economic projections so they can be utilised for current and future policy development and integrated planning purposes.

3. Background/Previous Council Decisions

3.1 Council has a responsibility to plan for the long term and to invest accordingly.

3.2 To help deliver on this responsibility Council is required to utilise forecasting assumptions to enable current and future policy development and an integrated approach to planning.

3.3 In late 2015 the New Zealand Institute of Economic Research (NZIER) was engaged to undertake a thorough assessment of Horowhenua's socio-economic outlook. The final report was received by Council in February 2016.

3.4 On 6 July 2016 Council adopted NZIER forecast assumptions.

3.5 Since the completion of the NZIER report in February 2016 there has been substantial change occurring across Horowhenua and New Zealand.

3.6 On the basis of the responsibilities previous outlined, and with a view to Council's forward work programme HDC engaged with SensePartners to review Horowhenua's socio-economic projections.

3.7 On 5 July 2017 the Strategy Committee was updated on a review of Horowhenua's socio-economic forecasts. The Strategy Committee received and endorsed the preparation of the draft SensePartners report.

4. Issues for Consideration

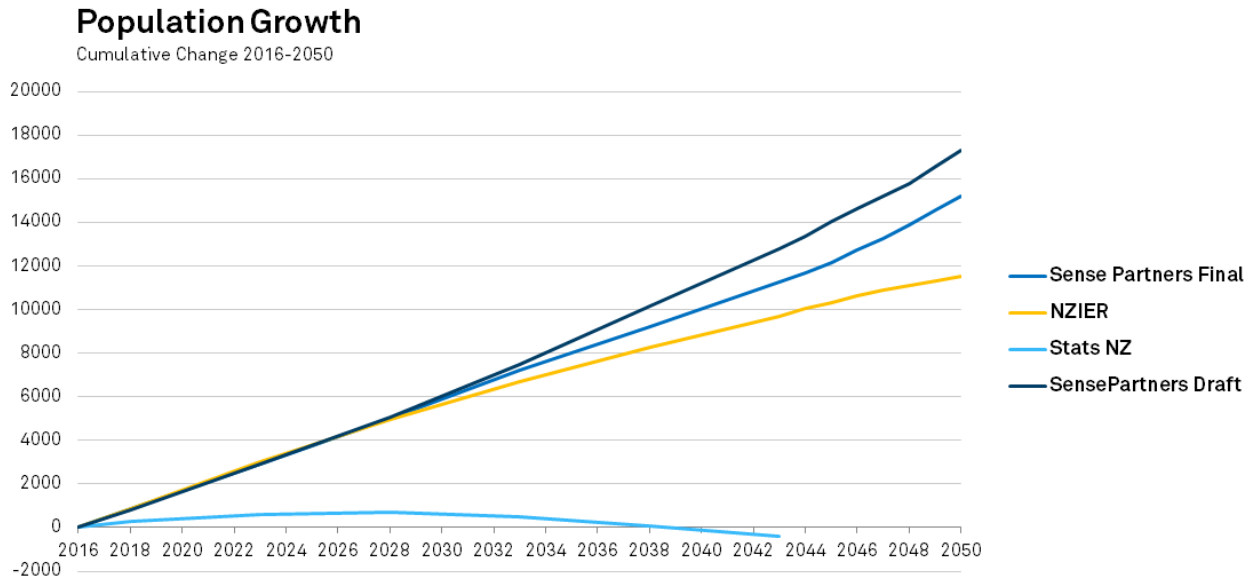
4.1 Based on feedback provided from the Socio-Economic Projections Steering Group, a final report was provided to Council by SensePartners in late July 2017. This final report contains some changes from the earlier draft.

4.2 There are two main differences between the draft and final report. These are as follows;

4.3 Long term migration growth beyond 2040 has been revised down to historical levels relative to the growth of the global population.

4.4 The forecast effect of RoNS has been adjusted upwards, to better reflect the size of the shock estimated by NZIER.

4.5 The Committee should note that there are differences in the levels of forecast population growth post 2030. The basis for these differences is discussed in the attached report. The headline change is captured in the following chart:



Attachments

No.	Title	Page
A	Horowhenua Socio-economic Projections - SensePartners - 27 July 2017	15

Confirmation of statutory compliance

In accordance with section 76 of the Local Government Act 2002, this report is approved as:

a. containing sufficient information about the options and their benefits and costs, bearing in mind the significance of the decisions; and,
b. is based on adequate knowledge about, and adequate consideration of, the views and preferences of affected and interested parties bearing in mind the significance of the decision.

Signatories

Author(s)	Shanon Grainger **Economic Development Manager**	

Approved by	David Clapperton **Chief Executive**	

Horowhenua Socio-Economic projections

Summary and methods

Projections report, 27 July 2017

SENSE PARTNERS
DATA LOGIC ACTION

Summary of projections

This report presents long term population and economic projections for Horowhenua District.

Population growth expected to continue

Recent increases in population growth in Horowhenua are expected to continue. Population growth is expected to average 0.8% over the next decade. This is much lower than the 1.6% growth experienced in 2016[1] but significantly higher than the 0.3% growth per year in the previous 10 years.

The uncertainty in this projection is captured in Table 1. The Table shows growth rates for the next 10 years ranging from 0.3% to 1.5% per annum.[2] These different growth rates have a significant impact on the size of the projected population, with the high end of the range resulting in a population in 10 ten years' time which is more than 15% larger.

The percentiles presented in Table 1, and elsewhere in the report, are calculated by simulating population change while varying the main drivers of population growth, such as immigration rates. These simulations are calibrated based on historical variations. This produces a range of results which is summarised by ranking the projections and presenting them according to their ranking or percentile.

TABLE 1: POPULATION PROJECTIONS

Population

	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2016	31,895	31,895	31,895	31,895	31,895
2026	33,015	33,806	34,484	35,468	36,952
2036	33,403	35,610	37,659	40,519	45,037
2046	33,184	37,226	41,144	46,633	58,665
2056	33,014	39,473	46,980	55,027	78,406
2066	33,347	42,855	53,443	67,433	106,226

Population growth

	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2016					
2026	0.3%	0.6%	0.8%	1.1%	1.5%
2036	0.1%	0.5%	0.9%	1.3%	2.0%
2046	-0.1%	0.4%	0.9%	1.4%	2.7%
2056	-0.1%	0.6%	1.3%	1.7%	2.9%
2066	0.1%	0.8%	1.3%	2.1%	3.1%

[1] Statistics New Zealand 'Usually Resident' population estimates, 2017.
[2] For the 5th to 95th percentiles of the range of projected outcomes.

Use of these projections needs to be tailored to the question at hand

In this summary report, there is a focus on the 50th percentile of projections. This is just to keep the explanations as straight forward as possible.

To use these projections, such as for planning purposes, it is best to consider ranges of values between percentiles. This is because no single value or percentile is more likely than another but some ranges of values are more likely than others. For example, there is a 1 in 2 chance (50% probability) the population will be between 35,610 and 40,519 in 2036.[3] While there is a 1 in 20 chance (5% probability) that the population will be smaller than 33,403 in 2036.

The 'best' range of values to use will depend on the decision-making context, such as whether a decision is irreversible or not and whether errors would have serious consequences.

Growth to continue long term but the magnitude is highly uncertain

The uncertainty in these projections is magnified over time. At the low end of the range, the population is projected to increase by 5% (1,450 people) over 50 years. At the high end, the population trebles, adding an additional 74,000 residents.

The full extent of this uncertainty is illustrated in Figure 1 which shows the range of simulated population outcomes for Horowhenua and for New Zealand overall.

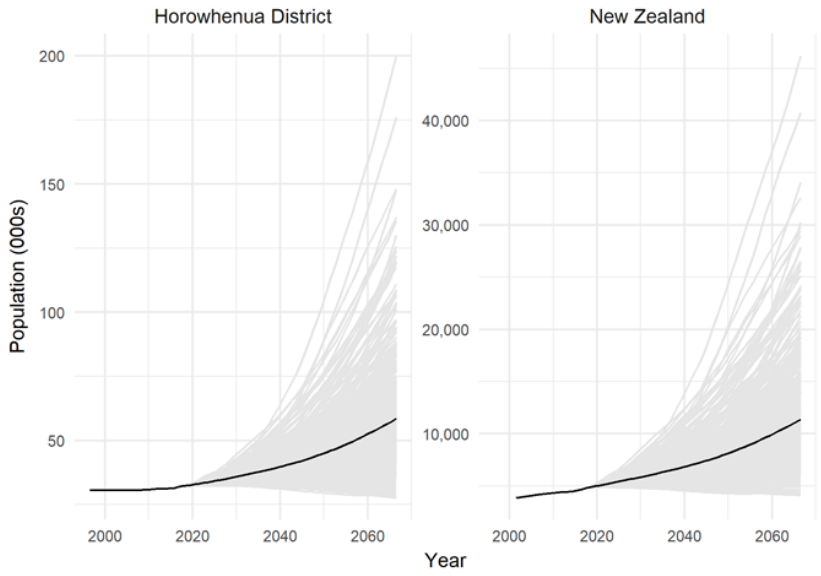
The very high population projections shown in Figure 1 are very unlikely. And they are probably unsustainable from a policy point of view. However, our projections are not based on expectations of policy change. Policy change is, therefore, an important factor that needs to be contemplated when using these projections.

Assumption: high immigration would be allowed to take place

International immigration, and therefore immigration policy, is the single most important factor in these projections. Increased immigration grows the population of Horowhenua directly and indirectly through increased domestic migration. When the national population is growing due to increased net migration this increases the flows of people to smaller areas, whether in retirement or for a change of lifestyle or for job opportunities.

[3] Based on this model. Technically speaking, this measure of uncertainty excludes 'model uncertainty'.

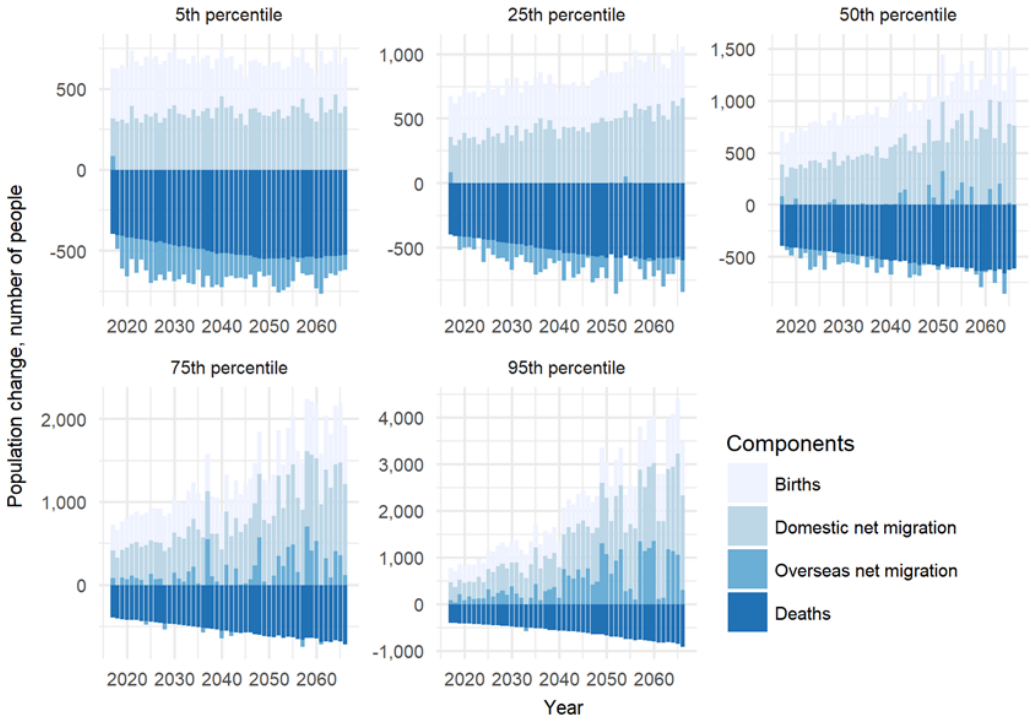
FIGURE 1: STRONG POPULATION GROWTH EXPECTED TO CONTINUE
500 simulated population projections. Black lines are means.



The importance of migration in driving population growth is illustrated in Figure 2 which shows components of projected population change. In the low growth case, the top left panel of Figure 2, annual changes in components of population change are small and overseas net migration is negative. In the higher growth cases, overseas migration becomes increasingly visible – a key driver of population growth and therefore in uncertainty around population growth. Also, as international migration grows – nationally – this helps to increase positive domestic net migration to the district.

We assume that if people want to migrate to New Zealand, they will be able to – that there will be no new steps taken to limit immigration.

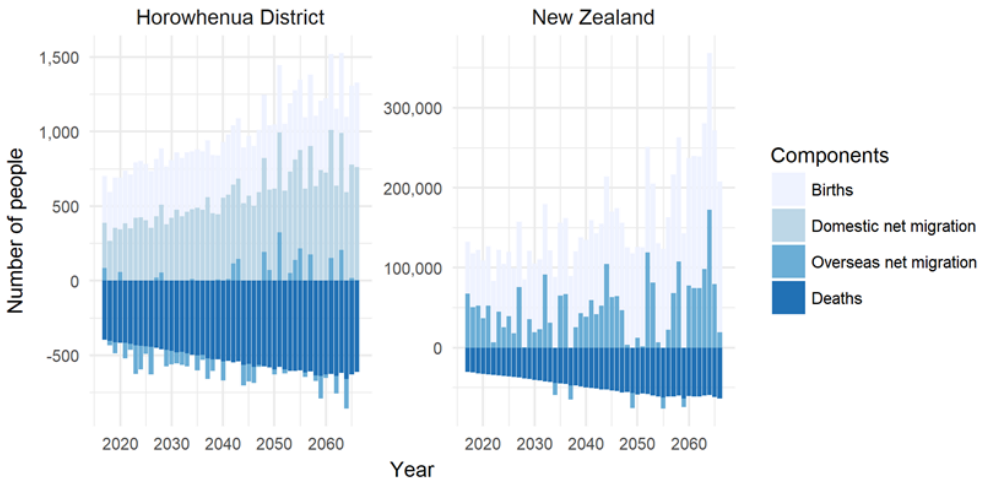
FIGURE 2: OVERSEAS NET MIGRATION IS THE MAIN SOURCE OF UNCERTAINTY
Annual population change, broken down by component of change and percentile of projection



The 50th percentile of these projections includes national net migration which is of similar magnitudes to those experienced in the past few years. As Figure 3 shows, net migration is projected to be lower between 2020 and 2030 than it has been in the past 2 years but to increase long term as inward migration trends upwards and outward migration remains stable as a proportion of the overall population.

The projections in the 75th and 95th percentiles are more extreme in terms of being outside the bounds of what has been experienced before.

FIGURE 3: MEDIAN PROJECTION ASSUMES MODERATE-TO-STRONG MIGRATION[4]
Annual population change, broken down by component of change and percentile of projection



Population growth and economic growth go hand-in-hand

Inflows of migrants and increasing labour force participation at older ages will help bolster labour force growth (see Table 2). This is the mainstay of economic growth with growth in the labour force strongly correlated with expanding economic activity.

Not all of these people will be employed or employed in Horowhenua District. Many of them will commute to work in nearby districts in the Wellington and Manawatu-Whanganui regions.

Nonetheless the economy is expected to grow by 2.1% per year[5], on average, over the next decade due to a growing labour force, increased employment and growth in productivity[6] averaging 0.8%.

Figure 4 shows the range of projected outcomes for growth in GDP or 'value-added' which sit behind the median economic growth projection figures. These show a wide range of potential outcomes over the long term, but a positive trend in all cases.[7]

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[4] The median projection is the 50th percentile.
[5] Excluding inflation.
[6] Measured here as GDP per working age person.
[7] Strictly speaking, percentiles below the 5th percentile do include declines. But the emphasis for these projections are the range of more likely outcomes between the 5th and 95th percentiles.

TABLE 2: LABOUR FORCE PROJECTIONS

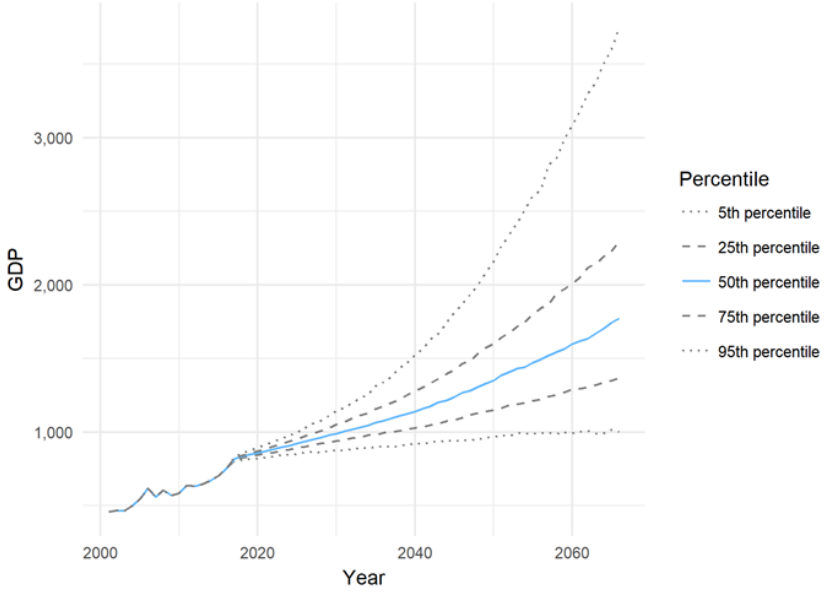
Labour force (working age people participating in the labour force)

	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2016	13,874	13,874	13,874	13,874	13,874
2026	14,583	15,024	15,423	15,953	16,803
2036	14,570	15,742	16,879	18,453	21,063
2046	14,451	16,679	18,833	21,864	28,475
2056	14,344	17,862	21,814	26,163	38,842
2066	14,161	18,852	24,311	31,576	51,722

Labour force growth (annual average between dates)

	5th percentile	25th percentile	50th percentile	75th percentile	95th percentile
2016					
2026	0.5%	0.8%	1.1%	1.4%	1.9%
2036	0.0%	0.5%	0.9%	1.5%	2.3%
2046	-0.1%	0.6%	1.1%	1.7%	3.1%
2056	-0.1%	0.7%	1.5%	1.8%	3.2%
2066	-0.1%	0.5%	1.1%	1.9%	2.9%

FIGURE 4: ECONOMY ON A POSITIVE GROWTH PATH
Estimated GDP, Horowhenua District, (2016 dollars, millions)



Service industries expected to lead growth

Projections of industry activity show service industries are expected to grow the most in coming years.

As shown in Table 3, Retail services (which, here, include accommodation services) and construction are amongst the fastest growing sectors over the next 50 years. This reflects the intimate connection between these sectors and population growth.

Other sectors, such as agriculture and manufacturing tend to ebb and flow and, overall, reduce as a share of overall GDP. These projected patterns reflect trends that have been occurring for many decades in New Zealand and in Horowhenua District.

Information, media and communications also grow rapidly, albeit from a small base.

Note that the projections shown here are trends and do not include volatility in industry output likely to be observed in any given year. Commodity sectors, such as agriculture, which face volatile international prices, can rise and fall significantly in any given year.[8]

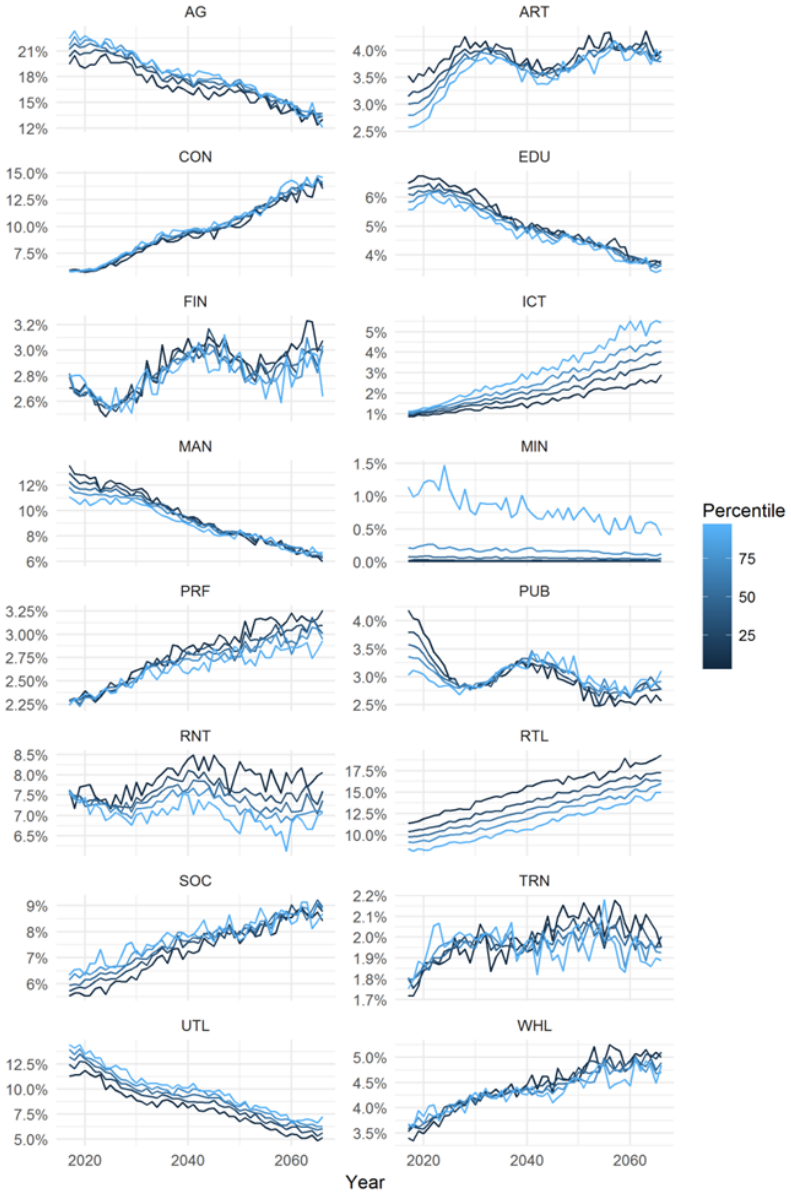
TABLE 3: LOCALLY TRADED SERVICE SECTORS LEAD IN ECONOMIC GROWTH

Value-added by industry (millions, 2016 dollars, 50th percentile for each industry)

Industry	2016	2026	2036	2046	2056	2066
Agriculture (AG)	139	163	159	179	185	188
Mines & Quarries (MIN)	0	0	0	1	1	1
Manufacturing (MAN)	80	86	85	82	85	89
Utilities (UTL)	101	77	75	82	79	76
Construction (CON)	37	51	76	97	145	189
Wholesale Trade (WHL)	20	32	40	48	61	71
Retail Trade (RTL)	50	82	106	136	186	231
Transport (TRN)	12	13	15	17	21	22
Information Media Communications (ICT)	6	12	18	27	43	61
Finance & Insurance (FIN)	14	21	26	31	36	42
Rental & Property (RNT)	49	103	125	146	161	193
Professional Services (PRF)	16	18	23	28	34	41
Public Administration (PUB)	26	22	27	32	32	40
Education (EDU)	38	43	41	43	47	47
Health & Social Services (SOC)	40	47	61	77	97	117
Arts & Recreation (ART)	20	27	32	34	47	51
Total	648	796	908	1,061	1,259	1,459

[8] The individual projections for each industry in Table 3 are projections associated with the 50th percentile for that industry. They are not the projections for the 50th percentile of GDP projections. Those projections would be significantly more volatile than the numbers shown here.

FIGURE 4: TRENDS IN INDUSTRY SHARES OF GDP
See Table 3 for industry acronym descriptions



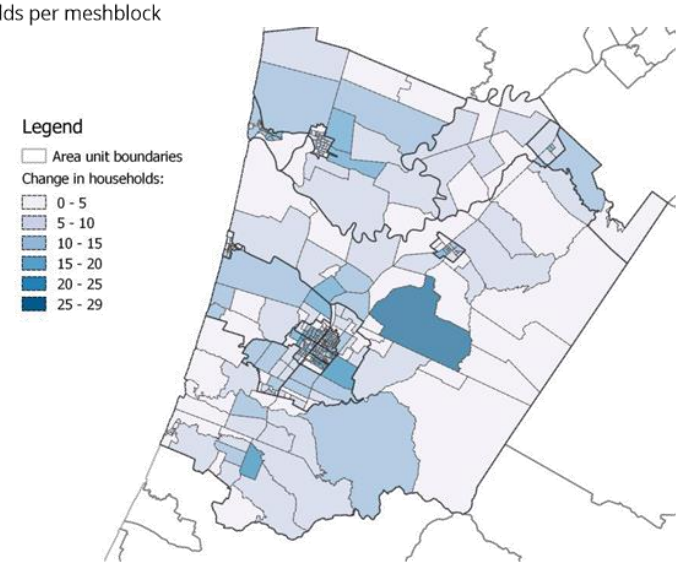
Population growth dispersed across the District

Our projections include allocations of household growth by area unit and by meshblock based on the propensity of different types of households to locate in different areas. Sole parent households, for example, are more likely to locate in more densely populated and well-established areas.

As Figure 5 shows, the projections suggest reasonably widely dispersed population growth. However, it is worth recalling that population location is as much a result of council and development decisions as it is about the decisions of households.

Also, a substantial share of growth is concentrated in developed areas (such as in and around Levin) but this growth is not easily seen in a map at the scale of Figure 5.

FIGURE 5: CHANGE IN NUMBER OF HOUSEHOLDS 2016-2036
Households per meshblock



Comparisons against other projections

The population projections presented in this report are higher than Statistics New Zealand projections for the Horowhenua District released in 2017 and similar to projections by NZIER produced in 2015. The differences are summarized in Table 4.

NZIER's projections included scenarios capturing impacts of the Wellington Northern Corridor (WNC) transport project. For comparability, Table 4 includes an implementation of the same scenario (the projection denoted '+ WNC').[9]

TABLE 4: COMPARISON WITH NZIER AND STATISTICS NEW ZEALAND PROJECTIONS

Population projections ('Medium' scenarios)

	2013	2018	2028	2038
StatsNZ (2017)	31,200	32,200	32,600	32,000
NZIER (2015)	31,200	32,390	34,600	36,840
NZIER (2015) + WNC	31,200	32,450	36,740	39,910
Sense (2017)	31,200	32,450	35,118	38,314
Sense (2017) + WNC	31,200	32,758	36,886	41,128

Annual average growth rates

	2013	2018	2028	2038
StatsNZ (2017)		0.6%	0.1%	-0.2%
NZIER (2015)		0.8%	0.7%	0.6%
NZIER (2015) + WNC		0.8%	1.2%	0.8%
Sense (2017)		0.8%	0.8%	0.9%
Sense (2017) + WNC		1.0%	1.2%	1.1%

The differences between NZIER's projections and Sense projections are reasonably minor and can be accounted for by small differences in methodologies.

Differences are due to views on international migration trends

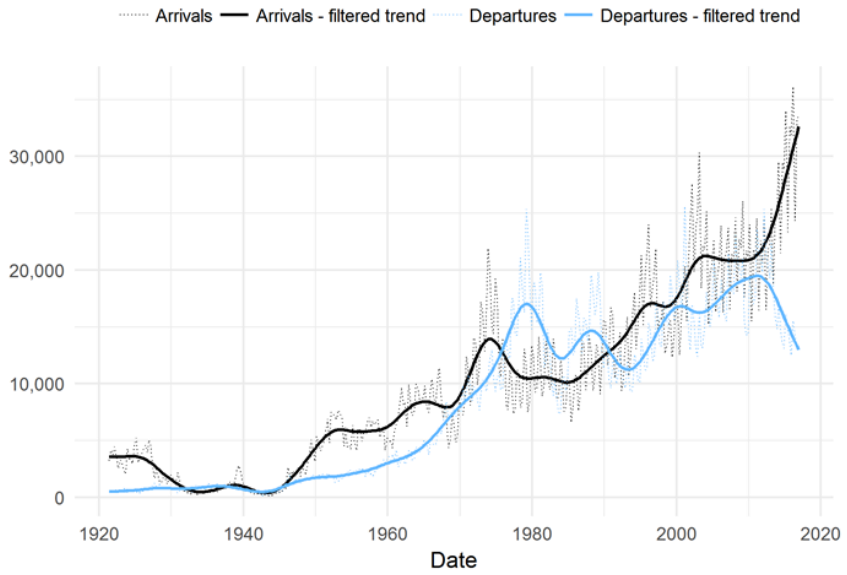
The difference between Sense projections and Statistics New Zealand's projections are differences in views about international migration.

[9] NZIER increase propensities to migrate to Horowhenua and the Wellington Region by 0.4%. The same shock has been implemented here. The effect of the shock is more pronounced in the short term in the Sense projections than in the NZIER projections. This is because immigration levels are much higher in 2017 and 2018 than was expected in the NZIER projections. As national migration growth eases, so too does the size of the shock relative to baseline population growth. Hence the percentage size of the shock (difference in population growth rates) is smaller in 2028 in the Sense scenario compared to the NZIER scenario.

The projections shown in this report are based on detailed modelling of long term trends in international inward and outward migration. As Figure 6 shows, there is a general long term upward trend in inward migration into New Zealand reflecting the attractiveness of New Zealand and increasing numbers of people internationally who are capable of migrating. This means inward migration is increasing relative to the size of the New Zealand population.

Trends in outward migration, on the other hand, have been comparatively subdued relative to the size of the population.[10] Consequently, net international migration is projected to grow.

FIGURE 6: ARRIVALS TRENDING UP FOR MORE THAN FIFTY YEARS
National quarterly permanent and long-term arrivals and departures



In contrast, Statistics New Zealand's projections appear to be based on assumptions about **net** migration and an assumption that net migration will return to historical averages of the past – averages in terms of absolute rather than proportional numbers. This means they don't not take account of long term trends of increasing net migration.

As discussed earlier this matters for growth in a District like Horowhenua because international migrants directly increase the District's population and increases domestic migration flows which also increase the District's population.

Sense and NZIER share similar views about potential for increased international migration, however NZIER assumed that growth could not continue long term.

[10] At least, this is the case since a rapid increase between 1960 and 1980, coinciding with rapid improvements in the availability and affordability of air transport.

Method

These projections should be interpreted as potentials. The projections do not, for example, take account of national or local policy changes which can affect actual population and economic growth.

Demographics

The method used to produce the population projections is a conventional population projection model, with a few relatively novel aspects.

The model simulates populations by age, by sex by District.

Fertility and mortality rates are projected using the same methods that Statistics New Zealand uses to project age- and sex-specific mortality rates.[11, 12]

International migration is predicted at the national level using a model of migration which accounts for trends and patterns in growth in arrivals from different types of countries in conjunction with changes in outward migration and economic conditions in New Zealand and Australia (unemployment rates and real exchange rates).[13]

Ages of migrants and domestic destinations of international migrants are determined based on observed historical probabilities that migrants are of a given age and the propensities these migrants have to move to particular parts of New Zealand (in this case Districts).

Internal domestic migration is based on age- and origin- and destination-specific probabilities of observed migration in each of the past three Censuses.[14] So, each District's inward domestic migration reflects the size and age distribution of other Districts from which it traditionally sources migrants.

At the household level, living arrangements are based on methods used by Statistics New Zealand. Each age and gender has an observed historical (Census-based) probability of residing in a different household type. The probabilities used here are national-level probabilities.[15]

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[11] Demography package for R, by Rob J Hyndman with contributions from Heather Booth, Leonie Tickle and John Maindonald.
[12] Actual data on age-specific rates at the district level are limited and so these are inferred using splines to interpolate between ages where age-group data is available.
[13] To be precise, the model is a mean of forecasts from 3 different types of models: a set of univariate time series model, a vector-autoregression, and a vector-error correction model with economic components. The latter includes cluster analysis of arrivals from different countries which allows grouping of countries into 4 different groups which tend to move together.
[14] The number of observations here is limited but the probabilities have proved to remain remarkably stable over time.
[15] Except that, in the national context, projections for Auckland include adjustments to reflect the large numbers of multi-family households in Auckland This overall approach, using national 'living arrangement

Economic projections

The economic projections are based on a 'growth accounting' method, whereby growth is predicted based on growth in the working age population, labour force participation rates, unemployment rates, and productivity.

Here labour force participation rates are modelled at the national level and district rates are estimated based on typical age-specific deviations from national rates.[16]

Unemployment rates are also modelled at the national level and age-specific deviations from national rates are used to model persistent differences in unemployment rates at different ages in different districts.

The model used to predict unemployment rates at the national level takes account of changes in labour force growth and other economic factors on unemployment rates. It also includes a measure of labour productivity.[17] Predictions of productivity growth come from this model.

There is no attempt to model district-level productivity growth, rather districts are assumed to face random fluctuations in productivity which move around the national average.

Industry projections are based on a model of trends in industry shares of GDP. At the district level, industry output is then projected using historical correlations between movements in national output and district output. So, the district's fortunes are attached to national trends, but also reflect local cycles and comparative advantages.

Randomness

To run simulations and produce ranges for projections we use the observed errors in our models and underlying variation in the variables we are modelling to produce 'prediction intervals'. In each simulation, we draw randomly from these prediction intervals.

Not all variables are subject to this randomness directly[18] and some variables do not fluctuate a great deal. The most volatile components of the projections are: migration, productivity, and industry GDP growth shares.

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type rates' is a weakness in this modelling method but is accepted for the time being in the absence of better data to discriminate 'living arrangement type rates' by district.

[16] The national rates are modelled using logistic growth curves which help to capture the rising, but ultimately limited, rates of participation of older age groups.

[17] The national model of unemployment rates is a vector auto-regression of unemployment, CPI, labour force, interest rates, and earnings per hour ('labour productivity). The use of vector auto-regressions helps ensure that we extract underlying trends in variables and means that the model can capture the effects of economic cycles over a 1 to 2 year horizon. After that the model reverts to trends. Although randomness is added to reflect uncertainty, there are no economic cycles in the model beyond the first 1 to 2 years.

[18] All age-specific probabilities used in the model are fixed, for example.

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