

IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF applications for resource consents and notices of requirement in relation to the Ōtaki to North of Levin Project

BY **WAKA KOTAHI NZ TRANSPORT AGENCY**

Applicant

**ŌTAKI TO NORTH OF LEVIN HIGHWAY PROJECT
TECHNICAL ASSESSMENT O - ECONOMICS AND TOWN CENTRE IMPACTS**

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EXECUTIVE SUMMARY

1. The Ōtaki to north of Levin highway Project ("**Ō2NL Project**" or "**Project**") involves the construction, operation, use, maintenance and improvement of approximately 24 kilometres of new four-lane median-divided state highway (two lanes in each direction) and a shared use path ("**SUP**") between Taylors Road, Ōtaki (and the Peka Peka to Ōtaki expressway ("**PP2Ō**") and State Highway 1 ("**SH1**") north of Taitoko/Levin.
2. The Ō2NL Project is a major transport development, and an integral part of the Wellington northern corridor infrastructure investments. It is a very large project in the context of the Horowhenua District economy, both as a short-term stimulus to activity and for its anticipated long-term effects on the Levin town centre and for faster population growth due especially to better accessibility to Wellington.
3. Across the southern North Island, the Ō2NL Project will be a key link in the northern corridor projects, providing faster and more reliable connection at the interface between the large Wellington economy and the Manawatū-Whanganui and Hawkes Bay regional economies.
4. This report assesses the potential economic effects of the proposed Ō2NL Project, covering:
 - (a) the economic contribution of the Ō2NL Project's construction to the Horowhenua, Manawatū-Whanganui, Wellington and New Zealand economies;
 - (b) the effects on the Levin town centre (and other commercial centres) arising as a result of changes in patronage and accessibility;
 - (c) effects on agricultural and horticultural activity in and around the Ō2NL Project corridor;
 - (d) the positive effects of stronger population and economic growth in the Horowhenua District; and
 - (e) a qualitative assessment of the wider economic benefits ("**WEBS**") of the Ō2NL Project and an indicative quantification of their potential scale.
5. The economic effects have been examined using both an Economic Impact Assessment ("**EIA**") and Retail Impacts Assessment ("**RIA**"). The

assessment of wider benefits relies on analyses done for other major transport infrastructure projects in the southern North Island. Both aspects – economic and wider benefits – are drawn on for consideration of the broader economy impact.

Positive Effects - Construction Activity

6. The Multi-Regional Input Output model ("**MRIO**") approach examines interactions among industries, to assess the effects of additional activity (construction) across on the wider economy. The EIA shows a positive contribution to the District economy from the construction works required by the Ō2NL Project, which will vary in degree depending on what share of the construction activity is undertaken by businesses in Horowhenua District. The expected net GDP impact on the Horowhenua economy from construction phase is between \$59 million (medium local economic activity) and \$139 million (high local economic activity) in Present Value ("**PV**") terms. That would represent an uplift in the District economy of 0.5% to 1.1% in the medium term (10 years), and see between 5% and 14% of the total construction-related GDP impact of the Project accrue to the Horowhenua economy.
7. The overall net GDP impact of the Ō2NL Project is estimated at \$1.166Bn to \$1.293Bn, which equates to approximately 11,000 to 12,400 person years of employment. Major shares of these overall impacts would accrue to Wellington region (30% to 39% of the total) and Manawatū-Whanganui region (14% to 22%), with most of the balance accruing to the rest of the North Island (31% to 38%). Its current role within the Wellington regional economy suggests that Kāpiti Coast economy may see an increase of \$45-\$60m, and employment of 350-500 person years.

Positive Effects – Population growth

8. The Ō2NL Project is projected to stimulate additional population growth in Horowhenua as the enhanced accessibility to the large Wellington economy would make Horowhenua more attractive as a place to live and work. For this assessment (consistent with Technical Assessment A (Transport)), Horowhenua District Council's medium growth population and related household projections have been used, which allow for faster growth than the Statistics NZ ("**SNZ**") projections. The additional population growth would mean a larger District economy, with more economic activity and employment, into the long term.

9. Although it is difficult to estimate the additional population growth in the Horowhenua District should the Project proceed, the medium and long-term effects on the Horowhenua economy would be substantial and positive. To illustrate, the difference between the SNZ high growth and the Council's higher projection would be in the order of \$3Bn of GDP in PV terms. I consider that a proportion of this growth would be attributable to the Ō2NL Project. Even if it was 50% of the growth, it would mean that the effects of population growth would considerably outweigh the positive impacts of construction activity, and far offset the effects of loss of agricultural activity. On that basis, the medium projection assessed here is conservative.

Net Positive Effects - Centres

10. One direct effect of additional population is an increase in spending power in the District, a substantial share of which is expected to accrue to the Levin town centre as the main retail and service hub. That is expected to more than offset reduction in town centre sales that would occur as a result of SH1 traffic no longer passing through the centre.
11. The current SH1 passes through the Levin town centre, providing direct access to and visibility of businesses for which passing motorists are potential customers.
12. A large share (79%) of Levin town centre current sales are made to consumers who reside in Horowhenua District. The shopping patterns of those local shoppers are unlikely to change substantially as a result of the Ō2NL Project because Levin will remain their primary shopping destination, irrespective of the changed route of SH1. Horowhenua residents may increase the share of their spend directed to Levin if the town centre becomes more attractive (ie as a result of less traffic and easier car parking).
13. People from outside Horowhenua who visit Levin as a destination are also unlikely to change their shopping patterns significantly. Patronage from that segment (14% of the total patronage figures) is not closely related to whether or not the state highway passes through the town centre. These non-local consumers spend more than pass-through shoppers, spending larger amounts, staying longer, and making multiple visits.
14. The group most likely to change their patronage of Levin town centre businesses are those non-local "passers-through". However, this group contributes only 6% of total spending in town centre businesses, and their

shopping is characterised by lower average spend per person than other consumer segments. Patronage of town centre businesses by these non-local, pass-through consumers is likely to reduce as a consequence of the Ō2NL Project.

15. Total annual Levin town centre retail sales are currently estimated at \$269m, with anticipated growth to between \$435m (low) to \$527m (medium) and \$625m (high) by 2043. At least part of that growth can properly be attributed to the Ō2NL Project as discussed above.
16. Two scenarios of potential impact from loss of passing trade show short term impacts of between -3.3% (if half of the passing trade is lost) and -6.1% (if all the trade is lost, ie a worst-case scenario). The worst case scenario effects are expected to be offset by market growth quite quickly – up to 2.7 years in a low growth future, between 1 and 2 years (medium), or less than 1.5 years (high).
17. Those relatively fast recovery periods, combined with the strong underlying market growth (which would see town centre sales some 31% above current levels by 2029 in the medium growth scenario), indicate that adverse effects on Levin town centre's economy will be minor and temporary.
18. Further, the strong growth in the Horowhenua economy would mean significant potential for new retail businesses to establish and for the town centre's role to expand to better serve the future Horowhenua community.
19. The short-term direct and indirect adverse effects are sought to be minimised by the design and placement of interchanges along the Ō2NL Project corridor, with three interchanges servicing Levin, and facilitating access to the town centre.
20. Effects on other centres in Horowhenua District or Kāpiti Coast District are expected to be very small. Foxton to the north is on SH1, while Shannon is located on State Highway 57 ("**SH57**") and is expected to be largely unaffected. In Kāpiti Coast District, the effects of trade being diverted from Ōtaki have already occurred as a consequence of the PP2Ō project. The Ō2NL Project is not expected to increase diverted trade, although will make it faster to travel to Ōtaki from Levin, so there may be some positive economic effects for the centres in Ōtaki as a result of the Ō2NL Project.
21. Manakau and Ohau, located south of Levin, have a small number of retail and hospitality businesses which serve the local community as well as

passing SH1 traffic. The drop in sales to customers from SH1 is expected to be *pro rata* with the reduction in traffic volumes (around -91% at Manakau and -68% at Ohau). The significance of such reduction will reflect those outlets' dependence on passing trade, in combination with the positive effects of market growth. For café and takeaway outlets direct sales impacts of -15% to -25% may be expected in the future. However, market growth in the medium term will act to offset much of that effect, and any adverse effects would be minor, especially given the long advance notice of effects. The retail and hospitality sector as a whole in these locations can expect to have substantial growth.

Adverse Effects - Agricultural and Horticultural Activity

22. The indicative Project alignment crosses substantial rural areas and will impact a number of farming operations. Some farms will lose productive land, and some land may no longer be viable for current farming activities. This may in turn lead to job losses through displacement of rural sector activity.
23. That will have a negative impact on the Horowhenua economy, but one which will be very small in scale when compared to the economic benefits (including overall growth) that the Ō2NL Project will bring.

Wider Economic Benefits

24. In addition to the short term and one-off construction effects, improving the transport connections between Levin and elsewhere is expected to unlock or facilitate a range of other benefits.
25. These benefits can be regional or more localised. They arise primarily from improved accessibility for consumers and businesses having greater ability to 'connect' across space, which results in changes to the competitive landscape. Those changes have implications for businesses' cost structures, and ability to compete in different markets, and include effects on productivity, employment, competition, and regional development.
26. Those benefits are likely to be more than minor for the Wellington region, and reflect the significant development that the Ō2NL Project will facilitate for residential and business activities.

Summary

27. The Ō2NL Project will generate positive economic effects, especially through its long term stimulus to growth in Horowhenua District, as well as during the construction phase. Some adverse effects will arise during both the construction and implementation phases, however these adverse effects on the economy will be less than minor, and measures (signage and way finding to Levin) are proposed to mitigate against the adverse effects that cannot be avoided.
28. Overall, and in the medium to long term, the Ō2NL Project is expected to stimulate strong population and economic growth, and enhance performance of Levin town centre - the District's main commercial hub.

INTRODUCTION

29. My full name is James Douglas Marshall Fairgray. I am a principal and director of Market Economics Limited, an independent research consultancy. I hold a PhD in Geography from the University of Auckland.

Qualifications and experience

30. I have the following qualifications and experience relevant to this assessment:
 - (a) I have 43 years of professional consulting and project experience, working for public sector and commercial clients. I specialise in policy and strategy analysis, evaluation of outcomes and effects in relation to statutory objectives and purposes, assessment of demand and markets, urban and rural spatial economies, land use and core economic processes. This research has been within my core disciplines of economic geography / spatial economics and spatial planning. I have applied these specialties in more than 900 consultancy projects for major commercial and government clients.
 - (b) I have undertaken a range of studies into the effects on economies of changes to transport infrastructure, including roading developments and route changes, rail developments, seaports and airports, in locations throughout New Zealand.
 - (c) I am currently engaged on the Auckland Light Rail ("**ALR**") project to examine the effects of rail infrastructure on household accessibility, on

property development and intensification, housing and land values, and the implications for the wider Auckland economy. I was also engaged (2020-22) in the “*Lets Get Welly Moving*” (“**LGWM**”) initiative to examine the social impacts and provide advice on the implications for the Wellington economy. I am currently engaged by Greater Wellington Regional Council (“**GWRC**”) to provide advice on the economic and population outlook for Wellington, as a key input to the WTSM transport model update.

- (d) I have undertaken many studies into city and town economies, including the roles of centres and business areas, and the effects of growth and change. That work commonly includes research into consumer travel patterns and how changes in centres affect travel patterns directly, and consumer accessibility. In other studies, I have researched how developments or initiatives will impact established businesses and centres, and the prospects for underlying market growth to ameliorate direct effects.
- (e) I have on many occasions prepared and presented expert evidence at all levels including council hearings, Environment Court, Independent Hearing Panels, Environmental Protection Agency, the High Court and the Supreme Court.
- (f) I am a member of the National Committee of the Association for Resource Management Practitioners (“**RMLA**”), an associate member of the New Zealand Institute of Management and an associate member of the New Zealand Planning Institute. I qualified as a hearings commissioner in 2017 through the Making Good Decisions programme.

Code of conduct

- 31. I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2014. This assessment has been prepared in compliance with that Code, as if it were evidence being given in Environment Court proceedings. In particular, unless I state otherwise, this assessment is within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

Purpose and scope of assessment

32. In my evidence, I address economic issues associated with the Ō2NL Project.
33. The purpose of the economic assessment was to understand the economic effects of the Ō2NL Project, both locally and regionally, with a particular focus on the implications for Horowhenua District. The economic assessment provides quantitative and qualitative evidence on the positive and negative effects that are expected to accrue to the economies and communities along and influenced by the Ō2NL Project corridor. The time frame adopted is the 30-year period 2021-2051, with economic effects expressed in present value (PV) terms.
34. The scope of the economic assessment was to undertake quantitative modelling and qualitative analysis to assess the economic implications of the Ō2NL Project.
35. The quantitative analysis includes two modelling methods, EIA and RIA.
 - (a) The EIA quantified the economic role of the Ō2NL Project, in terms of GDP and employment, that is expected to be generated by the Ō2NL Project. Specifically, the assessment estimated the economic activity that is expected to occur during the construction phase, and the rural production that may be impacted along the corridor.
 - (b) The RIA assessed the economic effects of the Ō2NL Project on local centres along the Ō2NL Project corridor, and quantified their projected change in turnover, with qualitative assessment about the indirect effects on centre function and vitality.
36. The qualitative assessment addresses other economic issues which are not readily quantifiable, which includes the WEBs of the Ō2NL Project, including enabling residential capacity and potential housing affordability. As part of the qualitative discussion, I have provided an indication of the potential scale of the WEBs which has been established using domestic and international case studies and information on the Ō2NL Project.
37. It is important to note that the Ō2NL Project is one part of a comprehensive upgrade and improvement of SH1 in the Wellington Northern Corridor, including Ngāuranga Gorge to north Ōtaki. Many of the effects and wider

benefits are contributed to by the Ō2NL Project, as part of the overall improvement in accessibility to and from Wellington.

38. In preparing this evidence, I have drawn upon modelling support and reporting undertaken by Derek Foy and Rodney Yeoman to help quantify the key economic effects associated with the Ō2NL Project. Rodney Yeoman has undertaken the quantitative economic assessment of construction and rural production implications of the Ō2NL Project. Derek Foy has undertaken the assessment of the impacts on the centres along the Ō2NL Project route.

Assumptions and exclusions in this assessment

39. The economic assessment does not address the direct user benefits that will result from the Ō2NL Project. These direct user benefits, which include travel time savings, fuel savings, reduced transport costs, safety improvements, and so on, are summarised in Technical Assessment A. Their assessment shows that the Ō2NL Project is expected to generate \$1,458m of benefits to road users¹.
40. This assessment draws on other experts for key assumptions, which includes the following:
- (a) **Traffic Volumes:** the realignment of SH1 will change the traffic flows to and from the local centres. Technical Assessment A Transport assessment suggests that traffic volumes along Levin's main street will reduce from approximately 14,500 (2018) to 13,800 (2039) if the Ō2NL Project occurs. However, if the State Highway remains on its current route then the volume may increase by 2.1% per annum, reaching approximately 20,100 by 2039.
 - (b) **Construction Cost/Timeframe:** these are drawn from Detailed Business Case for the Ō2NL Project¹, which suggests that the Ō2NL Project could cost in the order of \$1.2 to \$1.7 billion and will be completed in 2029.
 - (c) **Farming Activity:** the realignment of SH1 will result in a new corridor of road of approximately 24 kilometres and approximately 90 metres wide on average. The majority of the land in the corridor is currently used for agricultural activity, with 144 parcels impacted and approximately 385 hectares of land that will be needed for the corridor.

¹ Ōtaki to north of Levin Highway Project Detailed Business Case

Mr Lachie Grant has provided an assessment of the potential changes in agricultural activity that could occur within the corridor in Technical Assessment N (Productive Land) provided in Volume IV.

41. The EIA and RIA both draw on economic data that was recorded pre-COVID-19. The data that is available for 2020 and 2021 has likely been affected by the lockdowns and closure of international borders. It is considered that the impacts of COVID-19 are going to continue to be felt in the short term (2020-2022). However, in the medium term (during construction phase) and long term (during operation phase, 2030 and beyond), which is more significant for the Ō2NL Project, the effects of COVID-19 are unlikely to be material. Therefore, the economic modelling and assessment is conducted on the basis that the most recently available data is not relevant.
42. For the RIA, a number of assumptions are made about behavioural changes of (actual or potential) town centre visitors under the operational phase of the Ō2NL Project. These include the proportion of different consumer segments that will change their propensity to spend in the centres, in particular the Levin town centre, as a result of the realignment of SH1. Those assumptions are detailed in the methodology section of this statement.

Population Growth

43. An important matter for the assessment is the potential effect of the Ō2NL Project on Horowhenua's population growth. I consider that the District's population can be expected to grow as a result of the Ō2NL Project (more so than would otherwise be the case without the Project), since the Project will provide better accessibility to the large Wellington economy and labour market which will encourage people to reside in Horowhenua.
44. A larger population and economy including household spending will very likely offset the possible negative effects from reductions in shopping in the Levin town centre, and in farming activity due to the loss of agricultural land to the road network.
45. This is not straightforward, because the District's population has grown throughout the last two decades and longer, and further growth would be expected irrespective of the Ō2NL Project. Accordingly, it is important to consider how much growth is additional and due to the Ō2NL Project, and how much would have occurred in any case, as a consequence of other underlying economic drivers. However, looking at that additional population

growth which is stimulated by the development, this needs to be considered an effect on the District economy, since it will engender economic activity and a GDP effect which would not otherwise have occurred.

46. The positive effects of infrastructure investment on population growth are widely recognised. Previous research by NZIER (2015)² identified the effect and provided an estimate of the additional population growth due to the Wellington Northern Corridor projects as lifting Horowhenua's population by over 4,000 additional residents drawn into the region by 2043 because of the roading investment. That assessment took into account the potential for Horowhenua to be part of the wider Wellington labour market, where the employment and earning opportunities of a large urban economy would mean Horowhenua was more attractive as a place to live.
47. The population projections prepared by Sense Partners in 2020 are identified by Horowhenua District as the Horowhenua District Council's ("**HDC**") preferred growth outlook. These indicate substantially more growth than the SNZ projections. The Sense Partners' projections identify that the Ō2NL Project would have a positive effect on growth, but do not attempt to quantify that effect. The most recent SNZ projections also show a higher growth outlook than the previous series, based on the stronger growth observed since 2013, rather than economic growth potential.
48. In the final analysis, there is a strong conceptual and evidential base for concluding that the Ō2NL Project can be expected to generate additional population growth and consequent economic activity in the District. It is not straightforward to estimate the scale of this effect, however it may be readily shown from scenario assessment.
49. The DBC³ for the Ō2NL Project uses the HDC's 75th percentile growth projection (from the Sense Partners series), as showing the future economy within which the Ō2NL Project would be developed. HDC has itself adopted the 95th percentile growth forecast (a more aggressive forecast) for its growth planning and the ability for this additional growth to be accommodated on the transport network with the Ō2NL Project in place has also been assessed by Mr Phil

² Investment in transport infrastructure Effects on economic and demographic outlook. Report to Horowhenua District Council.

³ NZIER 2015. Investment in transport infrastructure Effects on economic and demographic outlook. Report to Horowhenua District Council. [investment-in-transport-infrastructure-nzier-economic-development-2016.pdf](https://www.horowhenua.govt.nz/assets/Uploads/Investment-in-transport-infrastructure-nzier-economic-development-2016.pdf) ([horowhenua.govt.nz](https://www.horowhenua.govt.nz))

Peet in his Transport Assessment (provided as Technical Assessment A (Transport) in Volume IV).

PROJECT DESCRIPTION

50. Waka Kotahi NZ Transport Agency ("**Waka Kotahi**") is giving notices of requirement ("**NoRs**") for designations to the HDC and the Kāpiti Coast District Council ("**KCDC**"), and is applying for the necessary resource consents from Manawatū-Whanganui Regional Council ("**Horizons**") and GWRC for the Ō2NL Project.
51. The Ō2NL Project involves the construction, operation, use, maintenance and improvement of approximately 24 kilometres of new four-lane median divided state highway (two lanes in each direction) and a SUP between Taylors Road, Ōtaki (and the PP2Ō and SH1 north of Levin. The Ō2NL Project includes the following key features:
 - (a) a grade separated diamond interchange at Tararua Road, providing access into Levin;
 - (b) two dual lane roundabouts located where Ō2NL crosses SH57 and where it connects with the current SH1 at Heatherlea East Road, north of Levin;
 - (c) four lane bridges over the Waiauti, Waikawa and Kuku Streams, the Ohau River and the North Island Main Trunk ("**NIMT**") rail line north of Taitoko/Levin;
 - (d) a half interchange with southbound ramps near Taylors Road and the new Peka Peka to Ōtaki expressway to provide access from the current SH1 for traffic heading south from Manakau or heading north from Wellington, as well as providing an alternate access to Ōtaki.
 - (e) local road underpasses at South Manakau Road and Sorensens Road to retain local connections;
 - (f) local road overpasses to provide continued local road connectivity at Honi Taipua Road, North Manakau Road, Kuku East Road, Muhunoa East Road, Tararua Road (as part of the interchange), and Queen Street East;
 - (g) new local roads at Kuku East Road and Manakau Heights Road to provide access to properties located to the east of the Ō2NL Project;

- (h) local road reconnections connecting:
 - (i) McLeavey Road to Arapaepae South Road on the west side of the Ō2NL Project;
 - (ii) Arapaepae South Road, Kimberley Road and Tararua Road on the east side of the Ō2NL Project;
 - (iii) Waihou Road to McDonald Road to Arapaepae Road/SH57;
 - (iv) Koputaroa Road to Heatherlea East Road and providing access to the new northern roundabout;
- (i) the relocation of, and improvement of, the Tararua Road and current SH1 intersection, including the introduction of traffic signals and a crossing of the NIMT;
- (j) road lighting at conflict points, that is, where traffic can enter or exit the highway;
- (k) median and edge barriers that are typically wire rope safety barriers with alternative barrier types used in some locations, such as bridges that require rigid barriers or for the reduction of road traffic noise;
- (l) stormwater treatment wetlands and ponds, stormwater swales, drains and sediment traps;
- (m) culverts to reconnect streams crossed by the Ō2NL Project and stream diversions to recreate and reconnect streams;
- (n) a separated (typically) three metre wide SUP, for walking and cycling along the entire length of the new highway (but deviating away from being alongside the Ō2NL Project around Pukehou (near Ōtaki)) that will link into shared path facilities that are part of the PP2Ō (and further afield to the Mackays to Peka Peka expressway SUP);
- (o) spoil sites at various locations along the length of the Project; and
- (p) five sites for the supply of bulk fill /earth material located near Waikawa Stream, the Ohau River and south of Heatherlea East Road.

52. The Ō2NL Project is part of the New Zealand Upgrade Programme and has the purpose to “improve safety and access, support economic growth, provide greater route resilience, and better access to walking and cycling

facilities” (project objectives are provided in full in Volume II). The Ō2NL Project provides the final northern link of the Wellington Northern Corridor that extends from Wellington International Airport.

53. Of particular relevance to this assessment, the Ō2NL Project will reduce travel times between Horowhenua and Wellington, and is proposed to include three access points to Levin in the form of a roundabout in the vicinity of SH1 to the north (North Levin), a roundabout at SH57/Arapaepae Road (north-east of Levin) and an interchange at Tararua Road (south-east of Levin). These will provide access to Levin for travellers on SH1.

EXISTING ENVIRONMENT

Regional context

54. SH1 is the main road link traversing north to south through the Wellington Region, and currently passes through many towns and other urban areas along the western coast. SH1 connects communities and economies, and it enables and facilitates movement of people and goods which generates economic benefits locally and regionally. SH57 provides a direct route to the Palmerston North economy, as well as access through to the Hawkes Bay region.
55. Levin is the Horowhenua District’s largest commercial centre, and the largest commercial centre between Paraparaumu and Palmerston North. Levin is currently 43km by road from the former (Paraparaumu), and 48km from the latter, and is close to the centre of a large predominantly rural area sparsely served by commercial business activity, with the exception of the smaller centres at Ōtaki and Ōtaki Beach.
56. Levin has a population of 19,000 people⁴ and there are 6,600 jobs,⁵ although significant future growth is expected, as explained in HDC’s demographic projections.⁶
57. Importantly for this evidence, the current road alignment means that SH1 currently passes through the Levin town centre. While traffic on SH1 through the town centre results in some retail sales for main street businesses, there

⁴ Statistics New Zealand (2021) Subnational population estimates (TA, SA2), by age and sex, at 30 June 1996-2020 (2020 boundaries).

⁵ Market Economics (2020) Modified Employment Count, a measure of employment which is a count of all paid employees and working proprietors

⁶ Horowhenua Socio-Economic projections Summary and methods. Projections update report” (May 2020), Sense Partners.

are also disbenefits with the passing traffic having adverse effects on the amenity of the main street and town centre.

58. The Ō2NL Project is proposing to realign SH1 to bypass Levin, which will generate benefits for the road users (travel time, costs, safety) and locals that use Levin centre. The bypass of the town may result in fewer visitors stopping in Levin, which could be detrimental to the businesses in Levin. However, reduction in traffic volumes through the town centre is expected to result in better amenity and improve accessibility for the Horowhenua community, which is likely to be beneficial to many businesses. Similarly, stronger population growth would mean a larger resident market for the town centre.

Cultural environment and land use

59. The focus of the RIA is the Levin town centre environment. The town centre is the District's main retail and commercial hub, and it is the location of the District's largest supermarkets, and its only department stores, as well as being the main node of office activity. To assist interpretation of the RIA results, I have summarised the business demography of the Levin town centre in terms of the numbers of businesses and employment in the town centre by main activity type.⁷
60. The Levin town centre accommodates nearly 400 businesses, including 92 classified as retail, hospitality and household services. Those 92 businesses employ nearly 900 workers (Modified Employment Counts ("**MECs**")), or 31% of the town centre workforce (Figure O.4.1). Other notable industries in the town centre are community and civic services (including HDC offices), professional services (accountants, lawyers etc.) and medical and care services. The mix of activities is fairly typical for a rural service town with a substantial agricultural catchment, and a moderate distance from larger urban economy (Palmerston North) which offers a wider range and depth of services.

⁷ Statistics New Zealand (2020) Business Demography data, including Market Economics' MEC estimates. I note that this summary is based on an aggregation of the four Statistical Area 1s (SA1s) that together cover the commercial zone that is the Levin town centre. Those four SA1s cover a larger geographic area than only the town centre, and so also include business demography in areas adjacent to the town centre, but within the SA1.

Figure O.4.1: Levin town centre business demography (2020)

	Businesses	Employment	Share of businesses	Share of employment
Food and liquor retail	10	339	3%	12%
Comparison retail	36	241	9%	8%
Hospitality	29	252	7%	9%
Household services	17	57	4%	2%
Retail, hospitality, services	92	889	23%	31%
Medical and care services	24	426	6%	15%
Professional services	47	255	12%	9%
Recreation services	15	32	4%	1%
Community and civic services	17	423	4%	15%
Education	8	50	2%	2%
Automotive	24	147	6%	5%
Out of centre retail	9	50	2%	2%
Other	156	565	40%	20%
Total Levin town centre	392	2,837	100%	100%

61. The Levin town centre accommodates a broad range of economic activity, including light industry, automotive workshops, office-based activities, education and other commercial activities such as accommodation. Many of these activities will not be vulnerable to adverse economic effects arising if the Ō2NL Project diverts passing traffic away from the town centre, which will serve to mitigate how such adverse effects impact the town centre overall.

METHODOLOGY

Introduction

62. The economic implications of the Ō2NL Project are assessed through quantitative modelling and qualitative analysis.
63. The quantitative modelling includes two methods: EIA and RIA. Other economic issues are addressed through a qualitative assessment, which includes WEBS, as explained later in this section.

Base Case and Scenario Approach

64. To accommodate different potential outcomes, a scenario approach is used to show high and low futures in terms of:
- (a) **construction** effects, with high and low reflecting the share of the activity undertaken by Horowhenua District businesses;

- (b) effects of **foregone agricultural output**, with high and low reflecting different futures for the affected land; and
 - (c) effects on the **Levin town centre**, with high and low reflecting the potential loss of custom from passing traffic.
65. For these high and low impact futures, the medium population projection is adopted as the base case common to the different outcomes.
66. These effects will occur at different times, and the time frame adopted covers a 30-year period (2021-2051), to allow for both the shorter-term effects and the longer-term outcomes once the main changes have flowed through the Horowhenua economy.
67. The monetised effects are expressed in PV terms applying a discount rate of 4%, consistent with the transport economic evaluation assessment (undertaken as part of the DBC investigations).

EIA methodology

68. The EIA measures the economic role of the Ō2NL Project, using Market Economics' proprietary MRIO with six regions⁸ (Appendix O.4).
69. At the core of MRIO analysis is a set of data that measures, for a given year, the flows of money or goods among various sectors or industrial groups within an economy. These flows are recorded in a matrix or 'IO table' by arrays that summarise the purchases made by each industry (its inputs) and the sales of each industry (its outputs) from and to all other industries. By using the information contained within such a matrix, IO practitioners are able to calculate the relationships for the economy in question.
70. These relationships describe the interactions between industries, specifically, the way in which each industry's production requirements depend on the supply of goods and services from other industries. With this information it is then possible to calculate - given a proposed alteration to a selected industry, such as construction of the Ō2NL Project or changes in rural activity - all of the changes in production that are likely to occur throughout supporting industries within the wider economy.

⁸ Market Economics (2020) Multi-Regional Input Output Model. The regions used are Horowhenua District, Palmerston North City, Rest of Manawatū-Whanganui Region, Wellington Region, Rest of North Island, and Rest of New Zealand.

71. The approach is a standard one, to identify and estimate the direct value of the activities that relate to the Ō2NL Project and to input these values into the MRIO, which will produce estimates of total economic activity, taking into account indirect⁹ and induced¹⁰ activity that occurs as a result of the direct economic activity.

RIA methodology

72. The RIA focuses on the potential effects of the Ō2NL Project on the Levin town centre. There are no other centres of size within Levin town, and the bypass is not expected to have a significant effect on Foxton (on SH1 to the north), Shannon (SH57 to the east) or Ōtaki. The methodology involved:

- (a) estimating baseline (2021) sales by Levin town centre retail businesses;
- (b) understanding the origin of those sales;
- (c) defining scenarios that describe changes to centre patronage with and without a realignment of SH1;
- (d) projecting growth in sales under each scenario;
- (e) comparing scenario sales to derive a measure of impact; and
- (f) interpreting the results of those scenarios to draw conclusions as to the significance of the projected effects.

73. The RIA applies three growth scenarios (low, medium and high) as described in section 6, to describe the sensitivity of the RIA to the growth assumptions, and the timeframe required to recover from the effects expected. Allowance is made for a long-term increase in spend-per-consumer of 1% per year, which is consistent with historic trends.

74. I note that no allowance is made for retail spending by the temporary workforce that will be engaged on the Ō2NL Project during the construction phase. Any additional contribution that workforce makes to spending in local retail businesses will be a positive effect during the construction phase, although it is likely to be small because:

⁹ Indirect: some businesses will need to change their activity to provide services to match the needs of construction activity on the Ō2NL project or the changes in rural activity, which is referred to as an indirect impact
¹⁰ Induced: incomes received by households will change as Ō2NL construction occurs and some rural business decrease in size. The changes in income will generate more demand for goods and services, which is referred to as an induced impact.

- (a) that workforce will be engaged in different places throughout the construction phase, sometimes nearer to Ōtaki, and sometimes nearer to Levin;
 - (b) a proportion of the workforce will be Horowhenua residents, and so will already be spending in Levin; and
 - (c) many workers will spend little on retail near to where they work, because the Levin town centre is not easy to travel to during the limited time available for workers' breaks.
75. I have examined the order of magnitude of the positive contribution of that workforce to the Levin retail economy, and I estimate that additional spend by this workforce spend would amount to an uplift in annual Levin town centre sales of up to 0.2% when the workforce is at its peak.
76. While that is positive, it is not a significant effect, and it is not included in the assessment.
77. The retail demand projections are driven primarily from the population growth scenarios. Retail demand is a core part of the RIA, because it directly affects retail sales, and the health and performance of centres. It is the spending power that consumers have, and which is available to be directed to any retail destination. The demand projections used in this assessment have been sourced from the ME *Market Meter* tool, which is explained in more detail in Appendix O.3.
78. For my assessment I have considered three different groups of consumers that contribute to town centre sales:
- (a) Local consumers: those consumers (households and businesses) who are resident in Levin or elsewhere in Horowhenua District. Many of those local resident consumers will not use the Ō2NL Project to access the Levin town centre, and their shopping behaviour is unlikely to change as a result of the Ō2NL Project opening. There is some potential that they may shop more outside the District because it will be easier and faster to get to other retail centres (e.g. Paraparaumu or Ōtaki). Alternatively, their spending in the Levin town centre may increase, if it becomes a more pleasant, easier place to shop - for example, due to easier access to parking. I note Technical Assessment E (Social Impacts) anticipates that the Project "*will*

improve the function of the [Levin] town centre for working, recreating and retail...and provide the opportunity to develop it into a more pedestrian-friendly and attractive destination".

- (b) Non-local consumers who currently visit Levin as a destination: These consumers, who visit Levin or Horowhenua District and spend in Levin while on their trip, include people on holiday in the District, those visiting family or friends, and those in the area for business. These non-locals are more likely than pass-through shoppers to spend larger amounts, and to do so on multiple visits, because they are more likely to spend more time in the area, and be more familiar with the retail and service offering.
 - (c) Non-locals passing through Levin: These are consumers who visit town centre businesses on their way through the town to another destination. These consumers are likely to have smaller average transaction sizes than other consumer segments, and different spending patterns such as to purchase snacks or coffee on a brief stop in the town.
79. To inform assumptions relating to the town centre visitation rates of each consumer segment I used two Marketview datasets that were commissioned: one for this assessment, and one for an earlier related study in 2017.¹¹ A description of the Marketview dataset is provided in Appendix O.1.
80. I note that the assumed rates of spending represent estimated future behaviour and are subject to uncertainty. Accordingly, I have adopted relatively conservative assumptions so as to not underestimate the change in shopping rates that might occur as a result of the Ō2NL Project.
81. I have modelled three scenarios to reflect uncertainty in changes to town centre visitation rates:
- (a) Status quo: this scenario represents a continuation of current town centre visitation rates by all consumer segments. This is unlikely to occur given the proposed change in alignment of SH1, however is presented as a baseline scenario against which impacts are assessed.
 - (b) Scenario 1, Small decrease: this allows for a 15% reduction in spend in the Levin town centre by non-Horowhenua residents. That scenario is

¹¹ Credit and debit card spending data describing the place of residence of cardholders shopping in the Levin town centre, and the destination of retail spending of Horowhenua residents.

equivalent to half of the spend in the town centre by non-locals on pass-by trips ceasing after the Ō2NL Project opens.

- (c) Scenario 2, Large decrease: this allows for a 30% reduction in spend in the Levin town centre by non-Horowhenua residents. That scenario is equivalent to all spend in the town centre by non-locals on pass-by trips ceasing once the Ō2NL Project opens and as such is a conservative scenario.

82. Under all scenarios, and taking a conservative approach, the propensity of Horowhenua residents, and non-Horowhenua residents on destination trips is assumed to remain unchanged. This reflects no expected change in behaviour by these segments who visit the town centre specifically, rather than incidentally. Scenario assumptions are stated in Figure O.5.1.

Figure O.5.1: RIA scenario assumptions

	Status quo	Scenario 1, Small decrease	Scenario 2, Large decrease
Horowhenua residents	Unchanged from current share	Unchanged from current share	Unchanged from current share
Non-Horowhenua residents on pass-by trips	Unchanged from current share	Unchanged from current share	Unchanged from current share
Non-Horowhenua residents on destination trips	Unchanged from current share	50% of current share	0% of current share

83. The RIA assesses only the impact on the sales of retail and hospitality businesses, and excludes the effect of the Ō2NL Project on service activities (e.g. hairdressers, drycleaners, banks etc.) and other businesses whose customer base is likely to be locally resident. There are a range of other businesses in the Levin town centre (as described in section 4), although retail and hospitality are the business types most likely to experience adverse effects as a result of the Ō2NL Project, and many services are likely to have lesser effects as a higher share of their customers would be locals visiting regularly. By limiting the scope of the assessment to the sectors predominantly affected, my assessment seeks to avoid under-stating effects on the town centre as a whole.

84. I have excluded fuel retailing from my assessment, because that is a large retail sector and would tend to mask the effects on other businesses. Fuel retail is currently influential in inducing motorists to stop in Levin, however,

spend in other store types while stopped is accounted for in the Marketview dataset.

WEBs methodology

85. Finally, this assessment addresses other economic issues using a qualitative assessment, which includes the WEBs of enabling residential capacity and housing affordability. As part of the qualitative assessment, I provide an indication of the potential scale of the WEBs, which has been established using regional, domestic, and international case studies and information on the Ō2NL Project.
86. The transport assessment undertaken by Stantec has not modelled WEBs for the Ō2NL Project section. This is because it was considered that the section of the highway is too remote from the main urban areas for agglomeration benefits to be significant. Based on the definition in the Monetized Benefits and Costs Manual ("**MBCM**"), while the Ō2NL Project is of a sufficient scale, it would likely not meet the spatial concentration test for agglomeration due to the relatively small sizes of the urban areas and distance from the main centres of Wellington and Palmerston North.¹²
87. Similarly, the other WEBs (imperfect competition benefits, labour supply benefits and changes in the patterns of demand for labour) have not been modelled using transport modelling tools.
88. Therefore, it is not possible to draw from transport modelling to undertake a quantitative assessment of the WEBs. I consider that there will be WEBs associated with the Ō2NL Project, and those are discussed in my evidence in qualitative terms. I have drawn from regional, domestic, and international case studies to provide an indication as to the potential scale of these benefits.

Statutory considerations, including national standards, regional and district plans, and other relevant policies

89. In this section I identify the planning provisions that are relevant to my assessment. My conclusions are guided by those provisions. I have not provided comprehensive extracts of the provisions, which are instead provided in Volume II.

¹²Detailed Business Case: Ōtaki to North of Levin Project [note this will be published in 2022]

National Policy Statement on Urban Development

90. The National Policy Statement on Urban Development ("**NPS-UD**") has placed requirements on councils to provide sufficient capacity to meet the needs of their community, and states that planning decisions should be designed to improve housing affordability by supporting competitive land and development markets. Councils are required to integrate urban development with infrastructure planning.
91. While not directly applicable to the national highway network, the NPS-UD is important because councils will take into account the highway network when undertaking land use planning. Specifically, local councils will need to consider the Ō2NL Project when making decisions about the location and nature of capacity that is enabled within the urban areas along the road corridor.
92. It is likely that Ō2NL Project will enable councils to provide for more capacity in the urban areas along the corridor, which will contribute to NPS-UD objectives for sufficient capacity for growth.

Regional Plans

93. There are no particular matters in the Horizons One Plan that relate to this economic assessment.
94. The Greater Wellington – Regional Policy Statement ("**GWRPS**") sets out the framework and priorities that regional and district plans are to be given effect. Relevant to this assessment, the GWRPS contains Objective 10 and Policy 8 which intend to protect the social, economic, cultural and environmental benefits of regionally significant infrastructure. Policy 39 also states that when considering RMA applications, particular regard shall be given to economic benefits of regionally significant infrastructure.
95. The draft Wellington Region Growth Framework ("**WRGF**") sets an agreed regional direction for growth and investment in Wellington and Horowhenua and identifies how the area could accommodate an additional 200,000 people, and 100,000 jobs, in a manner that is consistent with the GWRPS. The framework identifies that the dominant shares of the population and employment growth would accrue to urban greater Wellington, with a minor share to Horowhenua. The WRGF expects that some District Plan zonings will change to support the growth strategy set out in the future development strategy (which is required under the NPS-UD).

96. The WRGF recognises that significant investment in housing and infrastructure will be needed to support growth, and identifies key growth areas where much of that growth is anticipated to be accommodated. Of growth in the areas identified, just over 40% is expected to be accommodated in the western corridor from Tawa to Levin, with Ōtaki North and Tara-Ika identified as future urban areas. The growth assumed in modelling used for my assessment is generally consistent with the WRGF.

Horizons Regional Land Transport Plan

97. The Horizons RLTP (adopted June 2021) is described as “developed with a core focus on providing a safe, connected and efficient land transport system that offers plenty of choice in transport modes.”¹³ and is aligned with the GPS on Land Transport. On that basis, the Ō2NL Project is consistent with both the GPS and the RLTP.

District Plans

98. The operative Kāpiti Coast District Plan 2021 includes Objective DO-O15, which relates to promoting sustainable and on-going economic development through a compact, well designed and sustainable regional form.
99. The Horowhenua District Plan (“**HDP**”) contains Policy 6.2.8, which intends to protect Arapaepae Road (SH57) from the Tararua Road Growth Area to protect the safety and efficiency of this road from the adverse effects of land use activities, subdivision and development.

Proposed Tara-Ika Plan Change and Tara-Ika Master Plan

100. Tara-Ika was identified as a future growth area in 2008 and has, in the past two years, had a proposed Plan Change application lodged, and a Master Plan produced. The Master Plan aims to ensure Tara-Ika is connected to the rest of Levin, and Tara-Ika is identified as a significant growth node within Horowhenua. The population projections used in the RIA are consistent with the yield of and uptake anticipated from Tara-Ika.

¹³ Horizons council adopts land transport plan - Inside Government NZ

Transforming Levin, Levin Town Centre Strategy

101. Transforming Levin (“TTL”, November 2018) recognises the expected high rate of future growth, and the opportunities that will bring to Horowhenua and Levin.
102. TTL aims to create an evolving, vibrant, resilient and sustainable centre, and to provide guidance on dealing with challenges the town centre faces, including variable amenity, spend leakage, decreased viability of traditional retailing, lack of an evening economy, and concerns that the town centre will be bypassed as a result of the Ō2NL Project.
103. TTL is aligned with the “Horowhenua 2040 Strategy”, HDC’s growth strategy for the District. It is important that the town centre responds to opportunities arising from population growth and supports that growth to occur. TTL is based on the Sense Partners projections I have used in my RIA.
104. Objectives of the TTL include that the town centre should not rely on state highway traffic for its success, that it be ready to respond to new opportunities to achieve the vision in the TTL, and that it consolidate activity and improve commercial offering and physical connections.
105. TTL identifies the Ō2NL Project as a “huge opportunity” to transform the town centre into a more pedestrian-friendly destination, although recognises the cost of lost spend from traffic passing through the centre.

GROWTH OUTLOOK

106. The economic assessment and the RIA are based on demographic projections calculated by Sense Partners.¹⁴ Those projections include five growth scenarios, using different rates of natural increase and migration. The RIA applies three of those scenarios to show the Low (25th percentile), Medium (75th percentile) and High (95th percentile) growth scenarios. Those three scenarios are consistent with those used in the traffic modelling for the Ō2NL Project. The Sense Partners population projections are shown in Figure O.6.1.

¹⁴ Horowhenua Socio-Economic projections Summary and methods. Projections update report” (May 2020), Sense Partners

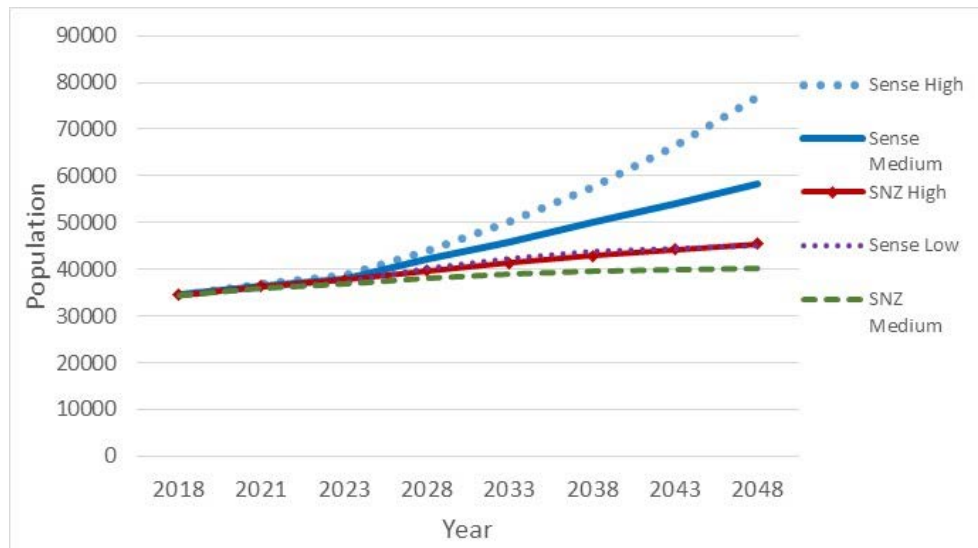
Figure O.6.1: Sense Partners Horowhenua District population projections

	5th	25th	50th	75th	95th
	percentile percentile percentile percentile percentile				
	Low		Medium		High
2019	34,956	34,956	34,956	34,956	34,956
2029	39,983	41,022	41,896	42,941	44,968
2039	40,822	44,138	47,006	50,913	59,010
2049	39,542	45,188	51,862	59,250	79,243
2059	37,741	45,443	55,626	69,501	105,044
2068	35,301	45,185	59,172	78,168	131,741

107. The projections make allowance for the effects of COVID-19, and are based on a Census 2018 baseline. They reflect the growing attractiveness of the District as a place to live, including increased accessibility from roading projects, and drawing on recent observations about the quantum of growth in the District.

108. The projections are for Horowhenua District population to grow by 29% (+10,990 persons) between 2023 and 2043. That is much higher than the latest SNZ projections, which are for an increase of 8% (+3,100 persons medium to 6,600 high) over the same period (Figure O.6.2).¹⁵ Although the Ō2NL Project is not the only reason for the higher growth projected by Sense Partners, it is an important driver of assumed migration into the District.

Figure O.6.2: Population Growth Projections 2018-2048



109. The Sense Partners projections include allowance for zoning changes and residential master plans that have occurred recently or are planned to create new residential zones. Notable among these is the Tara-Ika Master Plan

¹⁵ Statistics NZ Subnational population projections, by age and sex, 2018(base)-2048

which underpins plans (now contained in the District Plan) to develop 400ha of land east of Levin to create capacity for up to 3,700 additional dwellings. The Tara-Ika master plan and District Plan zoning plans includes a notation identifying the potential for the Ō2NL Project.

110. For the RIA, the population projections are expressed as household projections, since households are the core unit of retail consumption. This is based on average population per household according to SNZ's population and household projections. The intervening years in the projection series are interpolated, to allow the RIA to report for any future year.
111. The RIA household projections indicate substantial increases between 2018 and 2043 of +45% (low), +73% (medium) and +107% (high) shown in Figure O.6.3.

Figure O.6.3: Horowhenua District household projections used in RIA

	Low	Medium	High
2018	14,200	14,200	14,200
2023	16,540	16,700	16,930
2028	18,130	18,710	19,260
2033	19,270	20,570	22,150
2038	20,210	22,680	25,420
2043	20,550	24,510	29,390
2048	20,790	26,440	34,050
2018-43	6,350	10,310	15,190
2018-43 %	45%	73%	107%

PROJECT SHAPING AND AVOIDING AND MINIMISING EFFECTS

112. The Ō2NL Project design involves a diversion of SH1 away from its current route through the core of the Levin town centre. The proposed alternative routing is expected to result in reduced traffic volumes through the town centre, with a consequent reduction in spending by motorists using SH1 in town centre businesses.
113. To reduce the magnitude of adverse economic effects on the town centre, three access points between Levin (including the town centre) and the Ō2NL Project are to be provided via a roundabout to the north (The Avenue in North Levin), a roundabout to the north-east (SH57) and an interchange to the south-east (Taratua Road) of Levin. These access point will provide access to the town centre for travellers on SH1. Additional mitigation measures have been included in the Ō2NL Project, such as:

- (a) signage for Levin on the approaches and exits to the north and south of Levin (i.e. at The Avenue and at Tararua Road);
- (b) signage for services (such as fuel, food and accommodation);
- (c) tourist signage identifying the Levin town centre;
- (d) landscaping treatments around the interchanges to highlight the identity of Levin; and
- (e) the existing SH1 will provide improved local access by virtue of reduced traffic volumes and travel times for local traffic between Levin and local communities (Manakau, Kuku, Ohau).

114. A natural mitigation of that reduced passing traffic through the Levin town centre is the expected increase in local population and business activity that will occur as a result of Levin being more accessible to Wellington and other places to the south, (as discussed below).

115. The Ō2NL Project will result in some change of land use along the indicative Ō2NL Project alignment, some loss of rural productive land, and fragmentation of rural properties.

116. Other effects assessed in this statement will be positive, through the stimulation of new economic activity, and therefore will not require mitigation.

ASSESSMENT OF EFFECTS

117. In this section I summarise the results of the EIA and RIA, and the assessment of WEBs. The effects are grouped under headings of positive and adverse effects.

Positive effects

Construction Economic Impacts

118. The scale and direction of the economic effects associated with construction of infrastructure are influenced by a number of factors, including the total budget, the project timing, and spatial distribution of the expenditure (i.e. where the spending takes place; Levin, Wellington, or elsewhere).

119. The key assumptions used in my analysis, are:

- (a) Total budget: the EIA assumes that the project budget is the 50th percentile estimate, a total of \$1,546 million.¹⁶ That budget includes initial project development costs of \$6 million, property purchases of \$310 million, pre-implementation of \$50 million and implementation of \$1180 million. We have also modelled the 95th percentile estimate, which is \$1,726 million.
- (b) Project timing: the EIA assumes that initial project development occurs between 2021 and 2023, property is acquired between 2021 and 2024, pre-implementation occurs between 2021 and 2025, implementation starts in 2025 and the Project is completed in 2029.
- (c) Spatial distribution: given the relative scale of the local economy in Horowhenua District (\$1.2 billion) and the Ō2NL Project, it is likely that most of the project spend will flow to other economies (particularly Wellington and Palmerston North). This is on the assumption that there will not be enough sufficiently larger scale businesses (and labour) in the local economy to handle this project.¹⁷

120. Two scenarios have been defined to provide an understanding of the range of potential outcomes, to accommodate the uncertainties around forward-looking assumption. The initial purpose of the analysis is to provide an indication of the potential scale of the effects at the Horowhenua District level, rather than providing a definitive estimate of the economic impacts.

121. The two scenarios are defined using two spending profiles:

- (a) High local economic activity: A profile where the Ō2NL Project is delivered by a contractor(s) based within District, on time (by 2029) but at the 95th percentile budget estimate. This reflects a situation where a large portion of the spending goes directly into the Horowhenua District economy.
- (b) Medium local economic activity: A spending profile that assumes that the Ō2NL Project is delivered by a national (or multinational) business based in Wellington, on budget but delivered over a longer time period (an additional year). This spending profile assumes that services are

¹⁶ Volume II: Assessment of Effects on the Environment Report

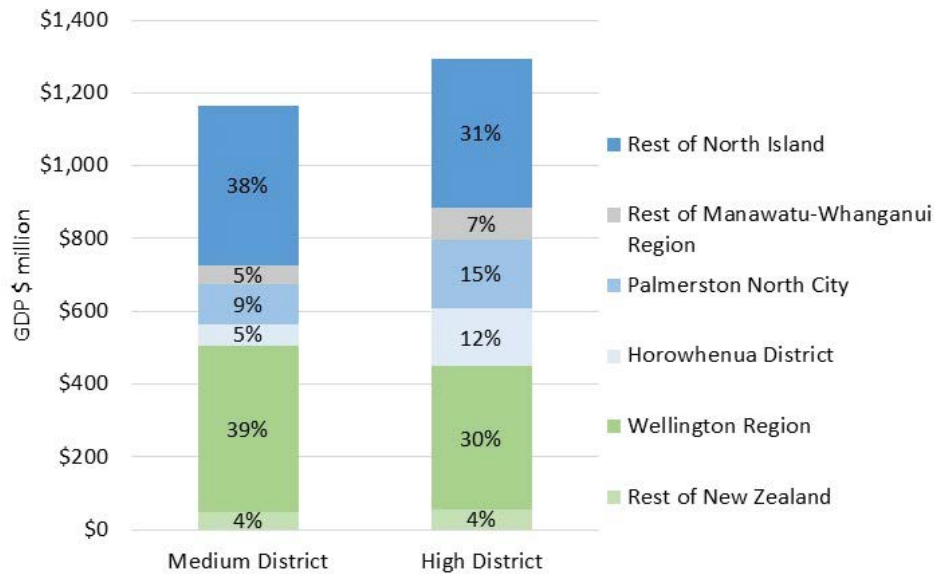
¹⁷ The expenditure was apportioned to different sectors based on the input structures captured in regional IO tables. Essentially, the expenditure was mapped to the sectors with adjustments for interregional imports and exports, salaries and wages and operating surplus. The salaries and wages associated with the business spending were allocated to the region where the spending is expected to occur (i.e. Wellington or Horowhenua).

delivered from Wellington with a number of the inputs purchased from Horowhenua businesses.

122. The economic activity patterns of the two spending profiles are, as expected, markedly different when viewed from a District perspective. Expressing the results of the two profiles as a range suggests that the GDP impact on the Horowhenua economy during the entire construction phase will be between \$59 million (medium local economic activity) and \$139 million (high local economic activity).¹⁸ This would equate to an increase in the District economic activity of 0.5% to 1.3% over the construction period. That is on the basis of between 5.1% and 13.8% of the total GDP impacts accruing to the Horowhenua economy.
123. In addition to GDP, the activity will support employment and will return income to households. Similar proportions of the total effects for these indicators will be felt locally with between 4.4% and 14.5% of the income and 4.5% and 14.5% of the employment effects. This equates to between 480 and 1440 person years of employment for the Horowhenua District workforce.
124. While the scale of local effects is subject to where the spending takes place, the Ō2NL Project budget and the timeline mean that the potential additional economic activity will generate a substantial positive effect for the local economy and community, during the construction phase.
125. Under both scenarios, most of the economic effects will be felt in the wider regions. The total economic value added from the project is estimated at \$1.166Bn to \$1,293Bn, sustaining in the order of 11,000 to 12,400 person years of employment. Major shares would accrue to Wellington region (30% to 39% of the total), Manawatū-Whanganui region (14% to 22%), and the Rest of the North Island (31% to 38%). Part of the Wellington region impact can be expected to accrue to the Kāpiti Coast District economy, which currently accounts for 12% of the region's total employment in key industries such as road and bridge construction, and other heavy and civil engineering construction. This suggests that Kāpiti Coast may receive 4% to 7% of the total economic effects (value added of \$45-\$60m, and an employment effect of 350-500 person years).

¹⁸ Based on the current project time lines and budgets, the GDP impact is expected to peak in 2028, at a level between \$9.43 million (Medium Local) and \$28.54 million (High Local). This is equivalent to 80 to 300 jobs in the District.

Figure O.8.1: Construction Activity Economic Impacts – Medium and High District Based Spend



Additional Population Growth

126. A key impact of the Ō2NL Project will be its effect on Horowhenua's population and household growth, which will mean the District has a larger economy and higher levels of economic activity than would otherwise be the case. In-migration and settlement typically generates very long-term effects as population growth tends to be cumulative. Since additional population generates both extra demand for goods and services and extra workforce capacity, population increase means there will be broadly commensurate growth in the size of the economy.
127. The Horowhenua District economy is currently around \$1.2Bn in GDP terms, and this can be expected to increase in line with future population growth. In PV terms over the project period total District GDP is large, and any increment attributable to additional population growth is also substantial.
128. While it is difficult to attribute a specific amount of extra population to the Ō2NL Project, it is nevertheless important to understand what that would mean in GDP terms. To illustrate, allowing for GDP growth to match population growth, the PV of the Horowhenua economy over 30 years would be around \$23Bn in the Statistics NZ high future. Under the Council's medium future, it would be \$26Bn in PV terms. Simply, the additional population (10,000 by 2043 and 11,200 by 2051) would mean an additional \$3.0Bn in the size of the District economy. If half of that was attributable to

the Ō2NL Project that would equate to \$1.5Bn; if one quarter was attributable, that would equate to \$750m in PV terms.

129. This shows that the operational effects of the Ō2NL Project on population and economy growth would be much more significant than the construction effects, and would more than offset the loss of agricultural activity.
130. It is important to recognise that this effect is specific to Horowhenua District. That is because the District would have attracted a larger share of New Zealand's population growth, and there would be offsetting effects in other economies which saw slower population growth as a consequence. At the national level, the net outcome would be close to zero. That would also apply at the regional level, assuming all of Horowhenua's additional growth arose from attracting people in the region.

Positive economic effects on Levin town centre

131. There are two likely effects on the town centre, one from the expected impetus to population growth in Horowhenua which would have flow-on, positive effects on the amount of retail demand that would be directed to the Levin town centre, as well as other retail and service centres in the District. The other is from the changes in traffic flows, especially potential reduction in congestion and crowding in the town centre, making it a more attractive destination for District residents and visitors, as discussed above and in the SIA. In particular, the traffic volumes through the town centre will, in 2039, be at similar levels to today but are projected to include very few if any trucks (who will opt to bypass Levin) and will comprise of mainly light vehicles either visiting the town centre or local amenities and employment. This significant change in traffic profile will improve the centre's amenity, improve vibrancy and vitality of the centre and generally increase the attractiveness of the centre as a retail destination. That is likely to induce locals to direct more of their retail spend to the Levin town centre, rather than leaving Levin to shop in other places.
132. The effects in combination are expected to more than offset any potential reduction in town centre sales because SH1 traffic no longer passes through the centre.

Positive economic effects on other centres

133. Other centres in Horowhenua will experience smaller-scale positive economic effects. While all centres in Levin (as well as Ōtaki in Kāpiti Coast

District) are likely to benefit from the additional growth the Ō2NL Project is expected to stimulate, the centres of Manakau, Ohau and Kuku will experience limited direct benefit because of the highly localised nature of their catchments, and the small influence that SH1 traffic has on their performance.

WEBs

134. In addition to the short term and one-off construction effects, improving the transport connections between Levin and Wellington, as well as to the north, is expected to unlock or facilitate a range of WEBs.
135. Some of these WEBs have a sub-regional scale and others will have a more localised (i.e. Horowhenua District) effect. Although these are categorised as benefits, I note that in some cases they may have benefits in one area and adverse effects in another (i.e. a distributional issue), as discussed below.
136. The WEBs arise mainly from an improved ability to 'connect' across space, which then changes the local competitive landscape. The changes would manifest through changing businesses' cost structures, and their ability to access different markets and compete. In addition, it has the ability to affect productivity (i.e. by changing transaction costs). The WEBs can be grouped as follows:
 - (a) productivity benefits;
 - (b) employment benefits;
 - (c) imperfect competition benefits; and
 - (d) regional development benefits.
137. First, the productivity benefits, commonly known as agglomeration, come from interactions between businesses. The improvement in roading network can lower the 'effective' distance between businesses areas, promoting trade, increasing variety and facilitating specialisation.
138. The Ō2NL Project is expected to reduce the overall transport cost, travel time and improve travel reliability, for many businesses in the region.¹⁹ The Ō2NL Project expands the size of the market that can be reached by businesses in

¹⁹ Ō2NL Highway Project Detailed Business Case.

the area, making it more cost-effective to service the overall market (\$ per unit of input cost).

139. In addition to the direct benefits, lower transport costs can lead to a larger market being serviced, leading to improved economies of scale for businesses. This improvement in cost efficiency can generate additional productivity gains.
140. Over the longer term, increasing productivity leads to a lift in wages and salaries which then also increases the relative attractiveness of the location as a business location (especially for businesses that rely on household spending).
141. Drawing from that assessment, in my view the productivity benefits of the Ō2NL Project are likely to be more than minor for the region.
142. Second, employment benefits result from improved accessibility between households and potential job opportunities. The improvement in the transport network can make it easier for people to get to work, reducing disincentives to work. Changes in business activity that are induced by the improved transport network can also result in new employment opportunities.
143. Generally, improvements in connectivity (through transport investments) can support employment benefits. In cases where commuting travel costs fall, it could lead to more people seeking to gain employment. This results in more people participating in the labour force, generating economic value (GDP) and earning salaries and wages.
144. In the context of the Ō2NL Project, lowering commuting costs could also affect Horowhenua's access to labour because local residents could now consider working in Wellington and in the wider region. On one hand, this would act to reduce the local labour pool, however it would also act to increase the employment opportunities locally for others wishing to participate in the workforce.
145. Nevertheless, if people work in Wellington but live in Horowhenua, they are likely to spend a portion of their earnings in Horowhenua. In other words, the salaries and wages earned elsewhere would be spent locally, supporting local businesses, such as retailers and hospitality businesses, as well as the property market.

146. The scale of the employment benefits is likely to be more than minor and would manifest over the medium to long term.
147. Third, the imperfect competition effects result from the fact that location and associated transport costs mean that most businesses operate within imperfect markets. In theory, a perfect market would have no transaction costs. However, in practice, all activities require space (land is a factor of production) and it is not possible for all activities to co-locate on a single point, hence markets are imperfect. This means most transactions in any economy occur between two locations. Unless interactions can occur remotely, they incur transaction costs from the movement of people and goods. Any reduction of transport costs in effect lessens the advantage of more efficient location choices, and can result in more competition among businesses, which reduces inefficiencies arising from the imperfect nature of the markets.
148. Existing businesses in Horowhenua District are expected to benefit from a lowering of transport costs associated with trading with Wellington-based businesses. Lower transport costs also benefit Wellington-based business, enabling them to compete with Horowhenua businesses (which could have negative effects for businesses in the District but positive effects in the wider Wellington region).
149. Competition can lead to knowledge spill overs, as staff move between businesses, sharing knowledge and know-how. This can also contribute to a lifting of productivity.
150. The scale of the competition effects will be positive and is likely to be more than minor and would manifest over the medium to long term.
151. Fourth, the regional development effects which relate to the tourism benefits associated with the transport project. In the case of the Ō2NL Project, the realignment of the highway from the main street of Levin may generate amenity improvements in Levin, which could result in increased tourism.
152. Fifth, another facilitated effect relates to the change in residential capacity and potential effects on the real estate market, both in the local centres along the Ō2NL Project corridor and at the wider regional level. It is likely that the Ō2NL Project will enable councils along the corridor to provide more residential capacity. Such increase in capacity for housing may result in

increased development and residents living within the area. This supply side effect may improve housing affordability.

153. It is anticipated that the investment will change the relative attractiveness of the District to households, businesses and investors, which will influence decisions to migrate to Horowhenua. A lift in population has implications for the District's residential real estate markets in that it will generate additional demand for housing.
154. This extra demand then flows through into the real estate market, triggering construction activity and housing turnover, and potentially acting to lift dwelling prices. The larger population also has implications and flow on effects for retail and hospitality businesses. These effects relate to the additional demand for the goods and services demanded by residents.
155. However, the change in house affordability and increased population will be dependent on the relative changes in supply and demand, which will be monitored by councils.
156. The effects on the residential market will be positive, are likely to be more than minor and would manifest over the medium to long term. While it is not possible to establish the nature of the impact, in my opinion the new requirements in the NPS-UD will help to make councils provide sufficient supply to ensure that affordability does not deteriorate as a consequence of planning provisions, and the availability of infrastructure.
157. As discussed above, the wider economic benefits have not been quantified within the transport modelling.²⁰ The transport modelling of the Ō2NL Project has covered the conventional transport benefits (time saving, fuel savings, safety benefits, etc.) in the MBCM, and did not apply the MBCM quantification methods for the WEBs.
158. While there has not been a direct quantification of the WEBs for the Ō2NL Project, I can provide an indication of the potential scale of the WEBs using regional, domestic, and international case studies and literature.

Regional Literature and Case Studies

159. First, a number of regional studies have quantified WEBs of transport projects. Most relevant to the Ō2NL Project is the Wellington Northern

²⁰ Technical Assessment A.

Corridor Business Case²¹ and Horowhenua Growth Strategy 2040²². Both of these reports include the influence of the Ō2NL Project and provide measures of WEBs.

160. The Wellington Northern Corridor Business Case (“**WNCBC**”) applies the standard transport modelling methods to quantify both conventional transport benefits and WEBs for the entire region from a package of planned transport projects. The package of planned transport projects covered in business case included the Ō2NL Project, along with other upgrades along SH1 that have been completed or are near completion (segments between Ngāurangā Gorge to North Ōtaki) and projects within Wellington City that are yet to be progressed (network around the Mt Victoria Tunnel).
161. The WNCBC showed that the entire package of transport projects could produce \$3.4 billion of economic benefits, of which \$2.4 billion were conventional transport benefits and \$805 million of wider economic benefits.
162. The WNCBC economic assessment of WEBs quantified the following values of the economic benefits:²³
 - (a) agglomeration benefits valued at \$410 million;
 - (b) imperfect competition benefits valued at \$130 million;
 - (c) labour force participation benefits valued at \$35 million; and
 - (d) increases in employment benefits valued at \$230 million.
163. These WEBs will be generated by each project within the package of transport investments in the WNC, so it is not possible to establish what portion of the WEBs may be related to the Ō2NL Project. However, this information is useful as it shows that at a package level the quantified WEBs were around 34% the size of the conventional transport benefits. This means that for every dollar of conventional transport benefit there was estimated to be 34 cents of WEBs.
164. Based on the package level ratio of WEBs to conventional transport benefits from the WNBC (34%) and the conventional transport benefits quantified by

²¹ NZ Transport Agency (2013) Wellington Northern Corridor: Business case.

²² Horowhenua District Council (2018) Horowhenua Growth Strategy 2040.

²³ Richard Paling Consulting (August 2013) Assessment of Wider Economic Benefits for the Wellington Northern Corridor RoNS Report.

Stantec for the Ō2NL Project (\$1,495 million), it may be that WEBs associated with the Ō2NL Project could be in the order of \$500-510 million.

165. Another alternative measurement of WEBs has been provided by HDC, which has developed a Growth Strategy that specifically includes the influence of the Ō2NL Project.²⁴ A significant part of the Growth Strategy has been the utilisation of updated projections for the District's population, households and jobs. The new projections included the effect on growth resulting from the Wellington Northern Corridor (State highway from Wellington to north of Levin). The economic assessment method adopted in the Growth Strategy study goes beyond the four standard WEBs that are measured in the MBCM.
166. The Growth Strategy compares a future where the Ō2NL Project (and other projects in WNC) is completed, to a counterfactual where these projects are not completed. The strategy finds that by 2036 there may be approximately 1,200 more jobs in the District (and 1,800 by 2050) if the WNC and the Ō2NL Project are completed. This assessment is based on the NZIER modelling²⁵, which was extended in 2018 to establish the value of economic activity generated by the additional jobs in the District. ²⁶ NZIER estimates that the WNC and the Ō2NL Project could result in an additional \$400 million GDP between 2018 and 2040. This is equivalent to approximately \$20 million per annum in NPV terms, or around 2% of Horowhenua GDP.
167. It is not possible to establish how much of the increase in employment or GDP relates to the Ō2NL Project or the other projects within the WNC package of transport investments. Given that the assessment only measures the change in economic activity within Horowhenua, it can provide only a partial understanding of the WEBs associated with Ō2NL Project or the WNC package of transport investments.
168. I consider that the regional studies that have measured the WEBs associated with the Ō2NL Project do not provide a complete measure of the likely value of these benefits. However, they do provide an indication that the Ō2NL Project will produce WEBs with a value which may be in the order of tens of millions and potentially up to one hundred million.

²⁴ Horowhenua District Council (2018) Horowhenua Growth Strategy 2040.

²⁵ NZIER (2015) Investment in transport infrastructure Effects on economic and demographic outlook.

²⁶ NZIER (2018) High Level Socio-economic Impact of Horowhenua 2040 Strategy – Appendix Six: Cost Benefit Analysis.

Domestic Literature and Case Studies

169. I have reviewed available transport research which covers projects across most of the country, but mostly on major highways between cities or within urban areas and some public transport projects. This review has shown that WEBs in other domestic projects range from 15% to 50% the size of the conventional transport benefits.
170. This finding is consistent with Beca's peer-review of the WNCBC, which also found that WEBs in other domestic projects range from 25% to 40% of the size of the conventional transport benefits.²⁷ Their range reflects my experience with WEBs and results which I have observed in my literature search.
171. Based on the range of ratios suggested by my literature search (WEBs to conventional transport benefits between 15% and 50%) and the conventional transport benefits quantified by Stantec for the Ō2NL Project (\$1,495 million), it may be that total WEBs associated with the Ō2NL Project could be in the range of \$224.25 million to \$745 million.

International Literature and Case Studies

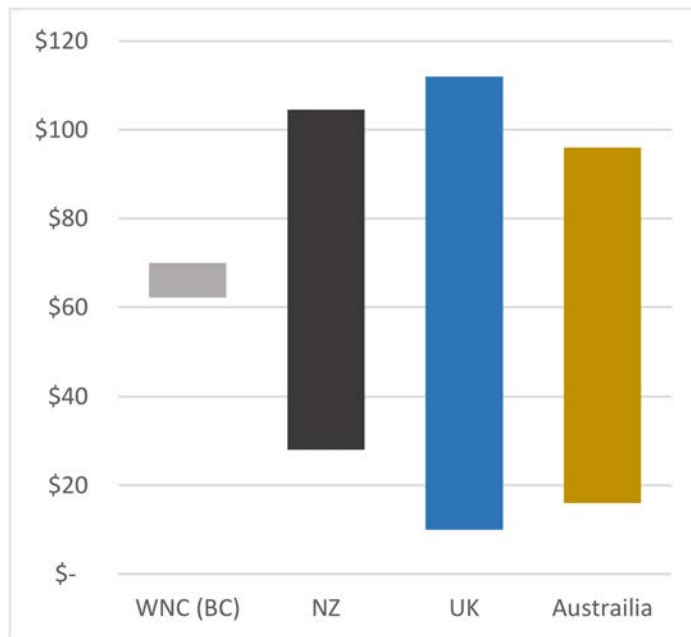
172. I have also reviewed literature and case studies from United Kingdom and Australia. This review indicates WEBs broadly consistent with the range observed in New Zealand. In United Kingdom the WEBs for transport projects had a slightly wider range from 5% to 60% of the size of the conventional transport benefits.²⁸ While in Australia the range may be slightly narrower, from 8% to 48% of the size of the conventional transport benefits.²⁹
173. Based on the range of ratios suggested by my literature search and the conventional transport benefits quantified by Stantec for the Ō2NL Project (\$1,495 million), the international case studies suggest that total WEBs associated with the Ō2NL Project could be in the range of \$74.75 million to \$897 million.
174. The figure below displays the indicative scale of WEBs for the Ō2NL Project, based on the different ratios observed in literature and case study search. According to this figure:

²⁷ Beca (2013) Wellington Region RoNS Economic Assessment Peer Review.

²⁸ For example, see Kernohan, D and L Rognlien (2011) Wider economic impacts of transport investments in New Zealand.

²⁹ For example, see Douglas (2016) Wider Economic Benefits – When and if they should be used in evaluation of transport projects,

- (a) regional research suggests WEBS may be in the range of \$60 to \$65 million;
- (b) domestic literature and cases studies suggests that WEBS may be in the range of \$30 million to \$105 million; and
- (c) international literature and cases studies that WEBS may be in the range of \$10 million to \$110 million.



175. Based on the regional research, domestic and international literature and case studies, I consider that it is likely that the standard WEBS associated with the Ō2NL Project are likely to be in the many tens of millions and potentially up to a hundred million. These benefits will be significant for the region.

176. Finally, there are other wider economic benefits that are not included within the standard transport assessment manual (MBCM); most importantly, the potential for changes in land use (and associated capacity and land value) that can be enabled by transport investments. These economic benefits have been considered within the Horowhenua Growth Strategy 2040 (2022 Updated)³⁰, indicates that jobs within the district could increase by 3,000 by 2036 and the community could increase by around 10,090 households

³⁰ [horowhenua-growth-strategy-2040-2022-update.pdf](#) and uses 95th%ile (high) growth forecast, as compared to the 75th%ile used by Ō2NL Project and DBC.

(26,008 additional people to a total of 62,716 in the District) by 2040. This is approximately a 71% increase in population over 20 years.

177. While much of this growth will occur in other parts of the region if the Ō2NL Project does not go ahead, the Project will result in new or additional economic activity within the Horowhenua District. This may be up to a 2% increase in the local economy per annum, or \$400 million over the coming four decades. I consider that these benefits will be significant for the district.

Adverse effects

178. The two main potential adverse effects arise from loss of agricultural production (with flow on effects through the economy) and reduction in sales by businesses in the town centre because of the diversion of SH1 traffic.

Adverse economic effects on rural production

179. The Ō2NL Project will have a substantial footprint on rural land, impacting a number of farming operations. Two types of effect on agriculture production are possible / likely:
- (a) Affected farms will lose some productive land, acquired for development of the road corridor. This loss of farming land will directly translate into loss of existing rural production. In some instances, the amount of remaining land may no longer be viable for current farming activity. This may result in land use change from farming to a new activity, which impacts rural production.
 - (b) Alternatively, the land could be used for different productive activities in future. These alternative uses could be more productive or less productive than the current activities that occur today, which represents a potential opportunity cost of the Ō2NL Project. However, this measure of rural activity is theoretical and may never eventuate, therefore I have considered it a "possible" adverse effect (rather than a "likely" one).
180. These adverse effects are a natural function of the Ō2NL corridor passing through a rural productive area. To assess the economic impacts of the loss of rural production, I firstly assessed the land area that will be used for the road corridor. Mr Grant estimates that there are 144 parcels totalling 2,393.9 ha of land that will lose land as a result of the new road corridor (with the

corridor occupying approximately 235.6 ha (minimum) to 369.9 ha (maximum)).³¹

181. Based on average agriculture revenues, the total rural production revenue from the land could be in the order of \$3 to 4 million per annum. Most of the lost production (around two-thirds) will be related to the 41-61 ha of gardening and horticulture land that will be required for the road corridor, which represents over two-thirds of the total agricultural revenues in the affected area. This is unsurprising given the intensive nature of that type of farming.
182. The second most prominent type of rural production is dairy farming, which accounts for around 15% of the affected area and around 10% of the impacted rural production. Sheep and beef and other agriculture land uses combined represent less than 17% of the revenue.
183. My assessment shows that currently the rural land required for the corridor of Ō2NL Project would produce rural output that would generate \$2.3 million per annum of value added (GDP) in the Horowhenua economy and sustain 25 jobs. This represents less than 0.2% of the economy.
184. Overall, on that basis, the potential loss of economic activity from reduced agricultural activity caused by the Ō2NL Project will be less than minor for the local economy and community.

Economic effects on Levin town centre

185. The potential adverse economic effects on Levin town centre would arise from loss of custom from passing traffic which no longer goes through the centre, when the Ō2NL Project is in operation. This will very likely be a temporary adverse effect. This is because a portion of the growth expected for Levin and the Horowhenua District can reasonably be attributed to the construction of the Ō2NL Project, and within a fairly short time after the opening of the Ō2NL Project, that induced growth and its associated additional spend in the town centre will outweigh the impact of a loss of passing traffic on SH1.
186. I have assessed this, taking into account the local (Horowhenua District) catchment size (both current and future (section 6)), and the origins of shoppers visiting the town centre. That assessment, drawing from

³¹ Technical Assessment N (Productive Land) provided in Volume IV, para 6.

Marketview credit and debit card transaction data to quantify town centre sales by origin, shows that a large proportion (79%) of sales by outlets in Levin town centre are to consumers who live in Horowhenua District. Those living in Levin town provide 58% of town centre sales by value, and residents of other parts of the District account for another 21%. That high proportion of sales to local residents is broadly consistent across store types (as detailed in Appendix O.2).

187. The third step in the RIA is to estimate current town centre retail sales, which I have done from the Marketview data of the town centre's share of custom arising in each catchment, together with estimated total spending power in those catchments (this uses the M.E Market Meter retail demand estimates, as explained in Appendix O.3). As a cross-check, I have also estimated sales from town centre floorspace and floorspace productivity.
188. On that basis, I have estimated current total sales by Levin town centre retail businesses of some \$269m. Sales can be expected to increase as the size of the Horowhenua community grows. I have estimated sales would increase to \$435m (+62%) in 2043 under the low growth scenario, to \$527m (+96%) under medium growth, and \$625m (+132%) under the high growth scenario (Figure O.8.3). There is a significant range between these three scenarios, and that range provides a good basis for assessing recovery periods from the effects assessed, and the sensitivity of the growth impacts assessment to the growth assumption.

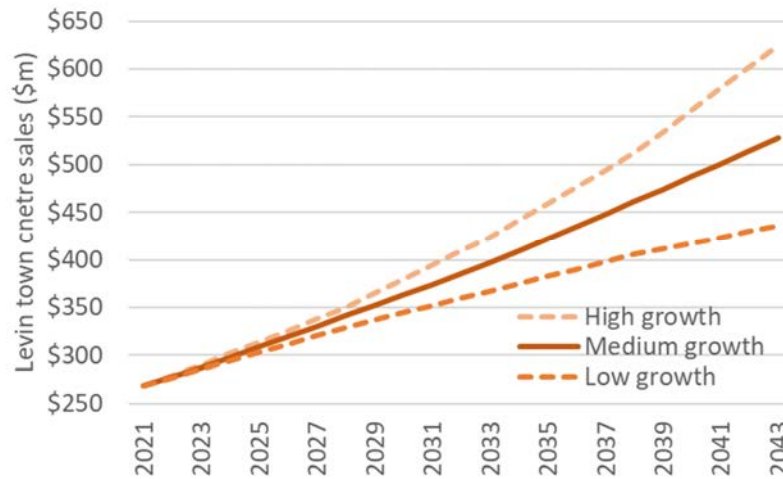
Figure O.8.2: Levin town centre retail sales projections (\$m)

	Low	Medium	High
2021	\$269	\$269	\$269
2023	\$286	\$287	\$290
2028	\$329	\$341	\$350
2033	\$367	\$396	\$424
2038	\$406	\$461	\$511
2043	\$435	\$527	\$625
2018-43 \$	\$166	\$258	\$356
2018-43 %	62%	96%	132%

189. That range is shown in Figure O.8.3. The scenarios are similar until the latter part of the 2020s, after which the effects of the different population growth futures show out. That coincides with the opening of the Ō2NL Project in 2029, when the largest potential effects on the Levin town centre would arise. That period is the critical focus for the RIA. The quantum of sales effects is

not very sensitive to the growth scenario assumed. However, the recovery period after the effects arise does vary by growth scenario.

Figure O.8.3: Levin town centre retail sales projections



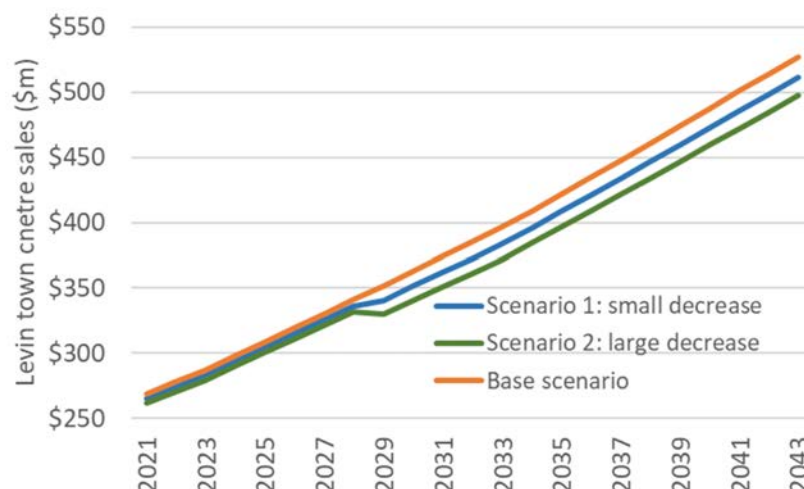
190. Two impact scenarios are compared against the Status Quo (base) scenario, to quantify a range of potential effects on the Levin town centre. Under the medium growth scenario, town centre retail sales are estimated to be \$269m in 2021, growing to \$352m in 2029 (the assumed opening date of the Ō2NL Project).
191. Under scenario 1, where spend by non-local pass-by shoppers would fall by 50%, town centre sales in 2029 would decrease to \$341m, a drop of \$11.5m (-3.3%). Under scenario 2, where spend by non-local pass-by shoppers would fall to nil, town centre sales would decrease to \$331m, a drop of \$21.6m (6.1%) (Figure O.8.4).

Figure O.8.4: Levin town centre retail sales projections (medium growth scenario)

		2021	2025	2029	2033	2038	2043
Levin TC sales	Base scenario	\$269.0	\$308.7	\$352.1	\$396.2	\$460.8	\$527.4
	Scenario 1: small decrease	\$265.4	\$304.6	\$340.6	\$383.3	\$446.5	\$511.7
	Scenario 2: large decrease	\$261.9	\$300.6	\$330.5	\$371.9	\$433.8	\$497.6
Decrease from base	Scenario 1: small decrease	-\$3.6	-\$4.1	-\$11.5	-\$12.9	-\$14.3	-\$15.8
	Scenario 2: large decrease	-\$7.1	-\$8.1	-\$21.6	-\$24.3	-\$27.0	-\$29.8
	Scenario 1: small decrease	-1.3%	-1.3%	-3.3%	-3.3%	-3.1%	-3.0%
	Scenario 2: large decrease	-2.6%	-2.6%	-6.1%	-6.1%	-5.8%	-5.6%

192. In future years the magnitude of that reduction in sales relative to the base case is projected to decrease slightly in percentage terms, though increase slightly in dollar terms. The largest percentage impacts occur when the market is smallest, which will be immediately after the Ō2NL Project opens. After that time, the Levin town centre's sales are projected to increase at a very similar rate under all impact scenarios (Figure O.8.5).

Figure O.8.5: Levin town centre retail sales projections



193. A similar magnitude of impacts is projected under the low and high growth scenarios:

- (a) Low growth scenario: In 2029 the Base scenario sales are projected to be \$337m, dropping to \$326m under scenario 1 (-\$11.0m, 3.3%), and to \$316.1m under scenario 2 (-\$20.8m, -6.2%).
- (b) High growth scenario: In 2029 the Base scenario sales are projected to be \$365m, decreasing to \$353m under scenario 1 (-\$11.9m, 3.3%), and to \$342m under scenario 2 (-\$22.3m, -6.1%).

194. Importantly, the decrease in Levin town centre sales as a result of the Ō2NL Project opening is small in the context of annual sales growth, and in the context of the larger local market because of stronger population growth. In the low growth scenario, town centre sales would decrease by the equivalent of between 1.5 years' growth (scenario 1) and 2.7 years' growth (scenario 2). In the medium growth scenario, the impact equates to 1.0-2.0 years' growth, while under the high growth scenario the impact equates to 0.8-1.5 years' growth.

195. I would add that the 'base scenario' relies on the expected population growth, part of which is attributable to the delivery of the Ō2NL Project.

196. Because the effects equate to only one to two years' growth in retail sales, I consider it is likely that the initial reduction in sales would be short-lived, and that total town centre sales would quite quickly return to a strong positive trajectory.

197. In my view, the direct effects of that magnitude are less than minor, and would result in flow on, or indirect, effects on the Levin town centre (including reduced people activity, vitality and centre vibrancy) that are also less than minor.
198. These direct and indirect effects from lost passing trade would be affected by the design and placement of interchanges along the Ō2NL Project corridor, with design of the three interchanges servicing Levin oriented to minimising such losses and facilitating access to the town centre. Some diversion of trade away from the town centre from the pass-by consumer segment is inevitable, given the necessarily reduced accessibility of the town centre from the Ō2NL Project corridor.
199. However, the potential adverse effects on the town centre's trading performance would in my view be more than offset by the stronger growth in the resident population and the size of the Horowhenua economy, of which a share can be attributed to the Ō2NL Project.
200. To illustrate, most of the spending in the town centre is from the local market, with that share increasing through time. Over the period to 2029, town centre sales are projected to increase by \$10m annually, primarily because of population growth. If half of that growth is driven by faster population increase stimulated by the development, then even with the loss of passing trade when Ō2NL opens, the town centre performance will be stronger than if the development did not proceed. On that basis, the net effect of the Ō2NL Project on the town centre will be positive.
201. Further, any adverse effects from loss of passing trade will be expected, as businesses will already be aware of the proposed realignment of SH1, and will have substantial opportunity to plan for any reduction in sales they might experience, and potentially to modify their businesses practices to mitigate against those losses
202. At a broader level, the District's expected stronger population growth will mean the town centre by 2029 will be larger and more comprehensive than it would otherwise have been, and therefore more attractive as a shopping destination, to the local populace and those in surrounding areas.

Adverse economic effects on other centres

203. Effects on other centres are expected to be very small. There are a number of small centres in Commercial zones throughout suburban Levin. Those

centres have only a very limited range of convenience-oriented retail and services businesses such as dairies, takeaways and hairdressers. Those businesses are not currently reliant on custom generated by SH1, and in my view are very unlikely to be affected to a material degree by the proposed realignment of SH1 by the Ō2NL Project. Those small centres will continue to service their local, suburban communities in the same way after the Ō2NL Project opens as they do now.

204. The settlements of Manakau and Ohau are located south of Levin, and adjacent to the current SH1. Neither settlement has a cohesive retail centre, with commercial presence limited to stand-alone businesses such as cafes, galleries, fresh food retailers, and mechanics. Some of those businesses are likely to rely on traffic passing by on SH1 for a large proportion of their custom, although due to confidentiality restrictions there is no data available for the origin of customers in those businesses.
205. The effect of the Ō2NL Project on those businesses is difficult to assess in the absence of reliable data. Because there are no centres in those areas, the nature of adverse economic effects is very limited, and focussed on the business owners rather than significantly disabling the community.
206. Businesses in rural locations such as south of Levin can be attractive destinations in their own right, with patrons appreciating quiet rural surroundings and good proximity to urban areas. The reduced traffic volumes on the current SH1 will provide some opportunity for those businesses to thrive and leverage off a more pleasant environment to attract a different type of customer and be less reliant on pass-by traffic for their viability.
207. Other Horowhenua towns are not expected to be adversely affected by the Ō2NL Project because they are located away from the Ō2NL Project corridor. Towns north of the northern end of the Ō2NL Project corridor - Foxton and Waitarere Beach - are unlikely to experience adverse economic effects of the Ō2NL Project. On the other hand, stronger population growth in Horowhenua is likely to see net positive effects for these small centres, as well as from better increased accessibility to places south of Levin.

SUMMARY RATING OF EFFECTS

208. In summary, my conclusions on the economic effects of the Ō2NL Project are as follows:

- (a) During the construction phase most of the economic effects arising from the construction will be positive, and more than minor. There will also be adverse economic effects on the use of productive land (related to the agricultural and horticultural industries).
- (b) During the operational phase adverse economic effects on the use of productive land will continue, although change to farming practice initiated during or after the construction phase may result in new farming and land use practices being employed. Overall, the potential loss of economic activity from reduced agricultural and horticultural activity caused by the Ō2NL Project will be less than minor for the local economy and community
- (c) Also during the operational phase, the adverse economic effects on the Levin town centre will be less than minor.
- (d) The potential effect on population growth is expected to have the most significant positive consequences. The additional growth in the Horowhenua economy is likely to easily offset the negative effects arising from loss of productive farming land, and will far exceed the scale of positive effects from construction activity.
- (e) This growth and consequently larger Horowhenua market for retail and services activities would also far outweigh the potential adverse effects from loss of sales to passing trade when the development opens.
- (f) The Ō2NL Project will also generate WEBs, some of which are expected to be more than minor, however they have not been assessed in the transport modelling so precise quantification of them is not possible, but they can be expected to be in the range of a hundred million dollars.

MEASURES TO REMEDY OR MITIGATE ACTUAL OR POTENTIAL ADVERSE ECONOMIC EFFECTS

209. In this section I suggest the measures that I consider are necessary to remedy or mitigate the actual or potential adverse economic effects of the Ō2NL Project.

Proposed mitigation measures

Construction

210. No measures are required to mitigate most of the economic effects during the construction phase, with most effects being positive economic effects.
211. The exception to that is adverse economic effects likely to arise from disruption to agricultural and horticultural land uses in and around the Ō2NL Project corridor. Suggested measures to mitigate those effects are discussed in Mr Peet's Transport Assessment, Mr Curtis's Air Quality Assessments and Mr Smith's Noise Assessment (provided as Technical Reports A, B and C, provided in Volume IV).

Operational

212. During the operational phase adverse effects will arise from changed patronage of the Levin town centre. My assessment indicates those effects will be less than minor, and in my opinion the effects will be acceptable without any mitigation. However, some mitigation measures would assist to maintain a buoyant, vibrant town centre in Levin, and support the changed nature of the commercial environment there.
213. Those measures could include providing information and wayfinding signage to inform travellers of the presence of and range of businesses located in the town centre. Signage such as brown tourist signs will assist travellers' decision making, and combined with landscaping and additional route signage will assist travellers navigating from the Ō2NL Project corridor to the town centre and back again. Making this as easy as possible will significantly assist travellers' willingness to leave the new SH1 to visit the town centre, and will encourage repeat travellers to make a diversion to spend in the town centre on at least some of their trips.
214. Additional mitigation measures, such as town centre improvement works, and investment in the public realm, may operate to enhance the positive effects of the Project on the economy and amenity of the Levin town centre (discussed above).

CONCLUSION AND RECOMMENDATIONS

215. The Ō2NL Project will generate positive economic effects during the construction phase, and some adverse effects during both the construction

and implementation phases. From my assessment all these adverse effects will be less than minor, and no mitigation is required (with the exception of mitigation in respect of effects arising from disruption to agricultural and horticultural activities). In any case, I have recommended some appropriate measures that are intended to mitigate against the effects that cannot be avoided (such as effects on agriculture/horticulture) and otherwise enhance and add to the Project's positive effects.

216. The effects of the Ō2NL Project on both growth in Horowhenua and on the Levin town centre are already anticipated, and taken into account in HDC's planning strategies. The significant growth anticipated, at least partly supported by the Ō2NL Project, is consistent with outcomes expected in the WRGF.
217. The potential for effects on the town centre are identified in Transforming Levin, and the challenges and opportunities the Ō2NL Project will provide are well signalled, indicating there is ample opportunity to plan for and respond to them prior to the expected opening of the Ō2NL Project in 2029.
218. I recommend planning to manage the new, post Ō2NL Project retail environment in the town centre to continue and focus on strategies to make pass-by traffic aware of how to access the town centre and what is available there in the way of businesses supporting travellers. Individual businesses should be made aware of the potential adverse effects they are likely to experience, to allow them time to plan their mitigation measures.
219. Works on the physical environment in the town centre should prepare for a new, local traffic dominated environment and seek to leverage off the opportunities that higher amenity environment will provide for both locals and non-locals.

James Douglas Marshall Fairgray

19 October 2022

APPENDIX O.1: MARKETVIEW DATA DESCRIPTION

A1.1 Marketview sources data from electronic transactions made in New Zealand, and makes the data available for purchase as customised datasets.

Marketview data is only made available in an aggregated form that protects the confidentiality of customers and the commercial sensitivity of merchants. Because of the large size of the sample, Marketview data provides robust information on the geographic patterns of shopping. It is also useful for identifying key parameters of shopping behaviour.

A1.2 For this assessment I used two customised Marketview datasets to understand the shares of spending in Levin town centre that originate from customers resident within each catchment. It is non-Horowhenua residents that will be most likely to change the amount they spend in Levin, given any reconfiguration of SH1 to bypass Levin.

A1.3 The first dataset was a customised dataset for 2016, the second a customised dataset for 2019.

A1.3 Until 2020 Marketview data included data from BNZ and Paymark. That data recorded all credit and debit card transactions made by BNZ customers, including detail about the residential address of the cardholder, the location and type of merchant involved in every transaction and the time and value of each transaction. Marketview transactions account for approximately 15% of all spending in the NZ economy. The major banks (ANZ, BNZ, Kiwibank, Westpac) all have branches in Levin, meaning the transaction data is likely to be representative of the broader population.

A1.4 Because each transaction could be coded to an individual cardholder, it was possible to identify chains of transaction by individual cardholders (although only supplied in a confidentialised, and grouped form). In a 2017 assessment by my firm,³² this BNZ Marketview data was used to understand sequential transaction patterns, from which we identified spending in Levin split into pass-by spending and destination spending.

A1.4 The data commissioned for that project identifies:

- (a) The place of residence of customers spending within Levin town centre. All origins are grouped into catchments that reflect the likely

³² "Ōtaki to North of Levin Transport Improvements Preliminary assessment of effects: Economic impacts of construction activity, Levin retail centre effects", Market Economics, June 2017

nature of their presence in Levin, whether Levin residents, those living in Horowhenua or people passing through Levin.

- (b) Consumer travel patterns. This data was analysed by Marketview and provided in aggregated form to summarise the total number of transactions that were made by non-locals (i.e. those living outside Horowhenua) on different sorts of trips. Trips classified included:
 - (i) Destination trips: those where the consumer visited Levin specifically, and were defined as trips where a consumer's only transaction either side of transactions in Levin were nearer to their place of residence than Levin.
 - (ii) Pass-through trips: trips where the consumer undertook a transaction in Levin on their way to somewhere else. These were defined as trips where a consumer made a transaction near home, then in Levin, then one further away from home than Levin (i.e. north of Levin if living to the south, and the reverse).
- (c) Store types visited. A count of transaction numbers and values in each store type, grouped to have sufficient merchants in each so as to satisfy Marketview privacy requirements.

A1.5 BNZ restricted access to its data in 2020, and after that time Marketview data has been sourced from Paymark. Paymark data does not yet enable assessment of individual cardholder data in the same way that the BNZ data did.

A1.6 For this statement of evidence I have therefore relied on the pass-by/destination data identified in the 2017 impacts assessment. I also commissioned a new dataset to provide updated information around the total flows of spend from each origin to the Levin town centre, and from Horowhenua residents to a range of destinations. The results of that assessment are provided in Appendix O.2.

A1.7 The following storetype groupings were used in the 2019 dataset:

- (a) Clothing, footwear and personal accessories retailing: clothing; footwear; watch and jewellery retailing; other personal accessory retailing.

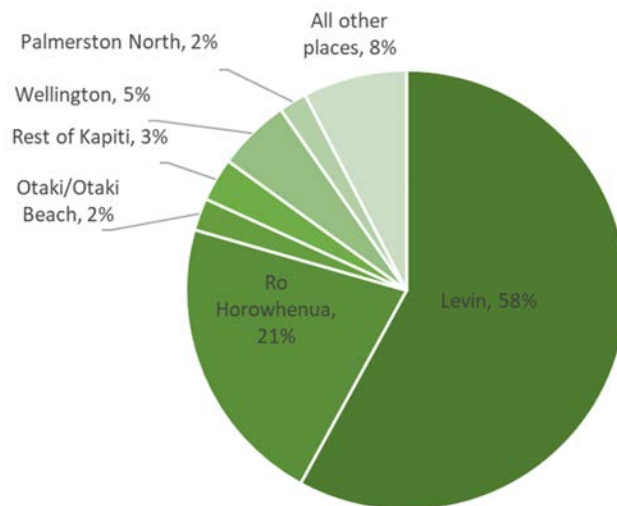
- (b) Electrical and electronic goods retailing and department stores: department stores; electrical, electronic and gas appliances; other electrical and electronic goods; computer and computer peripherals.
- (c) Food and Grocery: supermarket and grocery stores; fresh meat, fish and poultry; fruit and vegetables; liquor; other specialised food.
- (d) Furniture, floor coverings, houseware and textile goods retailing: Manchester and other textile goods; furniture; floor coverings; housewares.
- (e) Hardware, building and garden supplies retailing: hardware and building supplies; garden supplies.
- (f) Hospitality: cafes and restaurants, takeaway food; catering; bars, taverns and bars; hospitality clubs.
- (g) Pharmaceutical and other store-based retailing: pharmaceutical, cosmetic and toiletry goods; antique and used goods; flowers; stationery goods; other stores not elsewhere classified.
- (h) Recreational goods retailing: entertainment media; sport and camping equipment; toys and games; newspapers and books; marine equipment.

APPENDIX O.2: MARKETVIEW CUSTOMER ORIGIN-DESTINATION PATTERNS

A2.1 This appendix provides additional detail regarding customer origin and destination data that is used in the assessment.

A2.2 A large proportion (79%) of Levin town centre sales are made to consumers living in Horowhenua District. People living in Levin itself provide 58% of town centre sales by value, with other Horowhenua residents adding a further 21% (Figure O.2.1). That pattern is relatively consistent across storetypes, with the lowest share of sales to Horowhenua residents in food and grocery (83% of sales) and pharmacy and other goods (80%). Both of those groups typically have very localised catchments.

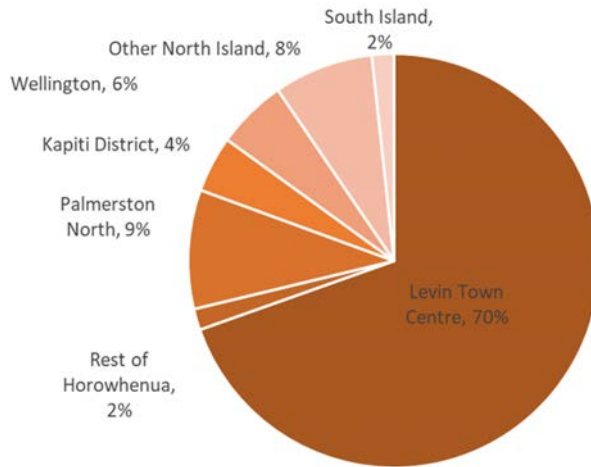
Figure O.2.1: Origin of Levin town centre sales



A2.3 The storetypes with the lowest share of sales to Horowhenua residents were apparel (66%), hospitality (73%) and hardware/building supplies (74%).

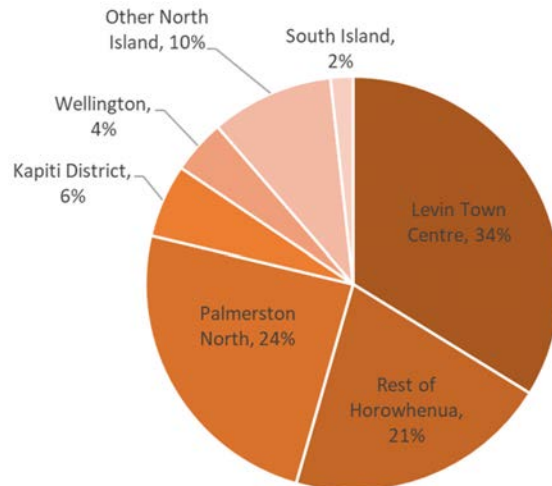
A2.4 The attractiveness of the Levin town centre to Horowhenua residents is confirmed in an analysis of where they direct their retail spend. Levin residents direct 70% of all their retail spend to the Levin town centre and 2% to elsewhere in Horowhenua. Palmerston North is the next most attractive destination, capturing 9% of spend by Levin residents (Figure O.2.2).

Figure O.2.2: Destination of Levin residents' retail spend



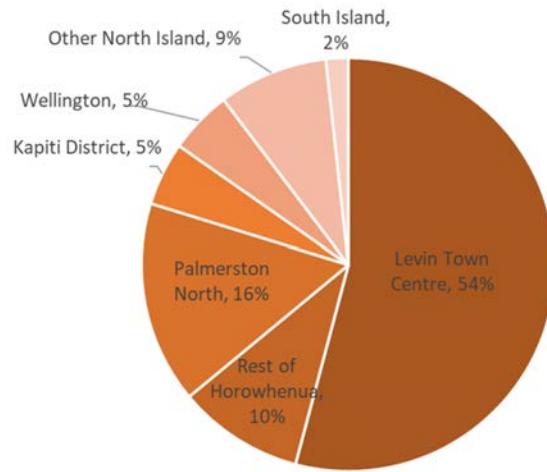
A2.5 The Levin town centre is slightly less attractive for Horowhenua residents who live outside of Levin, with the centre capturing only half the share of spend from those residents as compared to people living in Levin. Other Horowhenua destinations (21% of spend) and Palmerston North (24%) are much more attractive for this group of consumers than for Levin residents, showing the effect of proximity to supply on retail decision making (Figure O.2.3).

Figure O.2.3: Destination of Other Horowhenua residents' retail spend



A2.6 For all Horowhenua residents combined, the Levin town centre is the destination of just over half of their spend, other Horowhenua destinations attract 10%, and Palmerston North 16%. In total then, 80% of spend by Horowhenua residents is directed to stores in either Horowhenua or Palmerston North (Figure O.2.4).

Figure O.2.4: Destination of All Horowhenua residents' retail spend



APPENDIX O.3: MARKET METER RETAIL DEMAND MODEL

A3.1 This appendix summarises the methodology, assumptions and output of the retail demand projections used in my RIA.

A3.2 Market Meter is a proprietary tool that synthesises all of my company's retail demand data in a single dataset, providing market demand estimates and projections for 42 retail store types at a meshblock level, and accounts for all retail spending by households, businesses and international and domestic tourists. Household spending is divided into components of total spending power from home and from work.

A3.3 Demand data in Market Meter is calculated based on:

- (a) The number of consumers (households, businesses, workers and tourists) resident in each location. This data comes from Census 2013, SNZ's Business Frame and for this assessment includes the demographic projections by Sense Partners. While residential consumers are by far the most dominant component of total demand, it is important that the other components are also included in the assessment.
- (b) Meshblock's socio-demographic composition. This socio-demography applies 210 segments defined by age (six segments), household composition (seven segments) and income (five segments), from Census 2013 data, projected forward using SNZ's age projections.
- (c) The spending power of each consumer segment (households and non-household consumers). The spending power of each segment is sourced from customised output from SNZ's Household Economic Survey, and calibrated at a national level to total retail spending identified in SNZ's Retail Trade Survey.
- (d) Economic prospects and expected short to medium term spending trends (such as an increase in spending per household). These trends are based on a range of macroeconomic indicators and consensus forecasts of the economic outlook, and drive the spend projections.

A3.4 The output used in this assessment is a meshblock level dataset of total retail demand arising from each meshblock from the base year (2021) and then to a 2043 horizon. Meshblocks are then grouped to eleven customer origin groups: Levin, Tara-ika, Rest of Horowhenua, Palmerston North, Manawatū,

Ōtaki, Rest of Kāpiti, Urban Wellington, Wairarapa, Western North Island, all other origins.

APPENDIX O.4: INFORMATION ABOUT MRIO MODEL

A5.1 A core benefit of Input-Output modelling is that the results provided are easy to interpret. Similarly, IO models are easy to use and cost effective to develop for different areas. However, IO analysis is not without limitations, despite being widely applied in New Zealand and around the world. The most common limitations relate to the historical nature of IO Tables. My company uses IO tables derived from recent Supply and Use Tables. Therefore, they may not accurately reflect the current sectoral relationships in the economy.

A5.2 With reference to IO modelling in general, a key assumption is that input structures of all industries (i.e. technical relationships) are fixed. In the real world, however, technical relationships will change over time. These changes are driven by new technologies, relative price shifts, product substitutions and the emergence of new industries. For this reason IO analysis is generally regarded as suitable for short-run analysis, where economic systems are unlikely to change greatly from the initial snapshot of data used to generate the base IO tables. In addition to the 'fixed structure' assumption, other important assumptions (and limitations) of IO models are:

- (a) Constant return to scale: This means that the same quantity of inputs is needed per unit of output, regardless of the level of production. In other words, if output increases by 10 per cent, input requirements will also increase by 10 per cent.
- (b) No supply constraints: IO assumes there are no restrictions to inputs requirements and assumes there is enough to produce unlimited products.
- (c) The model is static: No price changes are built in meaning that dynamic feedbacks between price and quantity (e.g. substitution between labour and capital) are not captured.

A5.3 The following indicators are used to measure economic impact:

- (a) Value added measures all payments to factors of production (land, labour and capital), and excludes all purchases of intermediate inputs. It broadly equates with gross domestic product (GDP) as a measure of economic activity on the national level, and gross regional product on the regional level.

- (b) Employment is measured in MECs. This is the number of full-time and part-time employees as well as working proprietors on an annual basis. This provides a measure of the labour demand associated with the estimate level of economic activity. Note that additional MEC-years do not necessarily require that additional persons be actually employed. It may mean existing employees or proprietors work longer hours to complete the additional work.