



Otaki to North of Levin Transport Improvements

Preliminary assessment of effects:

- Economic impacts of construction activity
- Levin retail centre effects

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1 Introduction

Market Economics (M.E) was commissioned by New Zealand Transport Authority (NZTA) to assess the economic effects of the proposed Otaki to North of Levin section of the Wellington Northern Corridor Roads of National Significance (RONS). This project is part of a wider assessment process and it is M.E's understanding that additional work covering other areas will be undertaken. These other areas could include the wider economic benefits and facilitated effects that the transport improvements would deliver to the Horowhenua District economy and the potential effects of mitigation strategies. The scope of this investigations is as follows:

- The economic impacts of road construction activity,
- The effect of the proposed transport investment on the Levin Town Centre (effects on retail activity, including displacement effects),

This study has been undertaken ahead of selection of a preferred alignment / route option and instead has been undertaken on the premise that the improvements will deliver a four lane expressway, standard road to Levin and will include a bypass. Once the preferred alignment has been selected, then the following aspects should be assessed (this is in line with NZTA's original brief):

- The effect of the proposed transport investment on economic growth (diversification and expansion) in Horowhenua,
- Specific effects on proposed commercial development areas identified in the Horowhenua District Plan, and
- The effects of growth in population on the local economy and its relevance and relationship to the proposed road.

1.1 Background

State Highway 1 (SH1) is the main road link running north to south through the North Island, and currently passes through many towns and other urban areas. A redevelopment of a 110km stretch of SH1, from Wellington to north of Levin, is currently underway. The new road is one of the government's seven Roads of National Significance (RONS), and is made up of a number of separate projects, as shown in Figure 1.1.

- Several in Wellington, to improve inner-city traffic flows,
- Transmission Gully,
- Mackays to Peka Peka,
- Peka Peka to Otaki, and
- Otaki to North of Levin.

These projects are at different stages of planning, with the route selection and configuration of the road, ramps and potential bypasses still to be determined in some areas, and construction is underway in other areas so that by 2021 an expressway will extend from Wellington to the north of Otaki. The next section is the Otaki to North of Levin (O2NL) section, which is planned to address existing issues in this section of the State Highway and to meet long-term transport and land use objectives.

Figure 1.1: Wellington Northern Corridor (from NZTA)



The transport improvement currently being considered is to continue the four lane expressway from Otaki to north of Levin. The preferred route configuration option and presence and position of any ramps have not yet been decided, and this assessment will contribute to the information base that is relied on when selecting a route configuration option.

Currently SH1 is the main road through Levin, and passes through the Levin Town Centre. One possibility that is being considered for the O2NL section is a bypass of the town. That bypass would have both potential benefits (especially improving travel times) and costs (potentially reducing visitation to the town centre and sales in businesses there). This report quantifies the potential economic impacts of the transport improvements. Specifically, it provides an indication of the potential adverse effects on the Levin town centre, and positive effects arising from the construction activity. We provide high level commentary on the potential facilitated (and ongoing) effects that might accrue to the Horowhenua economy.

1.2 Objective

There are three objectives of this assessment:

- i) To estimate the economic impacts of constructing the O2NL section of the RoNS,
- ii) To provide a preliminary qualitative analysis of potential facilitated effects, and;
- iii) To assess the effects of potential transport improvements on the Levin Town Centre.

It is important to note that these objectives (as defined for this study) form part of a wider assessment programme (as mentioned earlier). This wider programme is interested in understanding the potential effects of the transport improvement in terms of how it unlocks other economic activities in the Horowhenua District, the flow on effects of enabling a greater population base to live in the district as well as the consequential lift in economic activity.

1.3 Structure

The report is structured as follows:

- Sections 2 describes the outcomes of our assessment of the economic impacts of the construction and activity. This section concludes with high level comments on the facilitated effects.
- Sections 3 through 6 discuss the potential effects on the town centre.

2 Economic Impacts

Investing in transport infrastructure can deliver one-off and ongoing effects. The ongoing, or facilitated, effects are normally the reason or rationale for undertaken the investment because they tend to span multiple years; they change cost structures, unlock markets and stimulate growth. However, the short term economic effects associated with building (constructing) the road infrastructure also delivers economic impacts.

Both the facilitated effects and construction effects are addressed in this section. With reference to the facilitated effects, this report provides high level comments¹.

2.1 Facilitated effects

In addition to the short term and once-off construction effects (discussed in the next section), improving the transport connections between Levin and Wellington as well as northwards, is expected to unlock or facilitate a range of other effects. Some of these effects have a sub-regional scale and other will have a more localised (i.e. Horowhenua District) effect. In terms of direction, the effects could be positive or negative. Further, in some cases the effects could be positive in one area and negative in another (i.e. a distributional issue).

As mentioned, the effects arise due to an improved ability to 'connect' across space and this then changes the local competitive landscape. The changes manifest through changing businesses' cost structures, their ability to access different markets and compete. In addition, it has the ability to affect productivity (i.e. by changing transaction costs). The effects can be grouped as follows:

- Employment effects,
- Productivity effects, and
- Real estate effects.

A short commentary about these effects follows.

2.1.1 Employment effects

The improved accessibility may cause a growth impulse to the Horowhenua economy due to it improving the linkages (and flow of goods and services) into, and out of, Levin and the district. This stimulus is likely to lift the performance of existing sectors while stimulating undeveloped and underdeveloped opportunities.

Existing businesses (in district) are expected to benefit from a lowering of transport costs associated with trading with Wellington based businesses. Of course, lower transport costs

¹ It is our understanding that more detailed assessment of these effects would be undertaken as part of additional and further work streams.

also benefit Wellington based business, enabling them to compete with local businesses (i.e. the effects can be both positive and negative). Increasing the size and frequency of the transactions will flow through into employment.

Generally, improvements in connectivity (through transport investments) can support employment effects. In cases where commuting travel costs fall, it could lead to more people seeking to enter into employment. This results in more people in the labour force, working, generating economic value (GDP) and earning salaries and wages. In the context of this study, 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 (i.e. Wellington; so reducing the local labour pool). Nevertheless, if the people work in Wellington but live in the district, then they are likely to spend a portion of their earnings in the district. In other words, the salaries and wages earned elsewhere would be spent locally (within the district), supporting local businesses, such as: retailers, hospitality businesses as well as the property market.

Another effect is that the proposed project will make it easier to trade with Wellington, suggesting that it will make the size of the market that the local business can service, larger and also easier (less costly) to service. By making it easier to connect, it will assist local businesses to improve client relationships by lowering the cost of face-to-face meetings. Improving the level of service and lifting client satisfaction, will lead to additional sales. In turn, extra resource would be needed to deliver the growth translating into a lift in job numbers.

The scale of these effects are likely to be small and would manifest over the medium to long term².

2.1.2 Productivity effects

Reducing overall transport cost, lowers the 'effective' distance between areas, promoting trade, increasing variety and facilitating specialisation. It expands the size of the market, making it more cost-effective to service the overall market (\$ per unit of input cost). Clearly, improving the travel time (reducing it) is expected to have an impact on productivity outcomes. These effects arise from time savings. In addition to these direct effects, lower transport cost can lead to a larger market being serviced (as already mentioned), leading to higher levels of competition. Competition will lead to knowledge spill overs (as staff move between businesses, sharing knowledge and know-how). This then contributes to lifting productivity. 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).

2.1.3 Real estate effects

Another facilitated effect of the proposed investment relates to the real estate market. Essentially, it is anticipated that the investment will change the relative attractiveness of the district to households, businesses and investors. This will influence decisions to

² Based on commuting times.

migrate/locate to Horowhenua. A lift in population has implications for the district's residential real estate markets in that it will create demand for housing. This extra demand then flows through into the real estate market, lifting house prices, triggering construction activity and housing turnover. 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.

Over the longer term, the higher growth rate experienced by retailers and hospitality translates into growth that then flows into investment in new (and/or larger) floor space to service demand. Therefore it is important to have an appropriate planning framework in place to guide development in a way that contributes to, and enhances urban efficiency.

2.2 Construction effects

The scale and direction of the economic effects associated with building the infrastructure are influenced by a number of factors, including:

- The total budget (cost)
- The spatial distribution of the expenditure (i.e. where the spending takes place; Levin, Wellington, Palmerston North or other).
- The timing of spend.

There is considerable uncertainty around each of these points because the design, costs and timeframes are yet to be finalised. Therefore, the economic impacts presented here should be treated as indicative estimates only. We suggest refining the modelling³ at a later stage once more details about the budget, spending profile and timelines are available.

In terms of methodology, we used a multi-regional Input-Output (MRIO) model, covering six areas⁴. The model encapsulates 106 economic sectors and reflects the flows of goods and services between sectors and between the mentioned regions. The economic impacts are presented in terms of Value Added⁵ and Employment terms.

2.3 Assumptions

Before presenting the findings, the key assumptions used in the analysis, are outlined. As already mentioned, the specific details around the costs, the spending profile (i.e. where the spending takes place) and the timelines will be refined at a later stage. In light of this uncertainty, we defined two scenarios around the spending profile and estimated the economic impacts accordingly. With reference to total cost and timeframes, the following is important:

³ This could then also include CGE modelling.

⁴ Horowhenua District, Palmerston North City, Rest of Manawatu-Wanganui Region, Wellington Region, Rest of North Island, and Rest of NZ.

⁵ Value Added is similar to GDP but excludes tax of products. Therefore VA is slightly lower than GDP.

- Total cost: We used \$600m as cost. According to NZTA, this is an initial, high level estimate of the cost. This cost is likely to change as the engineering designs and geotechnical testing are undertaken. Therefore, the economic effects associated with constructing the transport improvement is expected to differ from those presented in this report. The purpose of the analysis is provide an indication of the potential scale of the effects⁶.
- In terms of the timeframes, again, there are a number of unknowns, specifically when construction starts and its duration. Normally, the approach is to distribute costs out over the construction period with adjustments for cost escalation, run through the economic model with the results then discounted back to current terms⁷. The DCF analysis is better suited to longer timeframes and is useful when assessing ongoing effects. In this construction period (± 3 years) the combined effect of inflation (price increases going forward), discounting (the NPV calculation) and relatively short timeframe mean that the overall usefulness of adjusting the results to account for the time value of money is limited⁸.

With reference to the total expenditure, we defined two spending profiles:

- 1) A profile where the project is delivered by a contractor that is based within the area (district) – this reflects a situation where a large portion of the spending goes directly into the Horowhenua district economy, and
- 2) A spending profile that assumes that the project is delivered by a national (or multinational) business based in Wellington and Auckland. This spending profile assumes that the services is delivered from Wellington with some of the raw inputs purchased from Horowhenua businesses.

The expenditure was apportioned to different sectors based on the input structures captured in regional IO tables (as estimated by M.E). Essentially, the expenditure was mapped to the sectors⁹ used on the IO model 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).

It is important to note that with the Horowhenua spending profile, a portion of the expenditure is likely to flow out of the District via supply chain effects to the neighbouring economies such as Palmerston North because not all the inputs required for the project are available in the local economy. Figure 2.1 and Figure 2.2 show the relative distribution of the spending.

⁶ For this study, we used M.E's MRIO modelling capability. Using other modelling frameworks e.g. Computable General Equilibrium or CGE, will return different economic impacts. Our experience has shown that CGE-model results can be between 40% and 60% of those estimated using IO models.

⁷ Using Discounted Cash Flow (DCF) analysis i.e. expressed in NPV terms (or Net Present Value terms)

⁸ If more detail around the timing and the potential budget was known, then undertaking a NPV analysis would provide a better indication of the likely scale of the effect. Nevertheless, in the context of this study, the effect on the impacts (i.e. the results) are likely to be small.

⁹ The model has 106 economic sectors (excluding primary inputs).

Figure 2.1: Wellington based spending profile

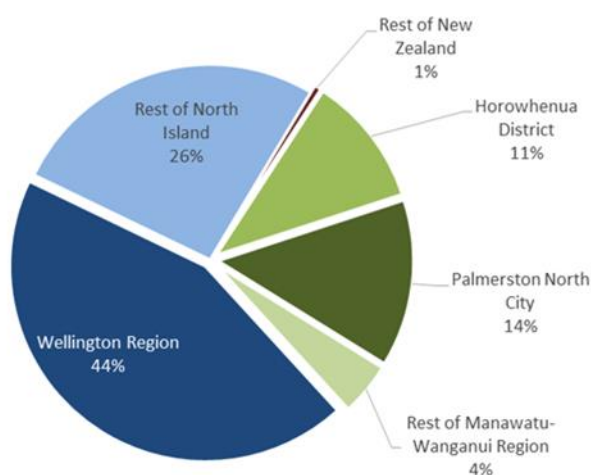
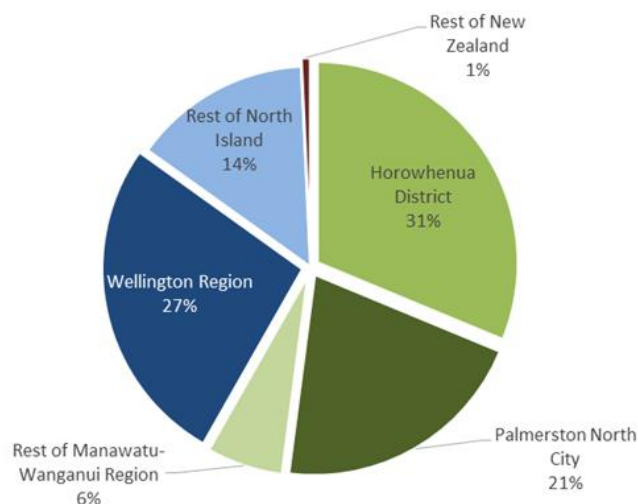


Figure 2.2: District based spending profile



In terms of the project funding (how the project is funded), does not include this because the focus is on understanding the potential effects on the local (district) economy. Once more detail around the project costs are available, the funding streams should also be included in an assessment. How a project is funded is important because it can have a direct influence on the GDP effects.

2.4 Economic impacts

The economic impacts of 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 will be between \$27.8m - \$58.5m. This suggests that between 5.1% and 13.7% of the total GDP impacts will accrue to the Horowhenua economy.

In addition to GDP, the activity will support employment and 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 14.6% of the employment effects. This equates to between \$11.6m and \$30.7m in income and between 260 and 690 jobs. **Clearly, the scale of the local effects are subject to where the spending takes places.**

As mentioned, some of the economic effects will be felt in the wider region. Figure 2.3 and Figure 2.4 show the distribution of the GDP effect across the different spatial areas.

Figure 2.3: Wellington based spending profile

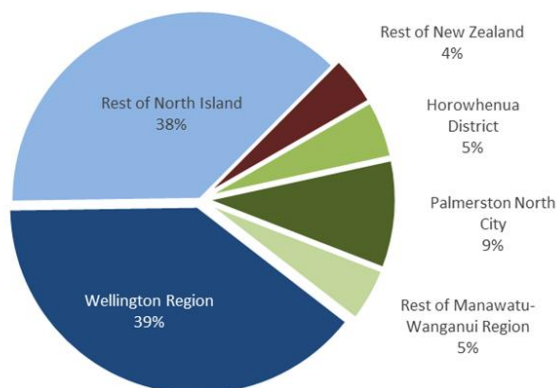
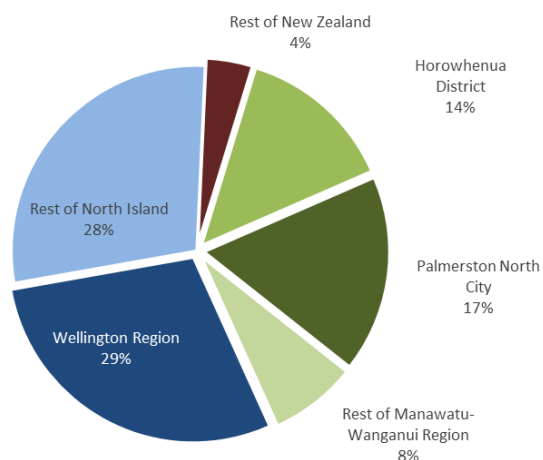


Figure 2.4: District based spending profile



The wider region (Horowhenua, Palmerston North and the Rest of Manawatu-Wanganui), will capture a portion of the total effects. Under the Wellington based spending profile, the wider region is expected to receive between twenty (20%) and forty per cent (40%) of the effects. The specific values are:

	% of effects felt in the region	
	Wellington based spending profile	District based spending profile
GDP	19.0%	38.5%
Income	19.2%	39.5%
Employment	22.4%	44.0%

The reason for this is because the local economy is relatively small with linkages to the larger regional economies i.e. Palmerston North and Wellington. In other words, the economic effects associated with constructing the road will flow out to the wider region. Under both spending profiles, most of the economic effects will be felt in the rest of NZ, particularly Wellington and the Rest of the North Island.

Figure 2.5 and Figure 2.6 show the distribution of effects across the six regions used in our modelling.

Figure 2.5: Wellington based spending profile

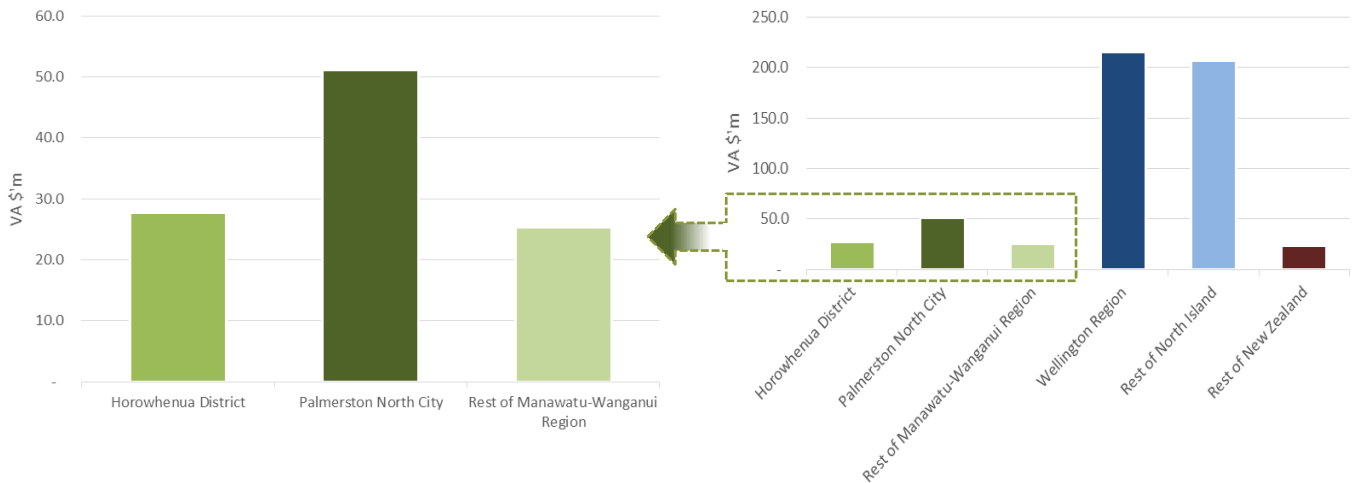
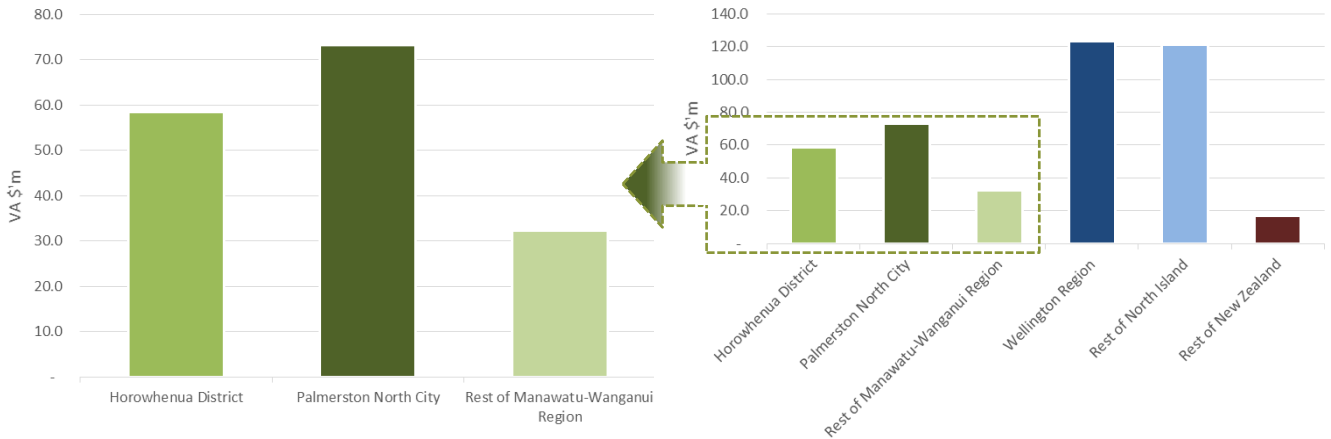


Figure 2.6: District based spending profile



The concentration of the effects in Wellington and the Rest of the North Island is clear. The total GDP effect (across NZ) is estimated to be between \$426.0m and \$549.4m. In the regional context, most of the economic effects flow to Palmerston North with the City capturing between 44.6% and 49.1% of the regional effects¹⁰ (in GDP terms). Of the GDP effects, between \$27.8m and \$58.5m is expected to accrue to Horowhenua District. In terms of income effects, the construction spending is expected to translate into household income of between \$11.6m and \$30.7m in the form of salaries, wages and a portion of operating surplus¹¹ to the District's households.

The above illustrates the difference between the two spending profiles. The relative distribution of the effects, when measured using income or employment, shows a similar pattern as in the above figures with the effects concentrated outside the immediate location.

¹⁰ This is the share of regional VA (Palmerston North VA divided by the sum of VA in Horowhenua, Palmerston North and the rest of Manawatu-Wanganui)

¹¹ Paid out in the form of dividends.

One possible reason for this is could be that the Horowhenua economy is relatively small, so it imports a large portion of its inputs from the larger economies, thereby lowering the local effects and shifting them to the cities (i.e. Palmerston North, Wellington and Auckland).

2.5 Conclusion

Investing in transport infrastructure will have a number of economic effects, some of these will be felt in the district and some it in the wider economy. With reference to the economic impacts associated with building the infrastructure, where the impacts are felt is subject to where the spending takes place. Irrespective of where the spending takes place, a portion of the economic impacts are expected to manifest within the District.

The economic impacts reflect the GDP effects associated with the investment but given the uncertainty around the budget and timing, the results presented in this report should be seen as indicative only. Once a firmer budget is known, the impacts should be re-estimated and the funding mechanisms (i.e. how the project is funded) should also be taken into consideration. This funding is crucial because it provides an indication of the distribution of the 'who pays' and 'who benefit' questions.

In addition to the one-off impacts associated with constructing the transport improvements, the Wellington Northern Corridor is expected to facilitate a number of other effects, the benefits of which will persist in the Horowhenua economy well beyond completion of the project. At a high level, these effects can be grouped into three broad categories including: productivity effects, employment effects and real estate effects. These facilitated effects arise due to improved connectivity (i.e. making it easier to connect) and accessibility.

3 Retail Impacts Methodology

In this section we describe the methodology and data sources used in the retail impacts assessment. By way of overview the methodology involved:

- measuring Levin town centre floorspace and estimating sales made from that floorspace;
- defining consumer catchments;
- quantifying total demand resident in each customer origin catchment;
- understanding the origin of consumers that sales are made to;
- defining scenarios to represent alternate futures with and without a potential bypass of Levin
- projecting growth in sales under each scenario, and;
- comparing scenario sales to derive a measure of impact.

3.1 Town centre floorspace and sales

We digitised from aerial imagery all retail, services and hospitality floorspace (gross floor area, or GFA) in the Levin town centre and coded space to an ANZSIC¹² category. That information is useful to provide context about the quantum and range of activities in those sectors in the town centre, and also provides the one basis for one of the two approaches of estimating total centre sales. By applying average floorspace productivity ratios (\$ sales per m²) from our proprietary retail models, we then estimated the total sales the measured quantum of floorspace is likely to yield. The second method used to estimate those sales is a demand-side assessment, and involves capturing specific shares of demand as described in the customer origin assessment, as described later in this section.

Actual sales data is not available due to confidentiality constraints, and so this dual estimation approach yields a reasonable approximation of current sales. In any case the accuracy of that estimation is less important to the assessment than the relative change between scenarios, as ultimately it is the percentage change as a result of any changed future environment (e.g. a potential bypass) that measures the size of the impact.

Base year (2016) sales are then projected forward to establish future sales the town centre would be expected to produce assuming current shopping patterns and therefore market share remains the same from each catchment. The driver of that spend growth is growth in

¹² Australian and New Zealand Standard Industrial Classification

each catchment, and each consumer type, which is derived from the demand projections (described later in this section).

A key driver of potential change in shopper spending is any reconfiguration of SH1 around Levin (i.e. a possible bypass). A bypass might induce current shoppers to spend less in Levin (by virtue of the town centre no longer being on their primary travel route) or more (if the town centre becomes a more attractive place to visit due to less traffic passing through it). Although the town centre's attractiveness might increase as a result of a bypass, the scenarios do not make any provision for this outcome because any such change is difficult to predict and quantify. Any such outcome would mitigate the effects presented.

The effect of a realignment of SH1 through Levin would be different on various consumer segments, with those visiting Levin as their destination likely to be much differently affected than those travellers who are merely passing through Levin on their way to some other destination. The modelling applies various assumptions to assess the potential impact of any bypass, and tests the sensitivity of those different assumptions, taking into consideration the current and future attractiveness of the Levin town centre to consumers from different origins. The assumptions underlying each scenario are described in the body of the report.

3.2 Catchments

Key to assessing the potential effects on the Levin town centre is understanding where consumers patronising stores in Levin live, and how likely they might be to change their current shopping patterns in the event that a bypass is constructed. The proclivity of consumers to change their shopping patterns will vary depending on where they live, and why they visit the Levin town centre. Indicatively people living in Levin are unlikely to change their shopping patterns as a result of any bypass, whereas a share of motorists passing through Levin on SH1 now may cease to do so if SH1 bypasses the town. A catchment analysis provides the framework to take this into account.

The catchments defined were delineated so as to group areas into those sharing similar travel patterns and retail uses of Levin. The area from which Levin draws its retail customers is constrained by the presence of other large retail centres, including at Palmerston North (40 minutes' drive to the north-east) and on the Kapiti Coast to the south (Otaki is 20 minutes' drive, Waikanae 30 and Paraparaumu nearly 40 minutes)¹³. Given the location of these other centres, three main types of catchment were defined (Levin, Rest of Horowhenua, Outside Horowhenua), each with a number of subcatchments¹⁴ (Figure 3.1). Areas inside Horowhenua are defined at a higher level of spatial detail than non-Horowhenua areas. The subcatchments outside of Horowhenua reflect the configuration of the main state highways coming into Levin, and include:

- SH1 northern approach, including Taranaki, Wanganui District, Rangitikei District and the rest of the central and upper North Island,

¹³ Current pre-RoNS travel times, which will reduce somewhat on completion of each stage of the RoNS

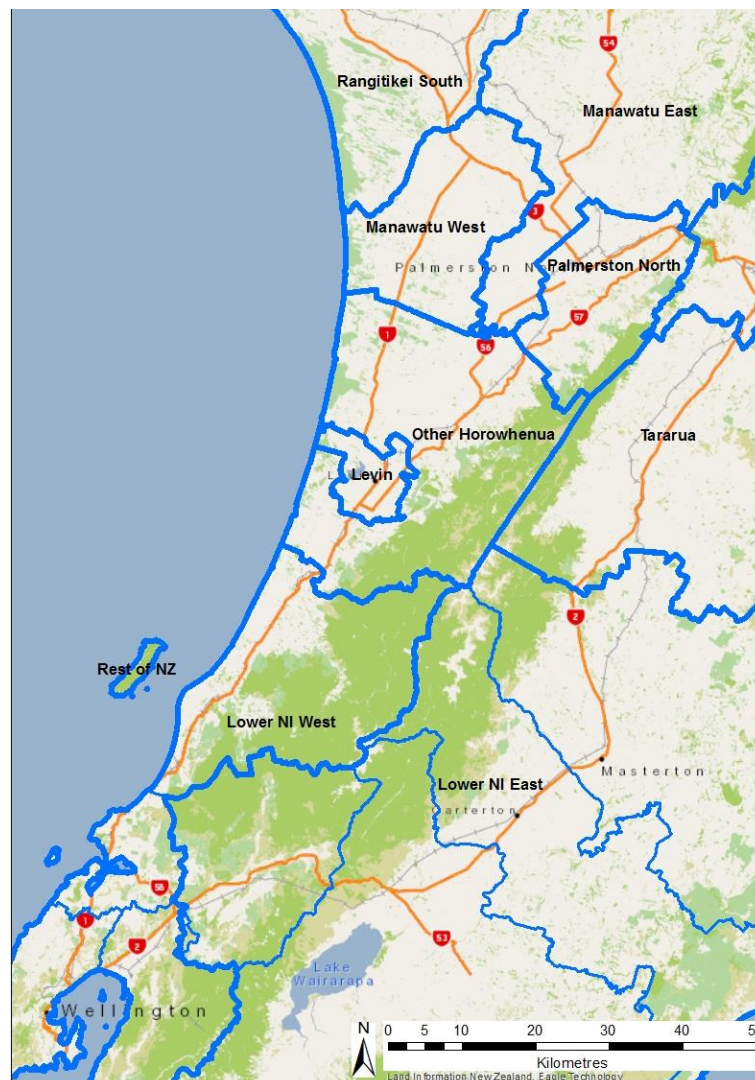
¹⁴ Levin has six subcatchments, the Rest of Horowhenua has eight (Shannon, Foxton, Waitare, five rural areas)

- SH1 southern approach: Lower North Island West and East (all of the TAs in the Wellington Region¹⁵),
- Palmerston North approach, including Palmerston North, Manawatu East, Hawkes Bay Region, Tararua District.

For the purposes of this assessment Levin and the rest of Horowhenua are referred to as “local” catchments, and consumers from other origins are non-local spend. Non-local spend can be either:

- Destination spend: people staying in Levin, or visiting for a specific purpose, or;
- Pass through spend: people travelling through Levin on the way to a destination elsewhere, but stopping and making a transaction in Levin on the way.

Figure 3.1: Study Catchments



¹⁵ Kapiti Coast, Upper and Lower Hutt, Porirua, Wellington City, Masterton, South Wairarapa, Carterton, Masterton

3.3 Demand

A core dataset in the assessment is retail demand. Retail demand 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 M.E's 'Market Meter' tool. Market Meter is a proprietary tool that synthesises all of M.E'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.

Demand data in Market Meter is calculated based on:

- The number of consumers (households, businesses, workers and tourists) resident in each location. This data comes from Census 2013 and SNZ household projections (for households) and SNZ's Business Frame (businesses and workers). 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. An alternative series run for this assessment is from NZIER's projections¹⁶ of Horowhenua District population under a scenario where the RoNS stimulates higher growth.
- Meshblocks' 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.
- The spending power of each consumer segment (households and non-household consumers). The spending power of each segment is sourced from customised output from Statistic's NZ's (SNZ) Household Economic Survey, and calibrated at a national level to total retail spending identified in SNZ's Retail Trade Survey.
- 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.

The output used in this assessment is a meshblock level dataset of total retail demand arising from each meshblock from the base year (2016) and then five-yearly out to a 2043 horizon. Demand is grouped to catchments, the composition of which is described in section 3.2.

3.4 Customer origins

The total demand resident in each catchment is established as described in section 3.3. The next step is to understand how much of that demand is directed to the Levin town centre.

¹⁶ "Investment in transport infrastructure: Effects on economic and demographic outlook" NZIER, December 2015

For this assessment a customised dataset was obtained from BNZ Marketview, 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.

Marketview data records 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 roader population.

Marketview data is only made available in an aggregated form that protects the confidentiality of customers and the commercial sensitivity of merchants. The data only covers BNZ cardholders, and excludes cash and cheque purchases, however because of its sheer volume, Marketview data provides robust information on the geographic patterns of shopping. It is also useful for identifying key parameters of shopping behaviour, particularly travel distance and sequential visits by cardholders.

The data commissioned for this project identifies several things:

- The place of residence of customers spending within Levin Town Centre. All origins are grouped into catchments that reflect the likely nature of their presence in Levin, whether Levin residents, those living in Horowhenua or people passing through Levin.
- 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:
 - Destination trips: those where the consumer visited Levin specifically, and not in conjunction with other shopping. This was defined as trips where a consumer's only transaction either side of transactions in Levin were nearer to their place of residence than Levin.
 - 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).
- 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.

3.5 Scenario definition

The base scenario in the assessment is a status quo future, where traffic is not diverted around the town centre. In all other scenarios a bypass is constructed, and so the difference is the effect of the bypass on Levin town centre sales. Impacts on the town centre were assessed for four scenarios:

- Very low impact
- Low impact
- Medium impact
- High impact.

There are three different assumptions applied to make up the four scenarios, and the assumptions are shown in Figure 3.2. The pass by traffic stop rates are explained below the table.

Figure 3.2: Scenario definition: with bypass

Scenario name	Population growth projection	Pass by traffic stop rates	Destination trips
Very low impact	NZIER	10.2%	20% more than Marketview
Low impact	Statistics NZ High	10.2%	20% more than Marketview
Medium impact	Statistics NZ Medium	9.3%	Per Marketview
High impact	Statistics NZ Low	8.5%	20% less than Marketview

Market size, in terms of current and projected population, is sourced from Statistics NZ's population projections¹⁷ and NZIER. NZIER produced an alternate growth estimate in their December 2015 report (referenced earlier), in which the RoNS stimulates high growth in Horowhenua, resulting in an additional 10,000 people in the District in 20 years. This assessment assumes that the growth NZIER anticipates would occur in a linear manner across the next 20 years. In reality if the RoNS stimulates the growth NZIER expect, that stimulation would be unlikely to have full effect for some time after the RoNS is finished, meaning that additional growth (relative to Statistics NZ growth scenarios) would be concentrated in the latter part of the 20 year period.

Pass-by traffic stop rates describe the proportion of all vehicles travelling past Levin (on a bypass) that choose to divert their route to travel into the Levin town centre and stop there. That data is based on modelling by QTP (for the O2NL project team) that is still being verified. The outer bounds of those stop rates (8.5% and 10.2%) are used for the very low, low and high

¹⁷ Subnational Population Projections: 2013(base)–2043 update, released February 2015

impact scenarios, with the average applied to the medium impact scenario. Those bounds were applied as they represent the outer limits of the range produced by QTP, and are therefore synonymous with the other outer edge estimates (for population growth etc.) which together for the impact scenarios.

The share of all non-local spend that occurs on destination trips (as opposed to pass through trips) was calculated from Marketview data. That share varies by customer origin. To account for uncertainty the assessment applies that Marketview data to the medium impact scenario and applies an interval either side ($\pm 20\%$).

In all cases the scenarios are defined by a combination of factors that all push in the same direction: impacts under the low impact scenario are low because population growth is high, stop rates are high and destination trips are high, all of which would make for more potential consumers in the town centre. The low and very low impacts are defined the same, with the exception of population growth. The difference in impacts between the low and very low scenarios is therefore down solely to that different growth rate.

3.6 Town centre sales projections

Town centre sales are then assessed for each scenario. Sales change over time as the size of the population in each catchment changes, and also as a result of the underlying growth in real spend per household. The attractiveness of Levin town centre to each catchment is assumed to remain unchanged over time, and so changes in Levin's retail sales do not result from any structural change in consumers. The long-term increase in spend per consumer is assumed to be 1%, which is consistent with historical trends.

For each scenario a comparison (with a potential transport improvement (which is assumed to include a bypass) versus the status quo roading configuration where SH1 passes through the town centre) yields the impact of the transport improvements. That means that the comparison is, for example, a high growth future with the transport improvement and a high growth future without the transport improvement. The difference between Levin town centre sales under each scenario is the impact of the transport improvements. We note that the very high growth future (as derived from NZIER) will only occur if the transport improvements occur, given that future is predicated on the improvements existing. The 'with' vs 'without' (transport improvements) comparison for that (Very Low impacts) scenario is provided for indicative purposes only.

4 Retail environment context

4.1 Horowhenua demography

There are currently (2016) some 31,300 people resident in Horowhenua District. Levin is the largest town and focal point for economic activity, with just over half the District's population (16,300 people living in 6,000 households). Levin is located on SH1 at the northern end of the Wellington Northern Corridor, near where SH57, the main route to the north-east towards Palmerston North and Hawkes Bay begins. Levin is something of a focal point for traffic travelling in the lower North Island.

Nearly a quarter of Horowhenua's population (7,200 people) lives in rural areas, with a quarter spread across several small towns: Foxton (population 2,700), Foxton Beach (1,700), Shannon (1,200), Tokomaru (600) and Manakau (200). There are also nearly 1,300 people living in and around Ohau (to the south of Levin) in a loose grouping of rural residential lots.

Figure 4.1: Horowhenua Population (2016)

Town	Population	Households	Share of Population
Levin	16,300	7,000	52%
Foxton	2,700	1,200	9%
Foxton Beach	1,700	800	5%
Shannon	1,200	500	4%
Tokomaru	600	200	2%
Manakau	200	100	1%
Around Ohau	1,300	500	4%
Rural	7,200	3,100	23%
HDC total	31,300	13,500	100%

The rest of this study refers to catchments, which do not necessarily align with the towns as described above, and is based on household counts, not population, to drive the retail assessment.

4.2 Household projections

Households are the key consumer unit that drives retail spend, and for that reason are the main demographic variable focussed on for this assessment. Population size is important, although this is accounted for in the model's segmentation which includes household size, family type and income. The NZIER impacts scenario is defined with reference to their projected growth rate in population, which for the purposes of this assessment we have translated into household counts, using Statistics NZ population per household data. For the non-Horowhenua catchments, the high Statistics NZ growth scenario was applied to the NZIER projections (which inform the very low impact scenario).

The lower part of the North Island is not a high growth area in terms of population and household numbers. The fastest growth parts of the country are Auckland and Waikato with average annual household growth of 1.4-1.5% (under a medium growth future). Wellington City, Upper Hutt, Kapiti Coast and Palmerston North are projected to be the fastest growing parts of the lower North Island out to 2043, with average annual household growth of 0.7-0.8%. Porirua, Manawatu and Lower Hutt will have slower growth at 0.3-0.5%, while Horowhenua (-0.1%), Wanganui and Rangitikei are projected by Statistics NZ to experience a decline in household numbers by 2043.

Levin is projected to experience slightly faster growth than the rest of Horowhenua under the high growth scenario, although would have respectively no growth or a decline under the medium and low growth scenarios (Figure 4.2). Compared to the Statistics NZ projections, the NZIER projection (10,000 additional people in the next 20 years in Horowhenua) is rather more aspirational, and would equate to a gain of 7,000 households by 2043, compared to the 1,700 extra households estimated under the most optimistic by Statistics NZ. The NZIER growth rate would be 1.5% per year over the next decade, similar to the fastest growing parts of the country around Auckland and Waikato.

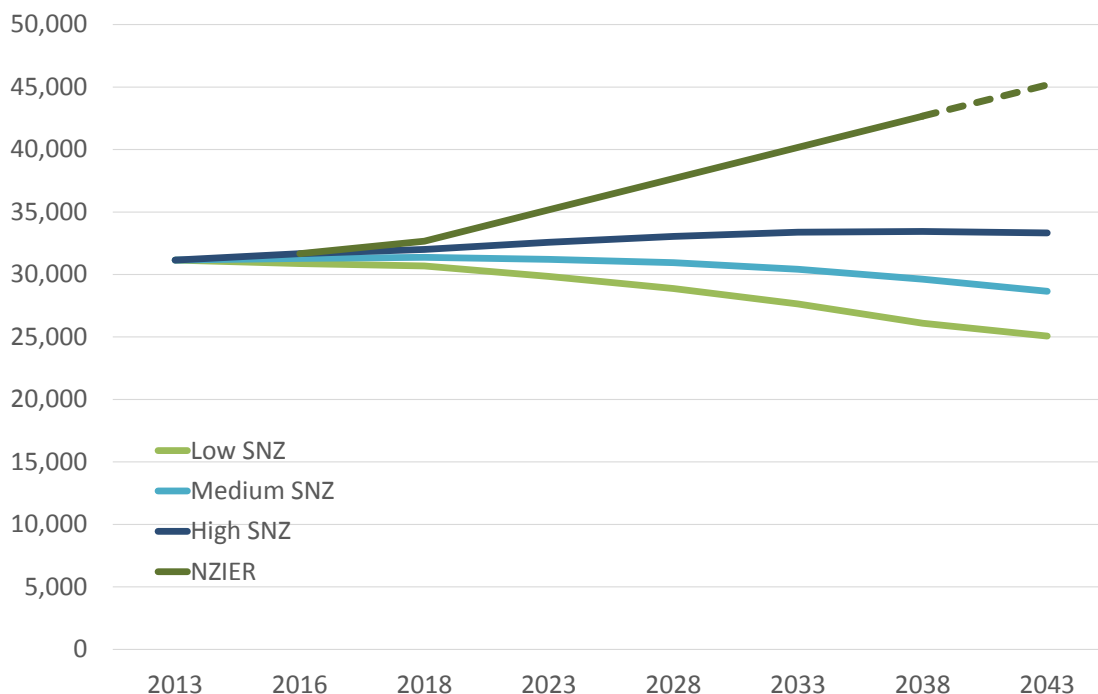
Figure 4.2: Study Area Household Projections (by Impact and Growth Scenario)

	2016	2023	2033	2043	Growth 2016-43	
					n	% avg. ann
High Impact (Low Growth)						
Levin	8,300	8,300	8,000	7,500	- 800	-0.4%
Rest of Horowhenua	5,100	5,100	4,800	4,300	- 800	-0.6%
HDC Total	13,400	13,400	12,800	11,800	- 1,600	-0.5%
Manawatu and PNth	48,000	49,100	49,900	49,400	1,400	0.1%
Lower NI East	36,900	37,900	37,900	36,600	- 300	0.0%
Lower NI West	154,200	157,900	159,700	157,000	2,800	0.1%
Medium Impact (and Growth)						
Levin	8,400	8,700	8,700	8,400	-	0.0%
Rest of Horowhenua	5,100	5,300	5,200	4,900	- 200	-0.1%
HDC Total	13,500	14,000	13,900	13,300	- 200	-0.1%
Manawatu and PNth	48,700	51,500	54,800	57,100	8,400	0.6%
Lower NI East	37,500	39,700	41,500	42,200	4,700	0.4%
Lower NI West	156,600	166,000	176,600	183,900	27,300	0.6%
Low Impact (High Growth)						
Levin	8,500	9,000	9,500	9,700	1,200	0.5%
Rest of Horowhenua	5,200	5,400	5,700	5,700	500	0.3%
HDC Total	13,700	14,400	15,200	15,400	1,700	0.4%
Manawatu and PNth	49,400	53,900	60,100	65,800	16,400	1.1%
Lower NI East	38,000	41,500	45,600	48,900	10,900	0.9%
Lower NI West	158,700	173,800	193,900	211,900	53,200	1.1%
Very Low Impact (NZIER Growth)						
Levin	8,500	9,700	11,400	13,200	4,700	1.6%
Rest of Horowhenua	5,200	5,900	6,800	7,500	2,300	1.4%
HDC Total	13,700	15,600	18,200	20,700	7,000	1.5%
Manawatu and PNth	49,400	53,900	60,100	65,800	16,400	1.1%
Lower NI East	38,000	41,500	45,600	48,900	10,900	0.9%
Lower NI West	158,700	173,800	193,900	211,900	53,200	1.1%

Source: Statistics NZ (Low, Medium and High Impact scenarios) and derived from NZIER (Very Low Impact)

Note that the projections are based on underlying projections which diverge from 2013, and so even though 2016 is the base year for this assessment, different estimates for that 2016 base are provided, consistent with the differences in the underlying projections.

Figure 4.3: Horowhenua District Household Projections



4.3 Levin town centre composition

The Levin town centre has developed along SH1 (Oxford St), centred around the intersection with Queen St. Development to the eastern side of Oxford St is constrained by the railway, with only a small aggregation of commercial businesses to the east of the railway, concentrated in a node around the Oxford/Cambridge roundabout. West of the railway development extends along streets intersecting Oxford St, although in most cases only one or two blocks deep.

The town centre has a broad range of activities, and in that respect is relatively typical of New Zealand towns of a similar size. Some of the notable components of the town centre include:

- Large format retailers: New World and Countdown supermarkets, The Warehouse and Farmers department stores, Warehouse stationery, Mitre 10,
- National chain retail brands: Avantiplus, Ballentynes, Beds R Us, Carpet Court, Noel Leeming, OPD, Paper Plus, Repco, Supercheap Auto, T&T, Unichem, Vodafone,
- National chain fast food outlets: Subway, Burger King, Dominos, Pizza Hut, McDonalds, Noodle Canteen,

- Community services: Horowhenua District Council’s offices, and Te Takere (Horowhenua’s community centre and main library),
- Household and professional services: banks, hairdressers, real estate, legal, accounting, medical, travel agents etc.

Levin is the main retail and commercial node in Horowhenua District, and within Levin the town centre is the dominant location. Most of the retail and services sectors have the Levin town centre as their predominant location within Horowhenua, and overall 64% of that activity (by employment) is located in the town centre, including:

- 68% of District food and liquor,
- 85% of comparison retail,
- 51% of hospitality,
- 50% of automotive,
- 62% of household services, and
- 78% of professional services.

There are nearly 2,000 people employed in the town centre employment. Just over half (930) are engaged in some sort of service activity (household, professional, community or recreation) while 840 employees work in retail and hospitality (Figure 4.4). There is an estimated 72,000m² of ground floor floorspace (Gross Floor Area, or GFA) in the town centre, with the largest amounts in the department stores (within comparison retail) and the supermarkets (in the food and liquor retail sector). Of that 72,200m² GFA around 3,800m² is estimated to currently be vacant (5% by area, 11% by tenancy count).

Figure 4.4: Levin Town Centre Business Demography

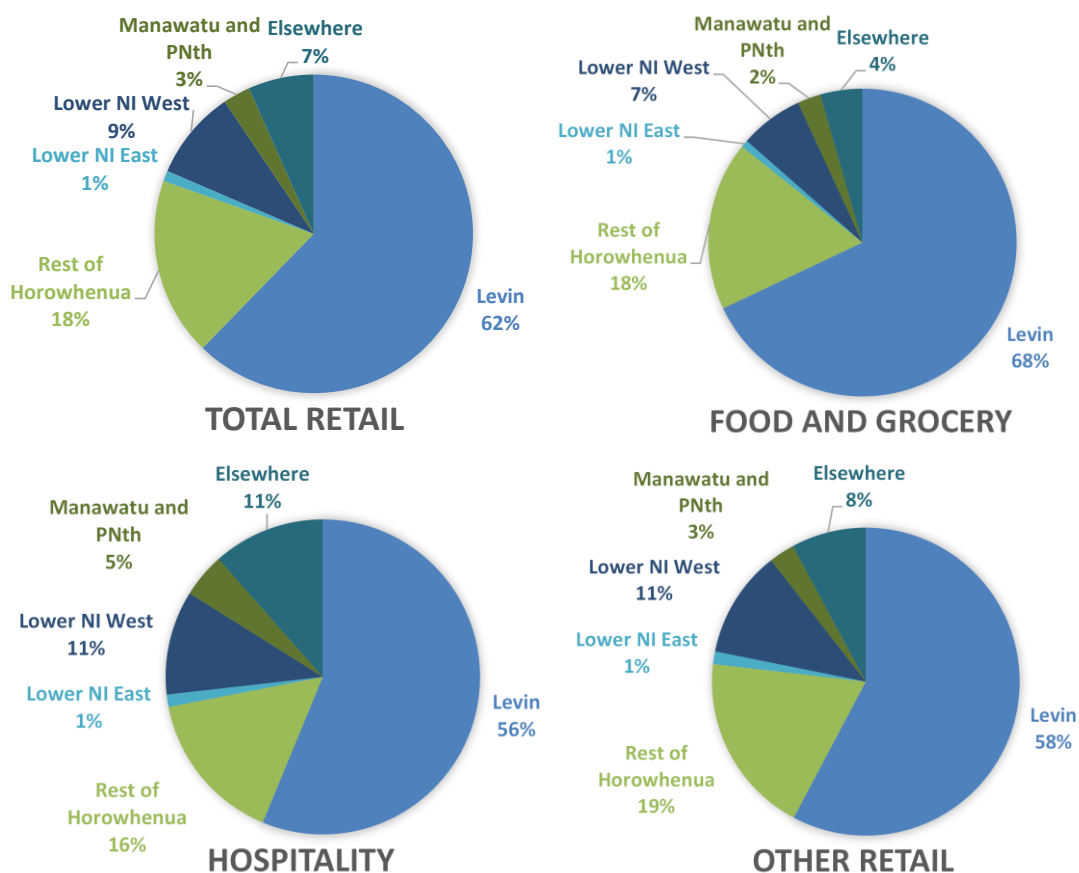
Sector	Businesses	Employment	Share of Employment	Floorspace	Share of Floorspace
Food & Liquor Retail	7	307	17%	10,200	14%
Comparison Retail	52	288	16%	24,000	33%
Hospitality	24	245	14%	10,600	15%
Automotive	9	70	4%	4,900	7%
Out of centre retail	-	-	0%	2,300	3%
Household Services	26	131	7%	7,800	11%
Community Services	15	457	26%	8,000	11%
Recreation Services	5	21	1%	600	1%
Professional Services	80	250	14%	3,700	5%
Centres-Type Sectors	218	1,769	100%	72,100	100%
Other	74	226			
Total	292	1,995			

** Businesses are Geographic Units, employment is MECs, floorspace is ground floor GFA (sqm)*

4.4 Levin town centre customer origins

Overall 62% of the sales made in the Levin town centre are made to Levin residents, and 18% are made to people living elsewhere in Horowhenua, so 80% of sales are made to locals (and 20% to non-locals). Food and grocery spending is most dominated by local consumers (86% of food and grocery sales), while locals contribute 77% of the Other Retail category. Non-local spend is more reliant on non-local consumers, with 72% of the category's sales made to locals, and 28% of non-locals (Figure 4.5). That distribution reflects both the localised nature of food and grocery (predominantly supermarket) spend, and the greater influence that traffic passing through on SH1 has on hospitality (and to a lesser extent other retail).

Figure 4.5: Levin town centre customer origins by storetype



In addition to the 80% of local spend in the town centre, a further 13% of town centre sales are made to non-local customers who have Levin as their destination. This destination spend is defined as all spend made by non-locals on trips where there are no transactions recorded beyond Levin, relative to the customer's origin (as described in section 3.4). This destination spend is defined so as to include non-locals visiting holiday homes (e.g. at Waitarere, Foxton and Himatangi beaches), staying in commercial accommodation or with friends and family, and day trip spend, although the reasons for destination spend are not identifiable from the data.

4.5 Horowhenua District retail spend flows

Levin residents generated around \$212m in retail sales in 2016, and other Horowhenua residents contributed a further \$133m, for a total of \$345m. The spending patterns of the two areas varied significantly, and while nearly two-thirds of Levin residents' spend was directed to the Levin town centre, less than one third of Rest of Horowhenua residents' spend went to Levin (Figure 4.6). That reflects the closer proximity of the non-Levin parts of the District to alternative retail supply in Palmerston North and Kapiti.

Figure 4.6: Destination of spend by HDC residents (2016)

Customer origin	Spend destination		
	Levin	Other	Total
Annual Spend			
Levin	\$ 136.3	\$ 75.9	\$ 212.2
Rest of Horowhenua	\$ 39.7	\$ 93.5	\$ 133.2
HDC Total	\$ 176.0	\$ 169.5	\$ 345.4
Shares			
Levin	64%	36%	100%
Rest of Horowhenua	30%	70%	100%
HDC Total	51%	49%	100%

4.6 Spend by trip purpose

The proportion of spending that is made on destination trips as opposed to pass through trips varies by customer origin. All spend by locals is classified as destination spend (\$176m out of total town centre sales of \$219m). Most spend from Kapiti and Wellington residents is made on destination trips (73%), compared to 56% of spend from other origins (Figure 4.7).

Figure 4.7: Levin town centre spending by customer segment

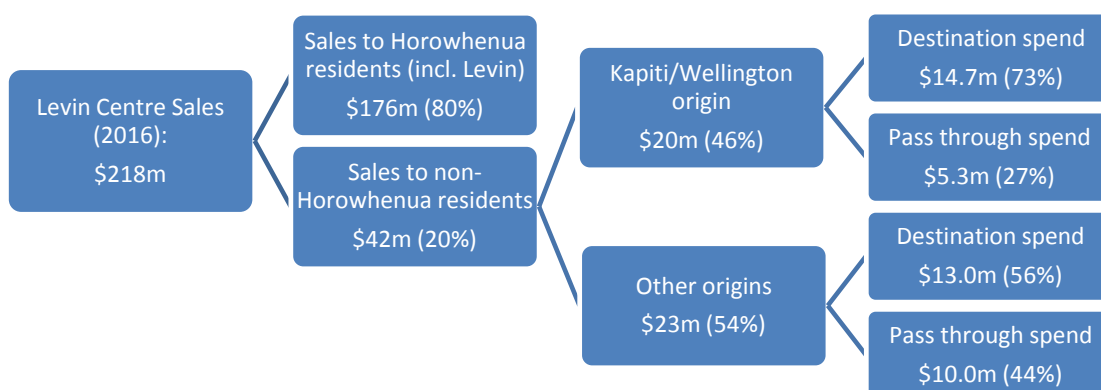
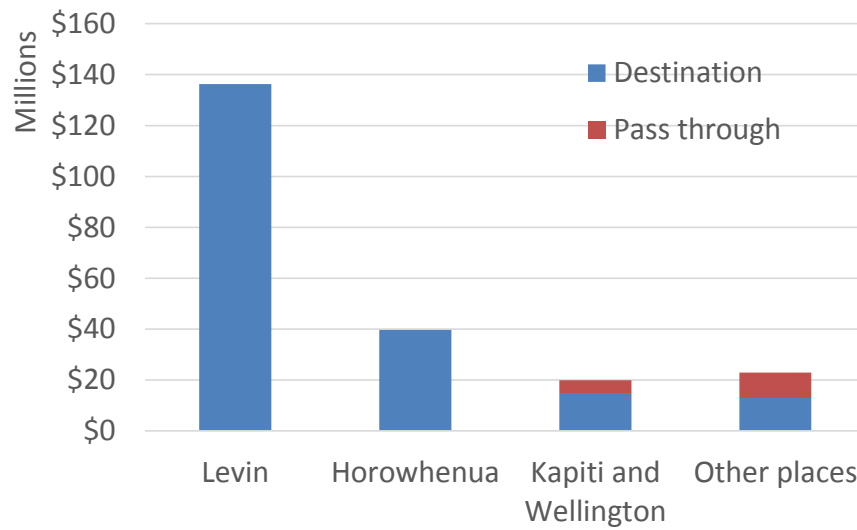
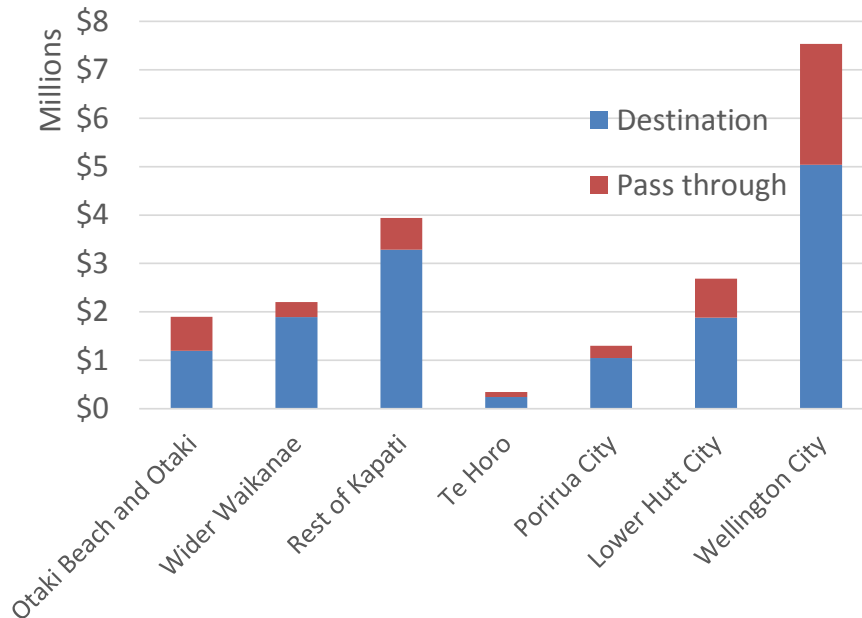


Figure 4.8: Levin town centre spending by customer segment



Of the spend coming from Kapiti and Wellington, 42% comes from Kapiti Coast 38% comes from people living in Wellington City, and 20% comes from Porirua and Lower Hutt. Destination spending is larger than pass-by spending within all of those origins, and is 86% of the spending in Levin made by Waikanae residents, 83% from the Other Kapiti catchment and 81% from Porirua City. Other catchments have smaller (but still majority) shares of destination spend, including Otaki (63%), Lower Hutt (71%) and Wellington (67%).

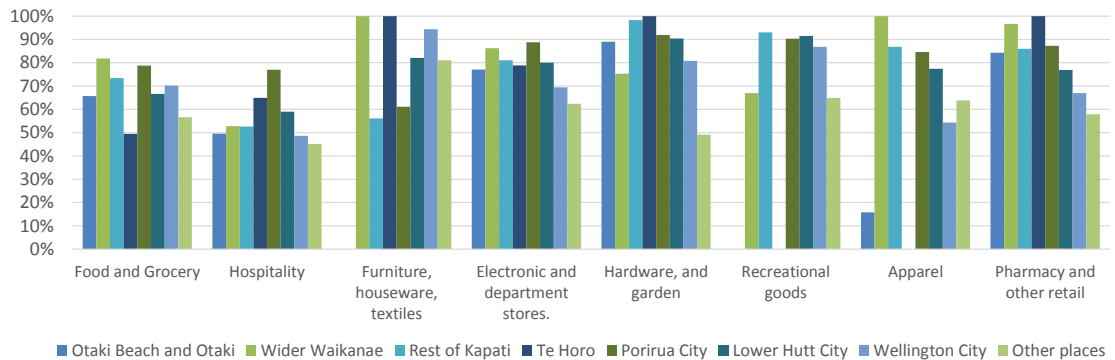
Figure 4.9: Levin town centre spend by Kapiti and Wellington customers



As discussed above in Figure 4.5, hospitality stores have the highest proportion of non-local custom. Levin’s hospitality outlets make a larger proportion of sales than other store types to people passing through Levin. Other stores have high proportions of non-local spend made on destination trips (Figure 4.10). Food and grocery stores make a slightly higher proportion

of their sales to destination shoppers, while the comparison retail types are much more attractive to those on destination trips rather than pass by trips.

Figure 4.10: Levin destination spend by storetype and origin



Among the comparison store types (all types apart from food and grocery and hospitality, in Figure 4.10), there is a fairly consistent trend for around 80% of the spend in Levin by consumers from different origins to be made on destination trips, and 20% on pass by trips. There is variation within that, by storetype and by location, which is likely due to the presence or absence of particular storetypes in the home markets of consumers.

5 Demand assessment

5.1 Interpretation

The demand projections used in this assessment are based on the household projections described in section 4, and retail spend profiles that have been derived from M.E's Market Meter demand projections model.

The spending power of any population is strongly influenced by its socio-demographic composition, especially household income, average household size (number of family members), the age of family members, and the family type (single person, couples, one parent, two parent families etc.). All of these factors and changes in socio-demographic composition over time are taken into account in the Market Meter projections, as described in the methodology section.

Retail demand growth is strongly driven by growth in the underlying market, in particular household numbers. Because most parts of Horowhenua District are expected to experience household growth that is somewhere between negative and slightly positive, the base retail demand future will follow a similar trend.

However there has been a long-term, sustained trend across New Zealand for households to spend more each year (per household) on retail goods. The rate of increase in real household spend has fluctuated over the last 20 years, averaging around 1% per year. There is no reason to expect that that trend will not continue, and the assumption is made for this assessment that per household spending will continue to increase at an average of 1% per year. That assumption is fairly standard for retail assessments in New Zealand.

As for the underlying household projections, the demand projections diverge from a common 2013 starting point, and so even though 2016 is the base year for this assessment, different estimates for that 2016 base are provided, consistent with the differences in the underlying projections.

5.2 Retail demand projections

Given nearly nil household growth, that means that all, or at least most, of the increase in retail spending in Horowhenua will come from more spending per household, rather than more households¹⁸. The growth in retail demand from Horowhenua therefore averages around 1% per year, and is higher than that in the higher growth areas in urban Wellington, Kapiti and Palmerston North (Figure 5.1).

¹⁸ The retail demand projections also take into account demand from other market segments (domestic and international tourists, businesses and employees) so the total retail demand growth is not exactly equal to 1% more than household growth

There is currently \$345m in retail demand resident in Horowhenua District, with growth of anywhere between \$53m and \$139m (mid-point \$92m) expected under the Statistics NZ growth scenarios out to 2043. The NZIER growth scenario would yield much stronger growth, at well over \$300m, an average annual growth of 2.4%, more than 1% per year (compounding) more than the High Statistics NZ scenario.

Figure 5.1: Total Demand Resident in each Catchment (\$m)

	2016	2023	2033	2043	Growth 2016-43	
					n	% avg. ann
High Impact (Low Growth)						
Levin	\$ 210.0	\$ 224.4	\$ 239.2	\$ 246.9	\$ 36.9	0.6%
Rest of Horowhenua	\$ 132.0	\$ 140.7	\$ 148.1	\$ 148.7	\$ 16.7	0.4%
HDC Total	\$ 342.0	\$ 365.1	\$ 387.3	\$ 395.7	\$ 53.6	0.5%
Manawatu and PNth	\$ 1,469.1	\$ 1,595.2	\$ 1,772.7	\$ 1,939.4	\$ 470.3	1.0%
Lower NI East	\$ 1,113.6	\$ 1,209.1	\$ 1,319.6	\$ 1,407.0	\$ 293.5	0.9%
Lower NI West	\$ 5,476.0	\$ 5,927.6	\$ 6,526.8	\$ 7,054.5	\$ 1,578.6	0.9%
Medium Impact (and Growth)						
Levin	\$ 212.2	\$ 231.4	\$ 254.5	\$ 271.5	\$ 59.2	0.9%
Rest of Horowhenua	\$ 133.2	\$ 145.4	\$ 157.4	\$ 165.8	\$ 32.6	0.8%
HDC Total	\$ 345.4	\$ 376.8	\$ 411.9	\$ 437.3	\$ 91.8	0.9%
Manawatu and PNth	\$ 1,486.3	\$ 1,656.3	\$ 1,910.9	\$ 2,175.6	\$ 689.3	1.4%
Lower NI East	\$ 1,126.1	\$ 1,254.5	\$ 1,420.3	\$ 1,580.7	\$ 454.7	1.3%
Lower NI West	\$ 5,540.2	\$ 6,159.6	\$ 7,061.2	\$ 7,987.2	\$ 2,447.0	1.4%
Low Impact (High Growth)						
Levin	\$ 214.3	\$ 239.1	\$ 272.5	\$ 303.4	\$ 89.1	1.3%
Rest of Horowhenua	\$ 134.7	\$ 149.6	\$ 168.9	\$ 184.8	\$ 50.1	1.2%
HDC Total	\$ 349.0	\$ 388.7	\$ 441.5	\$ 488.2	\$ 139.2	1.3%
Manawatu and PNth	\$ 1,501.6	\$ 1,717.6	\$ 2,058.2	\$ 2,435.9	\$ 934.3	1.8%
Lower NI East	\$ 1,138.7	\$ 1,301.3	\$ 1,534.9	\$ 1,782.2	\$ 643.5	1.7%
Lower NI West	\$ 5,597.3	\$ 6,386.6	\$ 7,602.3	\$ 8,933.5	\$ 3,336.1	1.7%
Very Low Impact (NZIER Growth)						
Levin	\$ 214.3	\$ 258.2	\$ 328.0	\$ 411.1	\$ 196.8	2.4%
Rest of Horowhenua	\$ 134.7	\$ 161.5	\$ 203.3	\$ 250.5	\$ 115.8	2.3%
HDC Total	\$ 349.0	\$ 419.7	\$ 531.3	\$ 661.6	\$ 312.6	2.4%
Manawatu and PNth	\$ 1,501.6	\$ 1,717.6	\$ 2,058.2	\$ 2,435.9	\$ 934.3	1.8%
Lower NI East	\$ 1,138.7	\$ 1,301.3	\$ 1,534.9	\$ 1,782.2	\$ 643.5	1.7%
Lower NI West	\$ 5,597.3	\$ 6,386.6	\$ 7,602.3	\$ 8,933.5	\$ 3,336.1	1.7%

5.3 Levin town centre sales

5.3.1 Without the transport improvement

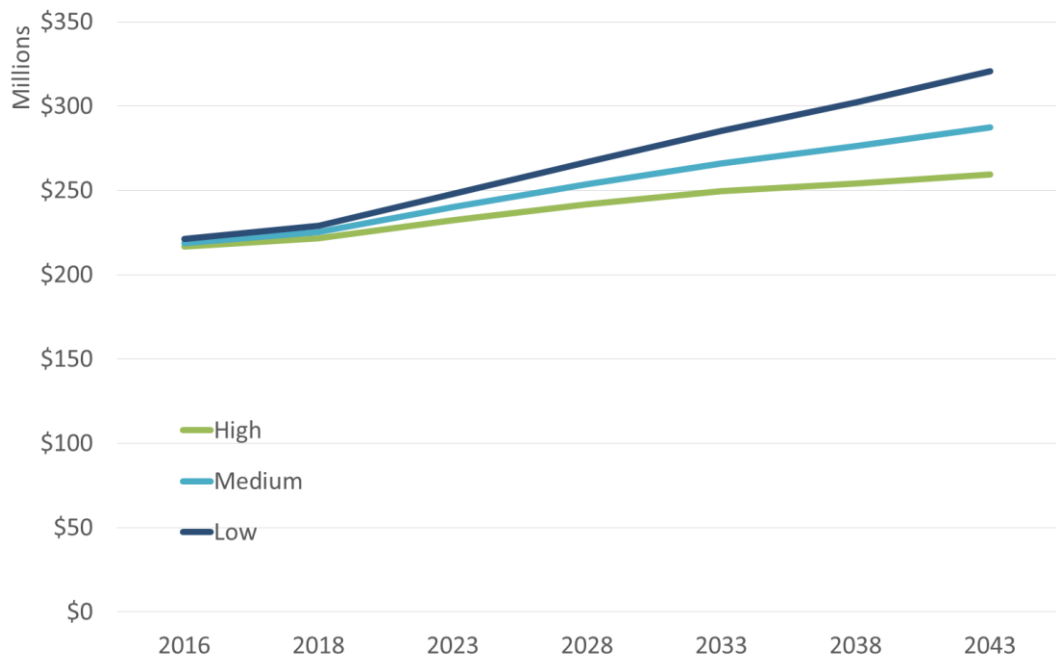
The Levin town centre is estimated to currently make nearly \$220m in annual sales from its core retail and hospitality businesses (excluding automotive, and professional services businesses). The strong local influence in its market means that sales growth is strongly pegged to local demand growth, and sales growth is projected to increase by somewhere between \$43m and \$100m (mid-point \$69m) expected under the Statistics NZ growth scenarios (Figure 5.2). Under all scenarios the total town centre sales are projected to be

much larger than they are now (Figure 5.3). Given the relatively modest growth rates projected under all scenario, the assumed 1% annual average increase in spend per household is a key driver of the projected sales growth. For impact scenario definitions see section 3.5 (note that this discussion excludes the 'very low' scenario).

Figure 5.2: Levin Town Centre Sales without Transport Improvements (\$m)

Impact Scenario	2016	2023	2033	2043	Growth 2016-43	
					n	% avg. ann
High	\$ 216.6	\$ 232.3	\$ 249.4	\$ 259.4	\$ 42.9	0.7%
Medium	\$ 218.8	\$ 240.0	\$ 266.0	\$ 287.3	\$ 68.5	1.0%
Low	\$ 221.1	\$ 248.0	\$ 285.3	\$ 320.6	\$ 99.5	1.4%

Figure 5.3: Levin Town Centre Sales without Bypass by Impact Scenario (\$m)



5.3.2 With transport improvements

The scenario definitions are provided in section 3.5, and assume different rates of trip diversion away from the Levin town centre as the result of a potential transport improvement. It is noted again that planning for O2NL stage of the Wellington RoNS is still underway, that route configuration and design is still to be determined and so effects of any potential bypass are still uncertain. We compare the low, medium and high growth profiles of the 'without scenario' against the low, medium and high growth profiles of the 'with scenarios'. These are based on the Statistics NZ figures so it does not specifically cater for population growth that is 'unlocked' by the transport investment. We include a very low scenario that is based on the

NZIER estimates. This scenario does not have a directly comparable ‘without scenario’ because it shows the growth that is unlocked by the transport investments.

The transport improvements might improve town centre amenity and increase town centre sales, mitigating any diversion of trade away from Levin. Those potential benefits have not been assessed in this study. Aside from those potential mitigating effects, and given the assumptions made, Levin town centre sales would not be as high with a bypass as they would have been without one. That is because the size of the market (that is, the number of pass by travellers) would be reduced by the bypass decreasing the proportion of motorists stopping in Levin. A set of “With transport improvements” sales estimates is presented in Figure 5.4, and can then be compared against the baseline (Without transport improvements) projections in Figure 5.2. The figure includes the ‘very low’ scenario which reflects the NZIER scenario (which includes higher population growth due to the transport improvement’s effects).

Figure 5.4: Levin Town Centre Sales with Transport Improvements (\$m)

Impact Scenario	2016	2023	2033	2043	Growth 2016-43	
					n	% avg. ann
High	\$ 200.3	\$ 214.5	\$ 229.6	\$ 237.7	\$ 37.4	0.6%
Medium	\$ 204.9	\$ 224.4	\$ 247.9	\$ 266.6	\$ 61.7	1.0%
Low	\$ 209.6	\$ 234.8	\$ 269.4	\$ 301.7	\$ 92.1	1.4%
Very low	\$ 209.6	\$ 250.6	\$ 315.3	\$ 390.5	\$ 180.9	2.3%

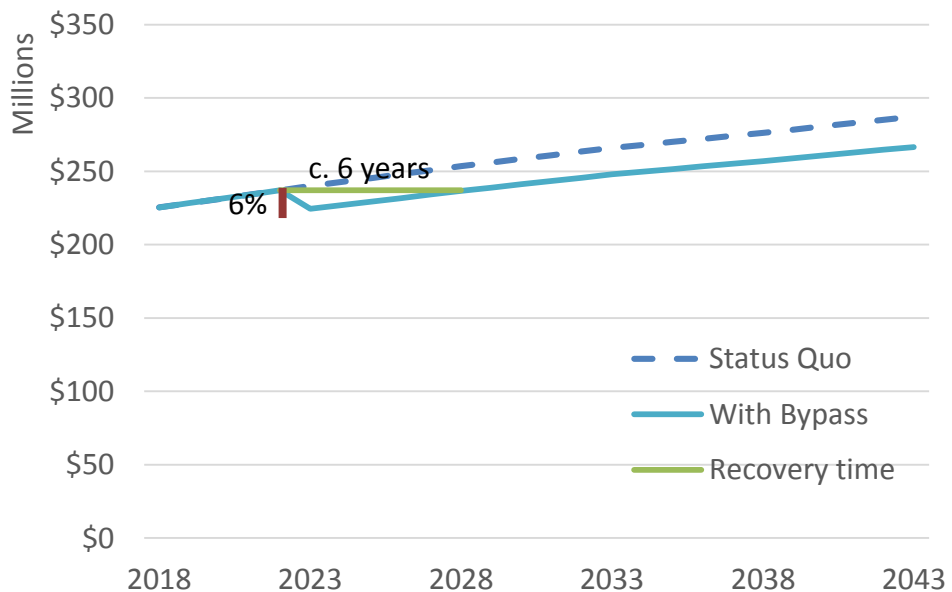
Under the medium scenario then, if the transport improvements including the bypass had been operative in 2016, the town centre would have been expected to make 7% less retail and hospitality sales compared to the sales it actually made (i.e. with no bypass). The corresponding decrease in other scenarios would be 8% (High Impacts) and 6% (Low Impacts). Under the Very Low Impact scenario sales, would increase by 11% on opening (relative to the low growth scenario) – this reflects the additional growth in the District that would be stimulated by the transport improvements (both before and after opening). This would mean that the post-impact level would still exceed the pre-impact level that would be expected with no transport improvements (i.e. \$315m in sales in 2033 with improvements compared to only \$285m with no improvements). The magnitude of the impact remains broadly the same no matter when a potential bypass opens.

Although a bypass would result in town centre sales experiencing a one-off decrease, after that initial impact sales growth would continue at essentially the same rate as it would if there was no bypass. Under all scenarios then, sales would recover to reach pre-bypass levels within a number of years. A visualisation of that impact is shown in Figure 5.5. The number of years taken to recover to pre-bypass levels is a function of the rate of market growth and the time at which the bypass is developed, so in faster growth scenarios the market will return to pre-bypass levels more quickly than in slow growth scenarios.

Under the medium impact scenario that recovery period would be around six years, given underlying market growth that averages around \$2.5m a year, and an impact on town centre sales of \$15.5m (in 2023, a fall from \$240.0m to \$224.5m). That means that although Levin town centre retail sales would decrease by 6% when a bypass opens (the vertical red line in

Figure 5.5), given background growth of 1% per year, after six years (the horizontal green line) (i.e. in 2029) sales would have returned to 2023 pre-bypass levels (i.e. \$240m).

Figure 5.5: Levin town centre impacts and recovery period (Medium scenario)



Under a high impact scenario (where market growth, pass by stop rates and destination trip rates are all low), that recovery period would be longer, at just over 11 years. That means that the gradient of the line in Figure 5.5 would be flatter, the separation between the sales levels with and without bypass (the impact level of 8% compared to 6% under the medium scenario) would be greater and the green line would be longer.

Under more optimistic scenarios, the recovery time would be much shorter, at around 3.5 years under a low impact scenario (Statistics NZ High growth) and less than two years under a very low impact scenario (NZIER growth scenario). Given the assumption described in section 3.5¹⁹, there may be somewhat greater initial impacts under the NZIER scenario if the growth NZIER anticipates has not yet occurred when any potential bypass is developed, and instead arises in the years after a bypass opens. The net effect in the medium term after a bypass opens would however be the same, but the short-term effect under the NZIER may be more akin to the low impact scenario.

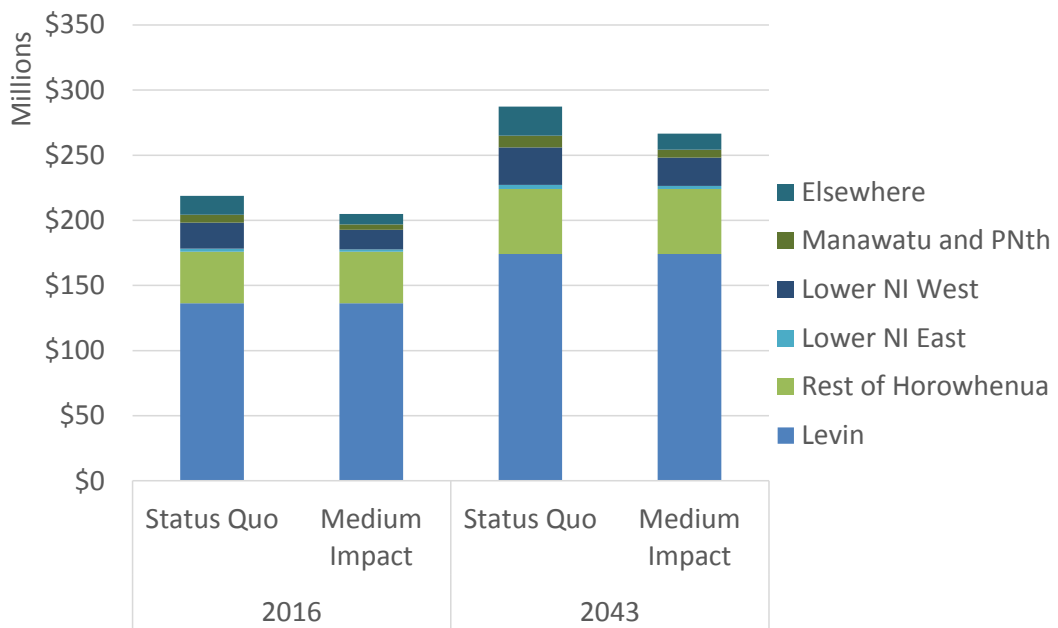
Timing for construction of the O2NL part of the RoNS is not yet settled, but indicatively any opening of the road might be eight to ten years away. Given the recovery time for the impacts assessed under the medium impact scenario is around six years, impacts of that magnitude would see sales increase over the next decade, then fall back the equivalent of six years of growth (i.e. to the point they will reach in four years from today, in 2021), before then recovering thereafter. That means that even post any bypass opening, town centre retail sales would still be well above their current (2017) level. That is, the sales impacts assessed are in

¹⁹ The assumption that growth in the NZIER scenario will be evenly spread rather than being concentrated after the RoNS is finished

relation to sales immediately before the opening date of the road, not in relation to 2017 sales, which needs to be understood when interpreting the impacts.

The structure of Levin’s customers will change slightly under the impact scenarios, with locals comprising a greater share of total sales, given the decrease in pass-by traffic expected. However, given the relatively small proportion of total sales that pass-by traffic currently contributes, this effect is limited, and there will be, under all impact scenarios, a notable increase in spend by both locals and non-locals, with the difference being lesser growth in the latter with the bypass than without (Figure 5.6).

Figure 5.6: Projected Origin of Levin Town Centre Retail Sales



5.4 Mitigating factors

All scenarios represent a conservative (high) estimate of potential impacts, as they do not make any provision for mitigation measures. Measures such as increased marketing of Levin as a destination, signage promoting the town centre as a service stop for pass-by traffic and town centre beautification programmes can all contribute to an increased capture rate of custom from different market segments. It is possible that local spend might actually increase, if the town centre is perceived as easier to move around or a more pleasant place to be given reduction in traffic volumes passing through the centre. None of these possibilities are accounted for in the impact assessment.

A number of studies have been conducted overseas into the effects of highway realignment on town’s economies, including employment and retail sales. Positive effects such as improved amenity and increased safety in the town centre are identified in these studies, although no quantification of these effects has been identified in the literature reviewed. The general tenor of these studies is that there are likely to be positive effects, those help to mitigate the negative effects, and the net economic impacts are usually relatively small, either

positive or negative, and are more likely to be negative on small (less than 1,000 population) communities²⁰.

Another mitigating factor is the degree to which the short-term positive economic impacts of construction of the RoNS will have on the town centre. The presence of a relatively large workforce in and around Levin while the O2NL part of the RoNS, and any potential bypass are being constructed will temporarily increase the pool of retail spend available for local retailers. Depending on the arrangements made for worker accommodation, it is difficult to estimate this effect with any certainty, especially at this early stage of planning for the road, however the contribution of that workforce will be positive.

²⁰ Parolin, B (2011) Economic Evaluation of Town Bypasses Review Of Literature, for NSW Transport

6 Conclusion

6.1 Retail impacts

The Levin town centre currently makes around \$218m in total retail sales. That figure is projected to increase with market growth, and an ongoing increase in spend per consumer (consistent with national spending trends). Population growth is expected to be modest under scenarios published by Statistics NZ, although an alternative projection series by NZIER projects much more rapid growth as a result of the RoNS stimulating growth in the District. This higher growth is expected to have a positive impact on Levin's retail landscape.

The Levin town centre currently captures nearly two thirds of the retail spending by Levin residents, and nearly one third of spending by those living elsewhere in Horowhenua. Together those two market segments ('locals') comprise 80% of all retail spending in the town centre. The other 20% of spend comes from non-locals, of which nearly two-thirds (64%) is from non-locals who have Levin as the destination on their trip, and one-third (36%) are passing through Levin on their way somewhere else.

The high proportion of town centre shoppers that are locals and those on destination trips to Levin indicates that the town centre would be insulated from the diversion effects of a potential bypass. Locals and destination travellers would still be likely to shop in Levin, given the large distance to the nearest alternative retail destination. Only \$15m (6.8%) of the town centre's \$218m retail sales are made by people passing through the town. It is this component of spending that might be vulnerable to being diverted away from Levin if a bypass is included as part of the O2NL segment of the Wellington RoNS.

From the preliminary traffic modelling conducted, some 91% of pass-by traffic would no longer visit the town centre if a bypass were constructed, and 9% would leave the bypass to visit the town centre. The impact of this diverted trade would be around 91% of \$15m, or between 5% and 8% of total town centre sales (depending on the underlying assumptions made as to share of trips diverted, etc.). That level of impacts would equate to somewhere between two and 11 years of market growth, depending on the growth rate assumed. Under the more optimistic growth scenarios, town centre sales would revert to pre-impact levels quickly, and thence continue to grow as they would in the absence of the transport improvements.

The transport improvements would likely stimulate population and economic growth in Horowhenua, as addressed in NZIER's report. That additional growth would offset some or potentially all of the adverse effects created by the improvements' diversion of passing traffic away from the Levin town centre.

Given it is likely to be some time before any bypass is operational (indicatively around 10 years), under all but the Very High impact scenario, town centre sales immediately after the bypass opened would be greater than they are now. That relatively long time until any bypass

opens would give retailers time to prepare for possible impacts, and would in all likelihood mean very little in the way of noticeable impacts on the town centre, either for retailers or consumers. There would also potentially be positive effects on the town centre, such as improved amenity and reduced traffic flows, creating a more attractive pedestrian and retail environment, and potentially mitigating the effect of lost sales to non-locals.

6.2 Construction impacts

Investing in transport infrastructure will have a number of economic effects, some of these will be felt in the district and some in the wider economy. With reference to the economic impacts associated with building the infrastructure, where the impacts are felt is subject to where the spending takes place. Irrespective of where the spending takes place, a portion of the economic impacts are expected to manifest within the District.

The transport improvements identified would be expected to increase the District's GDP by between \$27.8m and \$58.5m, increase District incomes by between \$11.6m and \$30.7m, and increase employment in the District by between 260 and 690 jobs. These effects relate only to the construction of the improvements, and not to ongoing additional economic growth that might be facilitated by them. In addition to the one-off impacts associated with constructing the improvements, additional facilitated effects would also be likely. At a high level, these effects can be grouped into three broad categories including: productivity effects, employment effects and real estate effects. These facilitated effects arise due to improved connectivity (i.e. making it easier to connect) and accessibility.

The economic impacts reflect the GDP effects associated with the investment but given the uncertainty around the budget and timing, the results presented in this report should be seen as indicative only. Once a firmer budget is known, the impacts should be re-estimated and the funding mechanisms (i.e. how the project is funded) should also be taken into consideration. This funding is crucial because it provides an indication of the distribution of the 'who pays' and 'who benefit' questions.

Appendix 1: Information about IO models

One of Input-Output modelling's strong points is that the results it returns provides 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. We use IO tables derived from recent Supply and Use Tables. Therefore, they may not accurately reflect the current sectoral relationships in the economy.

With reference the 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:

- **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.
- **No supply constraints:** IO assumes there are no restrictions to inputs requirements and assumes there is enough to produce unlimited products.
- **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.

The following indicators are used to measure economic impact:

- **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.
- **Employment** is measured in Modified Employee Count years (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.