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## **Executive Summary**

The East Coast Heights Stage 3 and 4 (ECH3&4) residential development can be expected to produce positive benefits for the local community, both in terms of allowing households to purchase housing and by supporting local jobs. The development of ECH3&4 will generate employment which will, in turn, contribute to achieving the purpose of the COVID-19 Recovery (Fast-track Consenting) Act 2020 (FTCA).

The economic assessment of ECH3&4 suggests that the development is expected to generate approximately \$201 million in direct expenditure over the coming decade. This would support total economic activity of \$172 million in GDP and employment of 1,925 employment years¹ between 2022 and 2026 in the Auckland economy. For the FTCA application, it is estimated that the ECH3&4 development will generate approximately 1,740 FTE employment years over the five years in the economy. Notwithstanding the likely transfer effects, the community and economy will benefit from additional economic activity that ECH3&4 development will generate in the local area.

ECH3&4 is an appropriate location to enable higher density growth because it is already zoned for residential activity, and is close to the Hibiscus Coast bus station/rapid transit stop, which is an ideal place for higher density residential activity to establish. The location of ECH3&4, and the proposal assessed in this report, therefore contributes to a well-functioning urban environment by providing dwellings in close proximity to major public transport links, which will also have positive effects in reducing greenhouse gas emissions. The proposal would also support efficient use of infrastructure, and more efficient access to infrastructure than in greenfields locations which require new networks to be constructed. These benefits should also be considered when assessing whether the development will achieve the purpose of the FTCA.

We consider that if the ECH3&4 development is granted consent under the FTCA then it will be developed in the coming few years. This compares to the capacity that may be enabled by the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021, which is only at a preliminary stage and will take many years to be realised. While the Enabling Housing Supply Act can be expected to result in a redistribution of growth because of the greater redevelopment potential that will be enabled in the Auckland urban area, for example, that change will take some time to play out, and is not expected to affect demand for the supply that would be created in the ECH3&4 development.

In conclusion, the future development of the ECH3&4, and the subsequent construction of housing on it, will create significant one-time boosts in regional and national GDP, jobs, and wages. Over a three-

<sup>&</sup>lt;sup>1</sup> Total Employment Count, which is equal to count of employment and working proprietors.



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to four-year period, including flow-on effects, we estimate that the development could have the following regional impacts:

- ❖ A one-time boost in regional GDP of \$172 million;
- Employment for 1,925 people-years, the equivalent of 1,740 FTE jobs during the next 3-4 year period; and
- Additional household incomes of \$140 million.

The corresponding national economic impacts, which are higher because they capture more flow-on effects than regional ones, are:

- ❖ A one-time boost in national GDP of nearly \$232 million;
- Employment for 2,430 people-years, of 2,195 FTE jobs during the next 3-4 year period; and
- Additional household incomes of \$167 million.

While the proposed development alone cannot fix the economic damage wrought by Covid-19, it will provide a strong, short-term demand for labour, some of which can potentially be filled by workers that have lost their jobs to Covid-19. Further, the fast-track process will bring forward the construction timeline by an estimated 12 months.



#### 1 Introduction

Build Rich Limited ("BRL") is lodging an application to become a referred project under the COVID-19 Recovery (Fast-track Consenting) Act 2020 ("FTCA 2020") for East Coast Heights Stage 3 and 4 ("ECH3&4"), a residential development in Silverdale, in the north of Auckland.

In 2020 BRL was granted a zone change from General Business to Mixed Housing Urban for a 21ha block of land south of Goldwater Drive and west of East Coast Road. Since then, BRL has developed the northern half of the site in two stages. The first stage provided 146 dwellings, all of which have been constructed over the last two years. The second stage included 141 dwellings, with civil works being completed in the coming months and all lots have been sold for development.

The remaining half of the site, ECH3&4, is the focus of this report. BRL has undertaken a series of preapplication meetings with Auckland Council in August and September 2021. The main matters raised in the meeting are outlined in the application documents<sup>2</sup>, and were largely worked through with the Council specialists to produce the residential development proposed in this application. However, BRL is concerned that the normal resource consent process may delay this shovel-ready development, and has decided to apply for consents under FCTA 2020 to enable development to occur sooner.

Formative Limited has been commissioned by BRL to provide economic research on whether the ECH3&4 project will contribute to achieving the purpose of the FTCA 2020, and in particular, whether it will generate employment and economic benefits to support New Zealand's recovery from the impacts of COVID-19.

#### 1.1 Background

The Hibiscus Coast area<sup>3</sup> has experienced rapid population growth, from around 34,140 in 2001 to 64,900 in 2021, which is equivalent to 3.3% per annum, or twice the growth rate of the Auckland region.<sup>4</sup> The area immediately around ECH3&4, Silverdale-Millwater-Kingsway-Milldale<sup>5</sup>, has grown even faster at a rate of 7.3% per annum. Even with Covid-19 border restrictions, the Silverdale-Millwater-Kingsway-Milldale area was a fast-growing area in Auckland, both in quantum (+880 people)

<sup>&</sup>lt;sup>5</sup> Defined as the following SA2 - Millwater North, Millwater South, Dairy Flat North, Kingsway and Silverdale Central and Silverdale South.



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<sup>&</sup>lt;sup>2</sup> Campbell Brown Planning (2021) Proposed New Residential Development and Subdivision 1 Silverwater Drive and 2150 East Coast Road – AEE.

<sup>&</sup>lt;sup>3</sup> Defined as the following SA2s - Orewa North, Orewa South, Orewa Central, Hatfields Beach, Red Beach West, Red Beach East, Vipond, Stanmore Bay West, Stanmore Bay East, Whangaparaoa Central, Tindalls-Matakatia, Gulf Harbour North, Gulf Harbour South, Army Bay, Millwater North, Millwater South, Dairy Flat North, Kingsway and Silverdale Central and Silverdale South.

<sup>&</sup>lt;sup>4</sup> Statistics New Zealand (2021) Subnational Population Estimates.

and percentage (6.2%) terms. This compares to the rest of the Auckland Region which had a population that declined by -0.1% between 2020 and 2021.

Accompanying this population growth, the Silverdale-Millwater-Kingsway-Milldale economy has also experienced strong employment growth, up from around 1,900 jobs in 2001 to 9,800 in 2020.<sup>6</sup> Employment in the area has grown by 8.1% per annum, again much faster than the rest of Auckland or most districts in New Zealand. During the Covid-19 pandemic period the employment in the economy grew by 5.4%.

Auckland Council's projections show that the Silverdale-Millwater-Kingsway-Milldale population is expected to continue growing strongly in the future, with the population projected to increase by almost 80% over the coming three decades, with an additional 7,670 people living in the area by 2051.<sup>7</sup> As in the past, the growth is expected to be driven by continued migration from other areas of Auckland. Also, the return of international migrants in the coming year will drive additional growth. This growth has important implications for Council planning, with most growth likely to be located around the existing urban areas.

#### 1.2 Report structure

This report provides an assessment of the residential aspects of the ECH3&4 development and how they will contribute to achieving the purpose of the FTCA 2020.

The report first provides a background of the planning context, recent demand outcomes and potential capacity options that are relevant to the ECH3&4 proposal. The economic assessment then assesses the jobs and economic activity supported during the phases of development – consenting, land development, build development and then completion. The report then concludes with findings from this economic assessment of the ECH3&4 development.

<sup>&</sup>lt;sup>7</sup> Auckland Council (2020) I11 Version 11.6 Scenario Modified.



<sup>&</sup>lt;sup>6</sup> Formative (2021) Business and Employment Database – Total Employment Count which includes both working proprietors and employees.

## 2 East Coast Heights Stage 3 and 4

The specifics of the application have been detailed in the application documents, and are recapped only briefly in this report. The relevant details include:

- The block of land that is referred to as East Coast Heights Stage 3 and 4 is 10.6ha gross area. It has two road frontages, in the east to East Coast Road and in the north to Silverwater Drive. To the west, the site is bounded by a retirement village and C3 Church which are both under construction. To the south is the Auckland Adventure Park (Figure 2.1).
- ECH3&4 would provide residential lots that will allow 303 dwellings to be constructed. The subdivision pattern provides a range of lot sizes with an average area of 260m² across the entire subdivision (Figure 2.2). This density is similar to what has been developed in the East Coast Heights Stages 1 and 2. There is an area within ECH3&4, labelled as "Vacant Lots", which includes 26 residential lots. The application does not apply to that part of the site, instead it is proposed that the subdivision would apply only to the areas within the portion of the site that is identified as Stage 3 and 4.

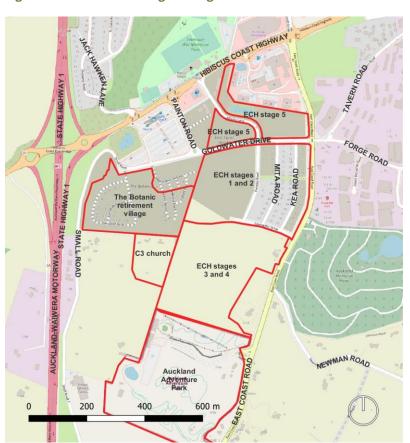


Figure 2.1: East Coast Heights Stage 3 and 4 location



Given the topography of the site, there will be a significant amount of bulk earthworks to form the proposed roads as well as the individual building platforms. The development will be effectively split into two levels by a proposed earth wall which will facilitate the efficient use of land across the relatively steep slope of the existing site. The lower development level is located to the west of the earth wall and is described as Stage 3, with the upper level to the east of the earth wall described as Stage 4. A pedestrian route is also proposed to provide an east-west connection through the site in an including between the upper and lower levels of the site.

It is envisaged that once consents are obtained works would commence immediately. BRL's aim is for consent to be completed in 2022, and is proposing to develop ECH3&4 over the coming two to three years, with subdivisions occurring in two phases – which will be split roughly 80:20.

The civil works on the first phase are expected to begin in October 2022 and be completed by March 2024. It is anticipated that the construction of the dwellings in the first phase will be completed by April 2025. It is noted that a bulk earthworks consent has been granted for a large part of the site, which means initial works can get underway. The second phase is expected to begin in March 2023, with all civil works and dwelling construction completed by August 2025.





Figure 2.2: East Coast Heights Stage 3 and 4 Proposed Subdivision Plan

The subdivision plan has been designed to achieve an average of 29 dwellings per hectare, with a range of lot sizes. BRL is proposing to provide lots ranging from 200m<sup>2</sup> to 550m<sup>2</sup>, which will allow the construction of standalone and terraced dwellings, both of which are smaller in lot size and dwelling floorspace than what has been built within Silverdale and Millwater over the last decade.

The development plans show that the dwellings are expected to have the following characteristics:

- ❖ A wide range of dwelling types, with 33 unique dwelling styles.
- All of the dwellings will have multiple storeys, with most being two storeys.
- Most dwellings will be standalone (288), with a small number (15) of terraced dwellings on two super lots (on Silverwater Road).
- Three-quarters will have a floorspace of around 180m<sup>2</sup>, with the remaining quarter having floorspace up to 250m<sup>2</sup>.



- Four-fifths will have five or more bedrooms, with the remaining dwellings expected to have four bedrooms.
- ❖ All dwellings will have at least one garage and one external carpark.
- All dwellings will have at least three living areas and four toilets.

In combination, the reduction in land required per dwelling and smaller floorspace for each dwelling, which is being proposed at ECH3&4, can be expected to result in sale prices that are lower than other new residential areas nearby such as Millwater and Milldale. The proposal includes dwellings designed to accommodate a variety of household requirements, relating to the size of households. The proposed development will make efficient use of the existing urban zoned site and its building envelope to create good quality modern dwellings that contribute positively to the local community.



## 3 Planning Context

The planning framework that applies to the urban area and the ECH3&4 development is important, as it provides the critical context around the environment in which the development will occur. The following discussion covers the relevant parts of the Auckland Unitary Plan ("AUP") and research which includes the National Policy Statement on Urban Development ("NPSUD") and the proposed intensification policy that may be adopted in the Intensification Planning Instrument ("IPI").

#### 3.1 Auckland Unitary Plan

In the operative AUP the ECH3&4 is zoned Residential Mixed Urban Zone, which is a high-density residential zone (see Figure 3.1). The area is also subject to Silverdale Sub Precinct B, which has several additional design rules and staging requirements relating to the construction of Penlink<sup>8</sup>, which are covered in the AEE.

The density that is enabled within this zone is higher than most parts of the Hibiscus Coast, which is predominately zoned Single House Zone or Large Lot Zone. The area immediately around the site is zoned for commercial activities - General Business (purple striped), Light Industry (purple) and Town Centre (pink). The rural boundary is south of the area (Countryside Living - brown) and across the Northern Motorway, there is a large area of Future Urban Zone (yellow) and the in-progress Milldale development (various zones, north-western corner of the map).

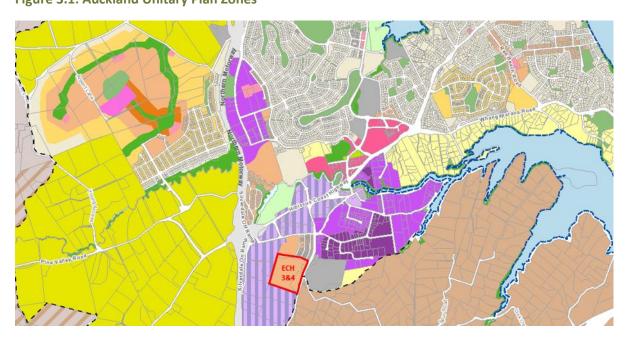


Figure 3.1: Auckland Unitary Plan Zones

<sup>&</sup>lt;sup>8</sup> Waka Kotahi will announce the Alliance that will construct Penlink in May and the construction will begin in the second half of 2022 and be complete by 2026.



In summary, the existing planning framework suggests that Auckland Council intends that the ECH3&4 would be developed for high-density dwellings. The BRL proposal is that this development occurs in the near future and uses a different subdivision pattern.

Broadly, the application by BRL is consistent with the Council's planning aspirations. The development site and the individual residential lots generally comply with the majority of Mixed Housing Urban development standards. However, it is our understanding that some of the proposed dwellings designs in the ECH3&4 breach certain planning rules (i.e. building coverage, impervious surfaces, landscaping, etc.).<sup>9</sup>

The current resource consenting process has been protracted, and may be subject to some form of notification, therefore BRL has chosen to apply for Fast Track approval.

#### 3.2 National Policy Statement on Urban Development

The NPSUD includes a set of reporting requirements relating to urban development capacity, for both residential and business activity. A key part of the requirements is that Tier 1 councils must investigate how much capacity is enabled within their planning frameworks and the extent to which this capacity may be developed by the market. Councils are also required to assess the potential future demands of the community and businesses.

The comparison of the developable supply enabled within the council planning framework and the demand forecasts provide an indication of whether there is at least sufficient urban development capacity to meet the expected demand for housing in the short, medium and long term<sup>10</sup>. In the case that there is deemed to be insufficient supply the councils must act to increase development capacity as soon as practicable.

In response to these requirements, in 2021 Auckland Council conducted research into the quantum of urban land demanded and supplied, across the region.<sup>11</sup> That research found that:

- The AUP has enabled a vast amount of plan-enabled housing development capacity within the existing urban area and much of the capacity is commercially viable under the current market conditions.
- Given the current pandemic situation, the prolonged border closure, as well as uncertainties of upcoming government policies, there is no sound reason or robust

<sup>&</sup>lt;sup>11</sup> Auckland Council, Fernandez, M. A., C. Hu, J. L. R. Joynt, S. L. Martin and I. Jennings (2021) Housing assessment for the Auckland region.



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<sup>&</sup>lt;sup>9</sup> Campbell Brown Planning (2021) Proposed New Residential Development and Subdivision 1 Silverwater Drive and 2150 East Coast Road – AEE.

<sup>&</sup>lt;sup>10</sup> NPSUD defines short term as within the next three years, medium term as three to ten years and long term as between 10 and 30 years.

assumption to determine which growth scenario will be the most likely. However, if a scenario must be selected to meet the NPS-UD requirements, then i11v6 would be the preferred choice as it is the overarching land use scenario adopted for the 2021/2023 LTP that aligns with the Council's strategic goals and funding capabilities.

- The research then shows that on a yearly basis, the capacity reasonably expected to be realised could be negligible. The realisation of the commercially viable capacity that is affordable becomes uncertain because of the discrepancy (or incompatibility) between the high sales prices of dwellings that the market can be expected to provide and the purchasing power of households. That is, a dwelling may not be realised unless there is someone who can pay for it.
- So while not stated explicitly, the 2021 Housing Assessment showed that for most areas, including Hibiscus Coast and Silverdale-Millwater-Kingsway-Milldale, there is not enough potential for development to meet the expected demands. While in theory there is enough plan-enabled capacity which could be commercially viable, this would require sales prices to be higher than would be affordable to many within the community.

While we have not peer reviewed the methods adopted in the AC housing assessment, the outcomes presented align with our expectations. Broadly, there needs to be a shift to higher density development to achieve lower prices per dwelling. This would mean that more dwellings can be realised and the potential shortage that is identified in the AC report can be avoided. This is consistent with the underlying drivers of the need for the new Medium Density Residential Standards, that are scheduled to be in place by August 2022, as discussed in section 3.3.

BRL is proposing to undertake higher density development in its ECH3&4 development, which can be expected to provide dwellings that are relatively more affordable than what is available in the Hibiscus Coast and Silverdale-Millwater-Kingsway-Milldale areas.

We also note that AC demand projections were developed when Covid-19 impacts were still very unclear. There was much concern about the negative impacts of the pandemic, which may have been a driver behind why AC picked a I11 projection. The I11 projections predict slow growth for the Hibiscus Coast and Silverdale-Millwater-Kingsway-Milldale.

As it turns out the impacts of Covid-19 have not been as severe as anticipated, and since 2020 development of new dwellings in Auckland has increased from 15,000 per annum to 17,500 in 2021 and further to a record level of 21,500 in 2022. In Hibiscus Coast the number of new dwellings consented increased to 1,060 in 2021 and 1,310 in 2022.

<sup>&</sup>lt;sup>12</sup> Statistics New Zealand (2022) New Dwellings Consented by statistical area 2 – March 2022.



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This growth outcome compares to the AC projections which predicted growth of fewer than 400 households per annum between 2020 and 2022 for the Hibiscus Coast area. In the two years since the report was completed, there have been almost 2,400 new dwellings consented, which is almost 200% higher than the level of demand that was projected by AC. If that rate continues, consent will continue to exceed projected growth by a large margin.

In summary, AC's demand projections have underestimated demand for new dwellings on the Hibiscus Coast. That appears to be at least partly the result of projections being set in the wake of Covid, whereas demand for dwellings in Hibiscus Coast has not abated and has increased over the last two years. While AC's assessments show that there is in theory a vast supply at the regional level, there is expected to be a shortage of dwelling supply of more affordable dwelling types, which is likely to be significant.

#### 3.3 Intensification Planning Instrument

As part of a wider initiative to increase housing supply, the government has recently passed the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 ("EHA"), an amendment to the RMA that seeks to increase the density of housing in most residential zones (and some business zone) in all Tier 1 urban areas.<sup>13</sup>

The EHA is suggesting two key changes which can be expected to increase the quantum of residential capacity in the urban areas of Auckland. The introduction of the Medium Density Residential Standard ("MDRS") and the requirement to develop an Intensification Planning Instrument ("IPI") which expedites the intensification in Policy 3 of the NPSUD (in and around centre zones). In summary, this will mean that potential 'plan enabled' capacity within the urban areas of Auckland can be expected to increase and that this will occur in the coming year(s).

Auckland Council has released a preliminary response to the NPSUD and MRDS, which shows a proposed intensification policy which will result in much of the residential zones throughout Auckland having increased medium density standard rules applied.<sup>14</sup> As a result, the preliminary IPI would increase the amount of plan enabled supply within the urban area by a considerable amount.

For the Hibiscus Coast area, the preliminary IPI would result in much of the residential land being up-zoned from low-density Single House zone to high-density Residential Mixed Urban Zone (see Figure 3.2). The ECH3&4 would maintain the same underlying zoning, however, the rules associated with the zone would allow some additional flexibility, and it would not materially change BRL's proposed development intensity.

<sup>&</sup>lt;sup>14</sup> Auckland Council (2022) Planning Committee Open Agenda – 3 March.



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<sup>&</sup>lt;sup>13</sup> Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill – 19<sup>th</sup> October 2021.



Figure 3.2: Preliminary Intensification Planning Instrument Zones

However, the typologies of dwellings that will be enabled in the Residential Mixed Urban Zone by the EHA (townhouses of three levels and multilevel apartments) have not been widely developed in the Hibiscus Coast area to date. While the implications of the EHA are not confirmed, the additional capacity the Act seeks to enable is unlikely, in our opinion, to result in any material reduction in demand or increase in realisable supply for residential development that BRL is proposing, for two main reasons.

First, because much of Hibiscus Coast residential housing stock is relatively new, and built on smaller lots, it is uneconomic to redevelop those lots. This means that extra development potential on most lots within the Hibiscus Coast area will not be realisable in the coming decade or more.

Second, the ECH3&4 will be developed in the coming few years. This compares to the capacity enabled in the IPI, which is only at a preliminary stage and will take many years to be realised. Specifically, the IPI still needs to complete a separate process, involving public submissions, hearings and recommendations by the hearings panel before the zone changes can become operative. Then there will be a time period where the market establishes how to practically develop within the new rules. Some redistribution of growth may occur as a result of greater redevelopment potential in the Auckland urban area, for example, but that change will take some time to play out, and is not expected to affect demand throughout the ECH3&4 development.

As discussed above, we consider that there are several reasons why the capacity that may be enabled by EHA is unlikely to be developed to any material extent over the coming decade, and that this capacity would not be 'feasible' or 'reasonably expected to be realised' as defined in the NPSUD s3.25(1). This means that the EHA will have minimal positive impact on housing supply on the Hibiscus Coast until well after the ECH3&4 development is expected to be complete. Therefore, the EHA



capacity is theoretical in nature and should not be relied upon to provide for housing demands for the coming few years.

#### 3.4 Findings – Planning Context

In conclusion, various attempts have been made in recent years to identify the extent of demand for housing in Auckland over the short, medium and long term, and what if, any, additional land is required to accommodate that demand. That assessment work has resulted in the development of the Auckland Unitary Plan and the recent preliminary Intensification Planning Instrument.

In theory, there is a large amount of supply within Auckland to accommodate the development of new houses. However, the Council's assessment indicates that much of this theoretical capacity would provide dwellings that are unaffordable and hence will not be developable or realisable. Based on the budget constraints of households, much of the demand for housing will not be satisfied.

Also combined with this outcome, the Council's planning has been based on projections that were pessimistic concerning the Hibiscus Coast area. Since these projections were developed, the impact of Covid-19 has been shown to be much less dramatic than was predicted. The amount of development within the Hibiscus Coast area over the last two years was almost 200% higher than the Council's projections.

In summary, we consider that while the AUP and IPI have provided significant amounts of supply that much of the supply will not be realisable in the period that BRL is expecting to develop ECH3&4. Also, the Council has been planning for comparably low levels of growth in the area, however growth has been high and has significantly outpaced Council's planning.



#### 4 Demand Context

The Hibiscus Coast has long been recognised as an attractive coastal area, and has transitioned from being primarily a holiday destination, to a retirement area and more recently become part of the main Auckland urban area. While much of Orewa and Whangaparaoa Peninsula has been a residential area for many decades, the area closer to State Highway 1 has been developed more recently, with Millwater, Milldale and stages 1 and 2 of East Coast Heights being developed over the last decade. Recent development has been facilitated by the area's good accessibility to the rest of Auckland, with transport links via State Highway 1 and the rapid transport Northern Express bus station, allowing the area to become a commuter suburb for people working in North Shore City and central Auckland.

While these aspects of the Orewa and Whangaparaoa Peninsula draw people to the area, they also restrict the development that can be achieved in the area. The environmental aspects of the location restrict growth potential in the north (Rural Coastal Area), south (Countryside Living), and the coast to the east. As discussed above Council is planning to accommodate a large amount of new residential and business activity in the Future Urban Zone west of State Highway 1, with that development planned to occur progressively over the next two decades.

#### 4.1 Hibiscus Coast Population

Since 1996 the population of the Hibiscus Coast area has grown by almost 3.3% per annum, from just over 29,000 residents to 64,900 in 2021. Almost half of the growth in the Hibiscus Coast area over the last decade was in Millwater-Milldale-Kingsway and Silverdale.

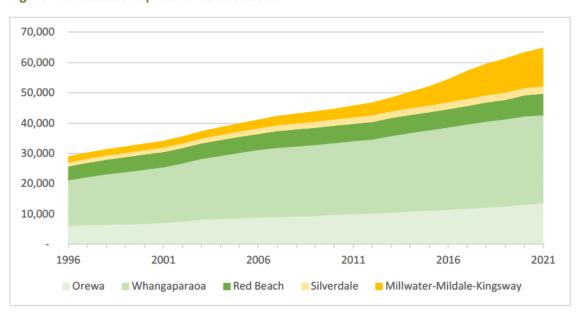


Figure 4.1: Hibiscus Population 1996 to 2021



During this period, the Hibiscus Coast population's age structure has not changed significantly, with the retired aged population remaining at around 20% of the total population and children under 15 remained relatively stable at just under 20%. However, the demographics of the population in the area around Silverdale and Millwater-Milldale-Kingsway are different to the wider Hibiscus Coast population. The Silverdale and Millwater-Milldale-Kingsway have a large share of children (25%) and working aged residents (67%) than the broader Hibiscus Coast area, and only 10% of the population in Silverdale and Millwater-Milldale-Kingsway areas are aged 65+.

The difference in demographics between the wider Hibiscus Coast and Silverdale and Millwater-Milldale-Kingsway suggests that the population that can be expected to live within the ECH3&4 are likely to be similar to the area's newer residential developments and more family orientated, which will tend to demand dwellings with more bedrooms and living areas. This outcome is consistent with the types of dwellings that are being proposed for the ECH3&4 development.

#### 4.2 Dwelling Demand

Hibiscus Coast's role as a growth location has increased over the decades. In the 1990s the area accounted for less than 5% of the new dwellings in Auckland, at its peak accommodating 13% of all building consents in Auckland in 2013. This role has declined over the decade, reducing to 6.1% of all new dwelling building consents in Auckland in 2022. However, this changing role seems to be influenced by reducing development potential and the focus on growth into existing urban areas.

Notwithstanding the declining share of growth being directed to Hibiscus Coast, the Silverdale and Millwater-Milldale-Kingsway have seen increasing shares of growth. These two areas had a total of 41 new dwellings consented in 2010, which increased to 369 by 2015 and further again to 650 dwellings in 2022. Over the last 12 months, these two areas accommodated 3% of all new dwelling consents in Auckland.

The growth in Silverdale and Millwater-Milldale-Kingsway has significantly outpaced the projections used to underpin the AC housing capacity assessments for 2018, or 2021. In particular, Auckland Councils' 2020 assessment projected there to be demand for approximately 120 households per annum until 2030.<sup>17</sup> By comparison, in the last three years, the number of new dwelling consents issued increased from 251 in 2020 to 649 in 2022, an average of 480 dwellings per annum, or more than four times the projected growth rate.

Figure 4.2 shows the annual building consents for new dwellings issued between 2000 and 2022 (black line), which shows that over the last decade that Silverdale and Millwater-Milldale-Kingsway new

<sup>&</sup>lt;sup>17</sup> Auckland Council (2020) I11 Projections.



<sup>&</sup>lt;sup>15</sup> Statistics New Zealand (2021) Population demographics.

<sup>&</sup>lt;sup>16</sup> Statistics New Zealand (2022) New Dwellings Consented by statistical area 2 – March 2022.

dwelling building consents have consistently been much higher than AC projects to occur at any time in the next decade. Even with the impact of Covid19 over the last three years, the number of consents has continued to see development activity that is much higher than AC projections.

700 **Building Consents** 600 AC 2020 I11 Projection New Dwellings per annum 500 400 300 200 100 0 2005 2010 2015 2020 2025 2030 2000

Figure 4.2: Silverdale and Millwater-Milldale-Kingsway New Dwellings Building Consents and AC Household Projections

#### 4.3 Housing Market

The average house price in Auckland, Hibiscus Coast and Silverdale-Millwater-Milldale-Kingsway has increased significantly over the last decade. Most significantly, in the last two years, the average house price in the Auckland Region increased from approximately \$888,000 to \$1,015,000<sup>18</sup> (+14%) and the Silverdale-Millwater-Milldale-Kingsway average increased from \$1,100,000 to \$1,500,000<sup>19</sup> (+36%). Most of the escalation in the price for Silverdale-Millwater-Milldale-Kingsway has occurred in the last 12 months. Prices in both the wider region and Silverdale-Millwater-Milldale-Kingsway have become increasingly unaffordable.

This recent price escalation is high when compared to changes observed in the past. In the Hibiscus Coast and Silverdale-Millwater-Milldale-Kingsway, the average house price increased by less than 5% per annum between 2015 and 2019. However, the house price escalation over this period was still greater than general inflation rates (of 1.8% per annum)<sup>20</sup>, income increases (of 2.7% per annum)<sup>21</sup> or

<sup>&</sup>lt;sup>21</sup> Statistics New Zealand (2022) Labour Cost Index (Salary and Wages).



<sup>&</sup>lt;sup>18</sup> Quotable Value (2022) QV House Price Index.

<sup>&</sup>lt;sup>19</sup> Homes (2022) Historical suburb trends – Arrowtown.

<sup>&</sup>lt;sup>20</sup> Statistics New Zealand (2022) Consumer Price Index.

house values (of 3.7% per annum) in the rest of the country. The ECH3&4 development will provide additional capacity for housing supply, which could temper further price escalations.

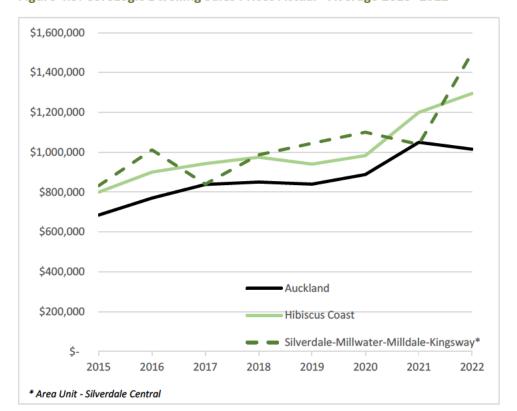


Figure 4.3: CoreLogic Dwelling Sales Prices Actual - Average 2015- 2022

#### 4.4 Findings - Demand Context

We consider that the growth in residential demand in the next decade is likely to continue to exceed the level shown in the AC projections. This demand outcome is mainly driven by the continued attractiveness of Hibiscus Coast as a place to live, which is unlikely to change much in the future.

In summary, the actual demand has exceeded, and continues to exceed, AC's projections. The housing indicators discussed above provide evidence that demand for the area can be expected to remain high, which will mean that the remaining capacity is likely to be exhausted more quickly than anticipated and that further supply will be required sooner than expected. To address this, and as further set out below, additional housing must be made available as a matter of urgency.

In addition to these matters, the ECH3&4 development is likely to be developed over the next few years, and while it is a significant new development, it is comparable to other new residential developments in the area and will not require a very large share of local demand to be directed to it.



To place that proposed development in context, there are currently over 5,000 dwellings in the Silverdale-Millwater-Milldale-Kingsway area, <sup>22</sup> and 650 additional new dwellings were consented over the last 12 months. Based on its historic development rate of 350 dwellings per annum, ECH3&4 would constitute less than one year of supply for the area. When compared to the existing context, the ECH3&4 development would be equivalent to around 3% per annum growth in Silverdale-Millwater-Milldale-Kingsway dwelling numbers over the two years that dwellings will be built. The immediate development of residential land in ECH3&4 will have a positive impact on the housing supply in the area while being appropriately sized in the context of likely growth.

The AC projections for the Silverdale-Millwater-Milldale-Kingsway area predict demand for approximately 250 new dwellings between 2023 and 2025, which is the period over which the ECH3&4 are expected to be developed. Based on historic development activity the demand over this period could be over 700 dwellings.

While we have not developed our own demand projections for this report, we consider that the latest AC projections are too low for Silverdale-Millwater-Milldale-Kingsway based on recent historical development trends, and should not be relied on when planning for the area. We also consider that it is likely that demand for housing in Silverdale-Millwater-Milldale-Kingsway is higher than the level shown in the building consents data, which means that the actual demand for new housing is likely to exceed the level observed in the past.

<sup>22</sup> Based on Statistics New Zealand Census 2018 and building consents.



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## 5 Economic role of ECH Stage 3 & 4

The economic activity associated with ECH3&4 will change throughout the development phases, with different levels of activity supported during consenting, land development, build development and then residents spend once the development is completed.

The economic role of ECH3&4 is measured in terms of the direct economic activity associated with the development, the potential demands of the households that will live in ECH3&4, and the wider role in terms of indirect and induced activities. The expected role of ECH3&4 was estimated using a subnational economic model – Economic Linkages Model (ELM).<sup>23</sup>

The ELM is a proprietary model that has been developed to quantify and measure the economic activity and relationships within the New Zealand economy. In summary, the ELM measures the flows of money and goods through the economy, at a sector and sub-national level. The model records the interactions and relationships between actors in the economy, including businesses, households, government, exporters, and importers. The interactions in the model describe how each industry responds to changes in the economy, which ripples out to influence a range of other outcomes (e.g. household decisions).

The ELM measures the economy using a range of standard economic metrics, which includes gross output<sup>24</sup>, GDP<sup>25</sup>, value-added, employment<sup>26</sup>, incomes<sup>27</sup>, consumption<sup>28</sup>, tax<sup>29</sup>, and trade. The model uses a subnational Input-Output Table that has been regionalised by Formative. The appendix outlines the nature of the Input-Output table, the underlying assumptions within the ELM and the key modelling steps.

The first step in the estimation of the economic role of ECH3&4 was to estimate the direct expenditure that will occur in each phase of the development. The following data has been used for each phase to estimate the likely direct expenditure:

Consenting and Land Development: We have estimated the consenting and land development costs based on industry knowledge from similar developments, adapting

<sup>&</sup>lt;sup>29</sup> Including income taxes, GST, government transfers and subsidies.



<sup>&</sup>lt;sup>23</sup> Formative (2021) Economic Linkages Model.

<sup>&</sup>lt;sup>24</sup> Similar to company revenue.

<sup>&</sup>lt;sup>25</sup> There is a key difference between GDP and value added. The value added of a sector is measured net of taxes (for instance GST) and subsidies on products. In the GDP in the national accounts for New Zealand product taxes (minus subsidies) are recorded for the economy as a whole and includes as part of the value added.

<sup>&</sup>lt;sup>26</sup> Formative uses BED measure of Total Employment Count (TEC) which includes both employment count and working proprietors.

<sup>&</sup>lt;sup>27</sup> Includes salaries, wages and profits.

<sup>&</sup>lt;sup>28</sup> Including household and government.

them to the scale of the ECH3&4 development. BRL has also provided information about the budgeted costs associated with this economic activity.

- ❖ **Build Development**: the ECH3&4 dwelling design concepts have been combined with build cost data, and construction costings from BRL to estimate the likely construction expenditure that could occur during the build development phase.
- Resident Demands: We have detailed retail expenditure data which has been developed into a retail demand model.<sup>30</sup> This model provides an estimate of the quantum of demand from the new households that would live in BRL after the development is completed.

Once identified, the direct expenditure impact was run through the ELM which allows the calculation of all flow-on effects associated with the ECH3&4 development. The ELM calculates three types of economic impact:

- Direct impacts are the initial changes in the economy due to an economic shock (often new expenditure). The direct GDP effect is calculated based on the value of the shock and the direct employment effect is the number of jobs created by the shock itself.
- Indirect impacts arise as the firms that initially change their output as a result of an economic shock (i.e. the direct effects), purchase required inputs from their supply chain. These business-to-business transaction changes are known as the indirect impacts.
- Induced impacts flow from the direct and indirect impacts which generate wages, salaries, and profits for the households. The changed household incomes will generate more spending on goods and services. This household-to-business interaction is called induced activity.

#### **5.1** Direct Economic Impacts

The direct impacts associated with the ECH3&4 development were estimated for each year and over 65 types of spending (Figure 5.1 provides a summary). The consenting phase is estimated to cost and occur in 2022, which includes the developer's internal management time, expert research and planning costs. The development of the land is estimated to cost 9(2)(b)(ii) in total, spread over three years.

The direct spend associated with the dwelling construction activity in ECH3&4 can be expected to exceed \$ 9(2)(b)(ii) which is estimated to peak in 2024 at \$ 9(2)(b)(ii) . Based on the modelled land development and building development costs it is expected that the average dwelling could sell for around \$1 million, which is much lower than the current average dwelling price in the Hibiscus Coast

<sup>&</sup>lt;sup>30</sup> Formative (2021) Retail Demand Model.



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area s 9(2)(b)(ii) or Silverdale-Millwater-Milldale s 9(2)(b)(ii) <sup>31</sup> Applying a conservative construction cost (rather than a higher) and sale price makes the impacts assessed here conservative.

Finally, the direct impacts associated with the households that will live in the new dwellings are expected to spend a total ofs 9(2)(b)(ii) in the local economy over the first two years, with retail spending reaching almosts 9(2)(b)(ii) per annum by 2026.

In total, the ECH3&4 development will generate approximately \$9(2)(b)(ii) in direct expenditure between 2022 and 2026. The direct expenditure will peak in 2024, with \$9(2)(b)(ii) being spent in total in that year.

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s 9(2)(b)(ii)
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#### **5.2** Total Economic Impacts

The direct expenditure that is generated by ECH3&4 development will flow through the economy, which will result in additional economic activity in supporting industries, and additional employment. These are the indirect and induced impacts. The direct, indirect and induced economic impact of the ECH3&4 development would support:

- \$172 million in GDP and approximately 1,925 employment years<sup>32</sup> (or 1,740 Full-Time-Equivalents employment years) over the development period in the Auckland economy.<sup>33</sup> The peak of activity will be in 2024, with \$96 million in GDP and employment of 1,070 for that year.
- As the development is completed the impact will stabilise at around \$4 million in GDP per annum and approximately 52 jobs in the Auckland economy.

<sup>&</sup>lt;sup>33</sup> The employment recorded in this assessment is measured in terms of Total Employment Count (TEC), which includes part-time, casual, and full-time positions. While this type of measure of employment is the standard used in New Zealand for economic data and economic modelling, there are some instances where Full-Time-Equivalent (FTE) metric is used. For the purposes of the FTCA application we have estimated that the ECH3&4 development will generate approximately 1,740 FTE between 2022 and 2026 in the Auckland economy.



<sup>&</sup>lt;sup>31</sup> Quotable Value (2022) House Price Data.

<sup>&</sup>lt;sup>32</sup> Total Employment Count, which is equal to the count of employees and working proprietors.

Figure 5.2: Economic Impact of East Coast Heights Stages 3 & 4

East Coast Heights 3&4	2022	2023	2024	2025	2026
Value Added (GDP, \$m)					
Auckland	\$1	\$26	\$96	\$46	\$4
Rest of NZ	\$0	\$9	\$34	\$16	\$1
Total	\$1	\$35	\$130	\$62	\$5
Employment					
Auckland	8	276	1,071	520	52
Rest of NZ	2	71	287	136	8
Total	9	346	1,357	656	59

#### 5.3 Findings Economic Role of East Coast Heights Stage 3 & 4

The development of East Coast Heights Stages 3 & 4 would produce positive benefits for the local community, both in terms of providing additional and much-needed housing supply and the generation of employment and economic benefits for the local community.

In short, the economic role of the ECH3&4 suggests that the development is expected to generate approximately \$201 million in direct expenditure over the coming decade. This would support total economic activity of \$172 million in GDP and employment of 1,925 employment years<sup>34</sup> between 2022 and 2026 in the Auckland economy. For the FTCA application, we have estimated that the ECH3&4 development will generate approximately 1,740 FTEs employment years throughout the five year period, in the economy. Notwithstanding the likely transfer effects, the community and economy will benefit from additional economic activity that ECH3&4 will generate in the local area.

<sup>&</sup>lt;sup>34</sup> Total Employment Count, which is equal to the count of employees and working proprietors.



# 6 Wider Economic Benefits of East CoastHeights 3 & 4

We also note that there may also be other economic benefits associated with the development of ECH3&4 that will contribute to achieving the purpose of the Act. For this report, we provide a brief qualitative discussion of these benefits, which are covered in more detail by other experts.

Given the location of the development, it may be more efficient to service the development, also households that live within the area will have good links to the transport networks (both road and public transport) and access to goods and services in the local area. These aspects of the development can be expected to generate benefits for the local community and the wider economy.

#### 6.1 Infrastructure

First, while we have not assessed the relative infrastructure costs associated with servicing the ECH3&4 we consider that it is likely that there will be economic benefits from the fact that this site is adjacent to the existing settlement. In summary, it may be that infrastructure costs will be lower than other comparable developments. This outcome would improve the productivity of the economy, by reducing the amount of resources needed to accommodate new growth.

#### 6.2 Transport

Second, the ECH3&4 development is proximate to major transport infrastructure, both road and public transport (the Hibiscus Coast Station and Park and Ride) and there is a range of services and retail provided in the local area. This means that households in the ECH3&4 should be able to travel more efficiently and access their needs local which may contribute to mitigating transport costs and emissions. By comparison, other developments in the area are further from the major transport and existing town centres. So it is likely that encouraging the housing supply in this location will result in better transport outcomes and associated economic benefits.

#### **6.3** Well-functioning Urban Environment

Third, we consider that ECH3&4, and the proposal assessed in this report, would contribute to a well-functioning urban environment. ECH3&4 is an appropriate location to enable higher density growth because it is already zoned for residential activity, and is close to the Hibiscus Coast bus station/rapid transit stop and other services. This location is an ideal place for higher density residential activity to establish.

The development of the ECH3&4 can be expected to positively impact the local businesses in area and contribute to the function of the Silverdale town centre. The additional households that will live within



the ECH3&4 development can be expected to shop and visit services within the local area, which will improve the viability of existing business and also potentially attract more businesses and community services to the area. This additional activity can be expected to improve the level of amenity in the town centre, which will positively contribute to a well-functioning urban environment.

We consider that the ECH3&4 development can be expected to positively contribute to a well-functioning urban environment.

#### 6.4 Findings – Wider Economic Benefits

Briefly, we consider that there are likely to be other economic benefits associated with this development, such as efficient use of infrastructure, mitigating transport costs associated with residential development, and contribute to a well-functioning urban environment. These benefits should also be considered when assessing whether the development will achieve the purpose of this act. We have not attempted to quantify these benefits and note that other experts have provide findings on these aspects of the ECH3&4 development.



#### 7 Outcomes

The development of East Coast Heights Stage 3 and 4 would produce positive benefits for the local community, both in terms of allowing households to purchase housing and by supporting local jobs. The development of ECH3&4 will generate employment, which will, in turn, contribute to achieving the purpose of the FTCA.

Under the existing planning framework, even with the additional supply enabled in the District Plan review, there is potential for a shortage of residential dwellings. To avoid the risk of a shortage, there is a case for more residential activity to be enabled in the immediate future. The development lead times associated with residential development mean that rezoning would need to occur soon to ensure that capacity is available to meet demands. If East Coast Heights Stage 3 and 4 were zoned in 2022, the residential component could easily be developed in the coming few years.

The economic role of the ECH3&4 suggests that the development is expected to generate approximately \$201 million in direct expenditure over the coming decade. This would support total economic activity of \$172 million in GDP and employment of 1,925 employment years<sup>35</sup> between 2022 and 2026 in the Auckland economy. For the FTCA application, we have estimated that the ECH3&4 development will generate approximately 1,740 FTE employment years over the 5 years in the economy. Notwithstanding the likely transfer effects, the community and economy will benefit from additional economic activity that ECH3&4 development will generate in the local area.

ECH3&4 is an appropriate location to enable higher density growth because it is already zoned for residential activity, and is close to the Hibiscus Coast bus station/rapid transit stop, which is an ideal place for higher density residential activity to establish. The location of ECH3&4, and the proposal assessed in this report, therefore contributes to a well-functioning urban environment by providing dwellings in close proximity to major public transport links, which will also have positive effects in reducing greenhouse gas emissions. The proposal would also support efficient use of infrastructure, and more efficient access to infrastructure than in greenfields locations which require new networks to be constructed. These benefits should also be considered when assessing whether the development will achieve the purpose of the FTCA 2020.

We consider that if the ECH3&4 development is granted consent under the FTCA 2020 then it will be developed in the coming few years. This compares to the capacity enabled in the IPI, which is only at a preliminary stage and will take many years to be realised. While IPI can be expected to result in a redistribution of growth as because of the greater redevelopment potential that will be enabled in the

<sup>35</sup> Total Employment Count, which is equal to count of employment and working proprietors.



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Auckland urban area, for example, but that change will take some time to play out, and is not expected to affect demand throughout the ECH3&4 development.



## Appendix 1 Economic-Linkages-Model

The Economic Linkages Model (ELM) is a proprietary model that has been developed to quantify and measure the economic activity and relationships within the New Zealand economy. In summary, the ELM measures the flows of money and goods through the economy, at a sector and sub-national level.

The model records the interactions and relationships between actors in the economy, including businesses, households, government, exporters, and importers. At its essence, the interactions in the model describe how each industry responds to changes in the economy, which ripples out to influence a range of other outcomes (e.g. household decisions).

The ELM measures the economy using a range of standard economic metrics, which includes gross output<sup>36</sup>, GDP<sup>37</sup>, value-added, employment<sup>38</sup>, incomes<sup>39</sup>, consumption<sup>40</sup>, tax<sup>41</sup>, and trade. The model uses a subnational Input-Output Table that has been regionalised by Formative. This appendix outlines the nature of the Input-Output table, the underlying assumptions within the ELM and the key modelling steps.

#### **A1.1** Input-Output Table

The Subnational Input-Output Table (SIOT) has been developed by Formative to provide detail on the economic linkages between sectors and geographies within New Zealand. The table has been defined to include 65 economic sectors and 39 geographies.

The 65 'sectors' have been defined using standard industry classification (ANZSICO6), with each sector being defined by a grouping of industries based on cluster analysis of their supply chains and economic rationale. The 39 'geographies' have been defined according to either territorial or regional authority boundaries, with more disaggregation provided where there is more economic activity (e.g. upper North Island) and aggregation where there is less economic activity (e.g. West Coast of the South Island).

The SIOT has the base year of 2019. All transactions in the table are in 2019 dollars, and all economic impacts (for instance GDP, gross output, consumption, taxes) are also in 2019 dollars. The SIOT is

<sup>&</sup>lt;sup>41</sup> Including income taxes, GST, government transfers and subsidies.



<sup>&</sup>lt;sup>36</sup> Similar to company revenue.

<sup>&</sup>lt;sup>37</sup> There is a key difference between GDP and value added. The value added of a sector is measured net of taxes (for instance GST) and subsidies on products. In the GDP in the national accounts for New Zealand product taxes (minus subsidies) are recorded for the economy as a whole and includes as part of the value added.

<sup>&</sup>lt;sup>38</sup> Formative uses BED measure of Total Employment Count (TEC) which includes both employment count and working proprietors.

<sup>&</sup>lt;sup>39</sup> Includes salaries, wages and profits.

<sup>&</sup>lt;sup>40</sup> Including household and government.

based on a national level 2013 Input-Output table released by Statistics New Zealand which has been converted to 2019 based on Statistics New Zealand national account data for 2019<sup>42</sup>

The national-level table has been regionalised using a hybrid approach. The hybrid approach of combining survey and non-survey (i.e. modelled) methods to regionalise an IO table which is considered the gold standard when an official SIOT is not available. The survey data sources used in the generation of the SIOT include a range of customised datasets that Formative has purchased and developed:

- ❖ Total Employment: Formative maintains a detailed database of employment, by geographies and industry (Business Employment Database BED), which records the total employment in each of 506 ANZISC06 industry classes and for Statistics New Zealand's Statistical Areas, including both employees and working proprietors.<sup>43</sup>
- Electronic Card Transactions: Formative has purchased detailed electronic card transaction data from Marketview, which records the origin and destination of four retail and services spend types by the 39 geographies. 44
- Subnational Economic Data: a range of information that provides valuable insight into the scale of economic activity that is located within each geography. This includes regional GDP, Gross Output and household income.

The above datasets have been combined along with non-survey regionalisation techniques to allocate the national economic activity into each of the geographies. The key method used to accomplish this is the Industry-Specific Flegg's Location Quotient (SFLQ)<sup>45</sup>. This method employs location quotients (LQ) to understand the specialisations and structure of regional economies compared to the national economy. The use of LQs has been known to understate the amount of regional trade, however, the SFLQ approach combats this by allowing for industry-specific rates of cross hauling (where regions both import and export a product or service).

This approach has been shown to create accurate estimations of regional multipliers and outperforms other non-survey approaches<sup>46</sup>. The SFLQ method was supplemented by a gravity model to help

<sup>&</sup>lt;sup>46</sup> Anthony T. Flegg, Leonardo J. Mastronardi & Carlos A. Romero (2016) Evaluating the FLQ and AFLQ formulae for estimating regional input coefficients: empirical evidence for the province of Córdoba, Argentina, Economic Systems Research, 28:1, 21-37.; Zhao, X., Choi, SG. On the regionalization of input–output tables with an industry-specific location quotient. Ann Reg Sci 54, 901–926 (2015).



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<sup>&</sup>lt;sup>42</sup> This includes gross output by sector, and national subsidies, exports, imports, change in inventories, gross fixed capital formation, consumption spending (includes households, local and central government and non-profit expenditure), compensation of employees, taxes, consumption of fixed capital and operating surplus.

<sup>&</sup>lt;sup>43</sup> Formative (2021) Business and Employment Database – Employment Count, Working Proprietors, Total Employment.

<sup>&</sup>lt;sup>44</sup> Marketview (2021) Card transaction data – four spend types and 39 geographies for the 2019 calendar year.

<sup>&</sup>lt;sup>45</sup> Julia Kowalewksi (2015) Regionalization of National Input–Output Tables: Empirical Evidence on the Use of the FLQ Formula, Regional Studies, 49:2, 240-250.

inform regional flows. The SIOT has been calibrated to better match the relationships in the national Input-Output table and has been balanced using an iterative proportional fitting procedure to ensure that the table reflects regional gross-out and input. The resulting SIOT table provides a modelled estimate of the relationships within the economy. This means that the economic linkages between sector-geography combinations as of 2019 are captured in the SIOT.

The ELM uses the SIOT to estimate the potential economic activity that can be expected from changes in the economy. All economic models apply assumptions because an economy and community are too complex to replicate exactly in a mathematical system. The structure of the ELM utilises the following assumptions:

- Leontief production function, which assumes linear relationships between the production and inputs. This means a change in the output for the industry will translate into a proportional change in demands for inputs.
- No supply constraints assume that businesses can source sufficient resources (labour, capital, land, etc) to meet new demands.
- Constant returns to scale, which means that there are no economics of scale or diminishing returns in the model.
- Static prices, which assume that prices remain at 2019 values. The model does not account for substitution effect or dynamic feedback from changes in demand and prices.

#### **A1.2** Key Modelling Steps

The first step in the ELM is to establish the direct economic activity that will be generated or influenced by the proposed policy, investment, or activity. This estimation of the direct economic activity is generally conducted using financial information or developed via a first-principles understanding of how businesses or households may change their behaviour or be impacted as a result of the proposed policy, investment or activity.

The next step is to map this activity into the 65 economic sectors and 39 geographies. In most cases the direct economic activity will occur across a range of economic sectors, commonly this can be drawn from either operational or capital budgets. Similarly, in most cases, direct economic activity will accrue across multiple geographies. Therefore, the activity must be mapped into each geography to ensure that the modelling reflects the likely pattern of activity.

Finally, the mapped activity is then fed into the ELM which measures the additional economic activity that can be expected to occur within the economy as a result of the new activity. In summary, other businesses and households in the community will respond to the changes in the economy.



There are three types of economic impact the ELM calculates, direct, indirect, and induced:

- Direct impacts are the initial changes in the economy due to an economic shock (often new expenditure). The direct GDP effect is calculated based on the value of the shock and the direct employment effect is the number of jobs created by the shock itself.
- Indirect impacts arise as the firms that initially change their output as a result of an economic shock (i.e. the direct effects), purchase required inputs from their supply chain. These business-to-business transaction changes are known as the indirect impacts.
- Induced impacts flow from the direct and indirect impacts which generate wages, salaries, and profits for the households. The changed household incomes will generate more spending on goods and services. This household-to-business interaction is called induced activity.

The ELM quantifies the economic activity in each geography and sector, which includes the direct, indirect, and induced activity. The associated employment impacts are calculated assuming constant productivity – that is, each sector-geography combination produces the same amount of output per employee.

