BEFORE THE INDEPENDENT HEARINGS PANEL - DAVID HILL (CHAIR), GREG HILL AND SHEENA TEPANIA

UNDER	the Resource Management Act 1991
IN THE MATTER	of Various applications by Te Tūāpapa Kura Kāinga - the Ministry of Housing and Urban Development (MHUD) to the Rotorua Lakes Council
BETWEEN	**MINISTRY OF HOUSING AND URBAN DEVELOPMENT** Applicant
AND	**ROTORUA DISTRICT COUNCIL** Consent Authority
AND	**SUBMITTERS**

STATEMENT OF EVIDENCE OF NATALIE HAMPSON
Dated 22 / 09 / 2022

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INTRODUCTION

1. My full name is Natalie Dianne Hampson. I am a Director at Market Economics Limited (M.E), based in Wanaka. I have held this position since 2019. I hold a Master of Science degree in Geography from the University of Auckland (first class honours).
2. I have worked in the field of economics for over 21 years for commercial and public sector clients. I joined M.E in 2001, and I have specialised in studies relating to land use analysis, assessment of demand and markets, the form and function of urban economies and growth, policy analysis, and evaluation of economic outcomes and effects, including costs and benefits. I have particular expertise in data analysis and interrogation to support evidenced based decision making.
3. I have applied these specialties in studies throughout New Zealand, and across most sectors of the economy, notably assessments of new developments, plan and policy changes, urban and rural planning (including under National Policy Statements) and understanding specific sectors such as the retail, commercial, industrial, residential, tourism, education, recreational marine, aquaculture, liquor licencing and major event industries. I am currently an associate member of the NZ Planning Institute and a member and regional committee treasurer of the Resource Management Law Association.
4. I am also the project manager and contributing author of the 2021 Housing Business Capacity Assessment (HBA 2021 report) for Rotorua Lakes Council (RLC) under the National Policy Statement on Urban Development 2020 (NPS-UD) and have an ongoing role (with the support of M.E staff) in advising RLC's Housing Intensification Plan Change (PC 9) and Future Development Strategy (FDS).

PURPOSE OF THIS EVIDENCE

5. This evidence has been prepared to support the s42A reporting. It focuses on actual and likely economic effects arising from the proposed use of 13

tourist accommodation establishments for contracted emergency housing (CEH), including temporary and longer-term effects, positive and negative effects and effects at the neighbour, local community and wider community/district scale.[1] The purpose of my evidence is to determine the extent of these economic effects and how they might be avoided, remedied or mitigated.

6. In preparing this evidence, I have reviewed the expert economic evidence of Mr Kevin Counsell for Restore Rotorua Incorporated (RRI), submissions made by business owners who have variously discussed economic effects on themselves and/or the wider business community. These are primarily as a direct consequence of the adverse social effects arising from the concentration of emergency and transitional housing in central Rotorua, and or actual or anticipated effects on Rotorua's tourism sector.

7. I have also considered the information provided with the 13 applications, including the further information requested, to the extent that has a bearing on economic outcomes and effects.

8. I provide commentary on the robustness and/or limitations of the economic evidence and data analysis provided in the applications and submissions. I include evidence that addresses any material gaps in the economic and data evidence-base that I have identified and that may be of assistance to the Hearings Panel.

9. My evidence is focussed on the following economic issues and/or effects:

   (a) Demand and capacity for housing in the Rotorua urban environment as assessed in the HBA 2021 report as well as the effects of PC 9 on housing capacity.

   (b) The effects of EH on the location, nature and quantum of crime and other police related incidents in Rotorua, and any evidence of CEH's actual or likely role in these effects.

   (c) The effects of EH on private property values in adjoining residential areas, and any evidence of CEH's actual or likely role in these effects.

[1] I adopt the three scales of impact applied in the Social Impact Assessment (Beca SIA) Report.

(d) The effect of utilising 13 tourist accommodation sites for CEH on Rotorua's tourism capacity and any evidence on whether this has, or will constrain tourism recovery in the district.

(e) The effect of EH generally on Rotorua's tourism reputation, and any evidence on CEH's actual or likely role in that effect to date and going forward.

(f) Positive economic effects attributable to CEH.

(g) Conclusions and recommendations from an economic perspective.

CODE OF CONDUCT

10. Although this is a Council hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SUMMARY OF EVIDENCE

11. **Regulatory and market factors contributing to EH demand**: The RLC HBA 2021 report provides a detailed assessment of Rotorua's housing market, looking at past trends and current patterns. It shows that in recent years, residential dwelling supply has not kept up with rapid household growth, which has created a significant shortfall of housing, estimated at 1,500 (or potentially more) by the end of 2019. Compounding this, rising prices, lower than average incomes, and planning provisions that have offered limited options to develop smaller section sizes and cheaper dwelling types (including more attached housing) have made housing more unaffordable for first home buyers. This is evidenced by the sharp increase in the number of households on the public housing register in Rotorua. Increasing the yield of public housing is only just starting to gain

traction but the historical undersupply and slow supply increase has created significant demand for EH – locally and in surrounding areas.

12. Looking to the future, the HBA 2021 report found that the ODP and planned infrastructure investment would not provide sufficient residential dwelling capacity to provide for projected growth. When the current shortfall of an estimated 1,500 dwellings is added to future demand, insufficiency outcomes are worse again.

13. PC 9 will resolve these capacity issues, but it will be up to the market (including the public housing sector) to supply the housing needed. I consider that the permanent solution to EH (which it is hoped MHUD can provide more detail on over the course of the hearing) will take time and it is highly likely that there will be a requirement for EH into the medium term in Rotorua. This is because the 'solution' is not limited to finding homes for the occupants of CEH, but the occupants of all EH (of which the CEH makes up only a moderate share). From an economic perspective I support a consent period of 5 years for CEH. A lesser period is unlikely to be efficient given the scale of demand.

14. **Effects on crime, incidents and Police activity and consequent economic effects**: There has been some high level analysis of crime data provided in submissions and the Beca SIA report. I have further tested those findings through a more comprehensive assessment of Police data. I consider that EH (of all forms) has had no material effect on total district crime, incidents or Police activity since mid-late 2020. Given the limitations of the data, I cannot establish any effects of EH or CEH on neighbours. That leaves effects on the local community.

15. The data shows that there has been a significant change in crime in the Fenton Corridor catchment since 2018. Just over half of that effect occurred pre-Covid although during that time, not all of the effect can be attributed to the increase in EH as there were similar effects in the rest of the district. In the last two years, it is likely that the concentration of EH in the Fenton Corridor is having a cumulative effect on crime, which has shifted from elsewhere in the district. Crime is significantly

dominated by theft, a pattern unique to the Fenton Corridor. EH occurring in the Koutu catchment has not had a cumulative effect on crime.

16. Over the lasts four years there has been a minor increase in non-crime incidents in the Fenton Corridor catchment. The catchment has accounted for an increasing share of total district incidents. As the increase in not occurring elsewhere, the increase is attributed to the concentration of EH (of all models).

17. There was a sudden increase in Police activity in the Fenton Corridor in mid-2021, but that was also observed district wide. That level of activity has been sustained in the Fenton Corridor while decreasing elsewhere. That sustained and elevated level of Police activity is therefore attributed to the concentration of EH in the catchment. The evidence supports submissions that Fenton Corridor is attracting an increasing share of district Police resources. However, the concentration of EH does not seem to have had a material effect on the type of Police activity required in the Fenton Corridor – the mix is similar across the district.

18. Overall, when considering the combination of all available Police data, I consider that EH (of all models) has had a significant adverse effect on the social conditions of the Fenton Corridor local community, but not other communities. There is little evidence that CEH has had a material effect on those social conditions (neither improving or worsening effects). Relative to the permitted baseline, I consider that 12 CEH sites in the Fenton Corridor and the 1 CEH site in the Koutu catchment are likely to have only a minor adverse effect on crime, incidents and Police activity in the respective local communities.

19. **Effects on property values**: Literature suggests that when social housing is concentrated in areas, that the value (sales price) of private residential dwellings is negatively affected. Concentrating social housing into already deprived communities exacerbates impacts on property values. Conversely, when social housing is dispersed, it is more easily absorbed in the community and effects on property values are minor.

20. I consider that this research is transferable to the EH situation in Rotorua. The concentration of EH units is significant (particularly in the Fenton Corridor catchment) and both receiving communities have high levels of deprivation. The cumulative effects of all forms of EH on property values in both catchments is potentially significant in economic terms. However, I do not consider that consenting the CEH sites will have a material adverse effect on the existing environment. Relative to the permitted baseline, and if all CEH sites are consented, I consider that the potential adverse economic effects on property values within 500m is likely to be more than minor, but not significant. The effects may be mitigated by consent conditions, particularly those that maintain the appearance of the sites. Property value impacts attributed to the CEH sites are expected to be temporary effects limited to the duration of the CEH contracts.

21. **Effects on tourism capacity and recovery:** The existing environment is a situation whereby the capacity of the commercial tourist accommodation sector in Rotorua is currently operating at 68% of its original potential due to the combined effects of Covid, consented TH, uncontracted EH and CEH removing stay unit capacity. This has not created a material capacity constraint over the last two years, but with international guest arrivals starting to return and the event industry returning to normal, some capacity constraints may (if the market does not fully respond in time) be experienced periodically over the next five years. Those periods may be short in duration and infrequent, especially in the short term. The potential loss (opportunity cost) of guest arrivals over the next five years associated with any shortfalls in capacity is therefore likely to be minor relative to the annual volume of guest arrivals that can and will be accommodated. Only a modest share of any future minor capacity constraints (guest arrival losses) can be attributed to CEH in the existing environment.

22. In the absence of EH and CEH unlawfully established in tourist accommodation, the counterfactual scenario of tourist accommodation capacity in Rotorua was unlikely to be continuation of the status quo due

to the significant effects of Covid-19. Under the permitted baseline the tourist accommodation sector may have retained 92% of its original stay unit capacity once current closures and the consented TH capacity is removed. Occupancy rates would have been lower under that scenario with supressed demand spread more thinly on the ground – the scenario is therefore potentially optimistic from a commercial viability perspective. Nonetheless, taking out the 295 stay units in CEH establishments (if all consented) would represent a minor and temporary adverse effect on tourist capacity relative to the permitted baseline – estimated at an 8% loss of stay unit capacity. In the context of projected demand for commercial tourist accommodation over the next five year (with international tourism recovering), an 8% loss in capacity would be easily absorbed by the rest of the market in my view. There would no material loss in guest arrivals and therefore no material opportunity cost on tourism spending. My assessment against the permitted baseline and the existing environment does not support claims made in submissions that consenting CEH will have significant adverse effects on tourism capacity.

23. **Effects on Rotorua's tourism reputation**: Rotorua is experiencing a decline in its market share of national domestic tourists. In the first 8 months of 2022, domestic tourists were down -11% or 314,000 on the first 8 months of 2021. Some of this decline is attributable to the increased marketing of less traditional tourist destinations post-Covid by TourismNZ, and some is attributable to incremental damage to Rotorua's reputation as a tourist destination.

24. One cause of this decline in reputation is the tired and run-down state of many older tourist accommodation establishments (particularly along Fenton Street). In addition, I consider it likely that EH (of all forms) has had a more than minor adverse effect on Rotorua's tourism reputation in the last 12 months and if it continues at its current scale over several more years, the economic effects could be significant.

25. Tourist experiences in mixed EH establishments is likely to be relatively more damaging on tourism reputation, followed by reduced street appeal and incidents of antisocial behaviour outside establishments being used for EH/CEH. However, my sense is that media coverage of Rotorua's EH issues is now doing the greatest damage to New Zealanders perceptions of Rotorua (particularly around the safety of the central city). My concern is that those perceptions do not match the experience of the significant majority of visitors who do decide to come to Rotorua. Publicity focussed on the relatively concentrated effects of EH (of all models) is therefore damaging the reputation of those parts of the district where there are no effects from EH.

26. I agree with the Beca SIA report that consenting CEH is likely to have a limited effect on the existing environment. However, relative to the permitted baseline, I consider that 13 CEH sites are likely to have had only a minor effect on Rotorua's tourism reputation to date, and that effect will remain only minor if consented. This is because CEH makes up just 23% of the 56 establishments providing EH across the district today and is unlikely to have attracted the same level of media attention. It also has better site management practices in place and does not mix tourists with CEH occupants.

27. **Positive economic effects of CEH**: Based on an assessment of business and employment count patterns in the tourist accommodation industry over time, I consider that providing for EH (of all forms including CEH) is likely to have helped sustain employment in the Fenton Corridor and Koutu catchments and may even sustain slightly more direct employees that running tourist accommodation on those same sites, albeit within a slightly different mix of occupations. This is considered a minor positive effect of CEH.

28. While providing EH for non-Rotorua households contributes to the negative cumulative effects of EH on local communities, those net additional households are contributing household spend to the Rotorua

economy that may otherwise not have occurred. This is considered a minor positive effect.

29. **Recommendations**: Some adverse economic effects attributed to CEH can be mitigated through consent conditions. I recommend that sites contracted for CEH should not be identifiable as tourist accommodation – in person or online. Removing signage, websites and any presence on online booking platforms avoids tourists being able to associate any actual or perceived adverse environmental effects of those sites with Rotorua's tourism industry and risking further damage to its tourism reputation.

30. At a strategic level (i.e. the way that the 13 sites are managed as a bundle), if MHUD are in a position to reduce the number of CEH contracts before the end of the 5 year consent period, then where practicable, I consider that priority should be given to releasing CEH that is in close proximity to tourist attractions, to help reduce any externality effects and further risk reputational damage. Following that, priority should be given to reducing the concentration of CEH (i.e where two sites are close together). Reducing the concentration of CEH will assist in reducing cumulative effects.

31. If demand for CEH does reduce over the course of the consent period, then to improve the chances of being able to reduce the number of contracts (and concentration of establishments which have wider flow on economic and social benefits), I would recommend avoiding a situation of incremental reductions in occupancy across all CEH contracts and instead, retain fewer sites at the approved maximum occupancy.

REGULATORY CONTEXT, PERMITTED BASELINE & EXISTING ENVIRONMENT

32. Rotorua is experiencing a housing crisis, and this has exacerbated a wider social housing issue in the district, with a large and rapidly growing wait list for public housing. It will take a combination of the private housing market, Kāinga Ora, and community housing providers (CHPs) to provide a solution to the affordable housing supply shortage in Rotorua. Iwi can

also play a role, in terms of providing papakāinga and other forms of housing on Māori freehold and general land.

33. However, the lag between the permanent solution and current demand creates a temporary problem which has resulted in EH utilising tourist accommodation in Rotorua (and other parts of the country). More information is needed on just how temporary the use of tourist accommodation is for EH in Rotorua. While MHUD are seeking consent for CEH for a 5 year period, demand is not currently limited to those 13 sites, so it is hoped that more detail can be provided over the course of the hearing on how the 'solution' applies to the wider demand issue. Only then will the role played by the 13 CEH sites and the term of their consents be better understood.

34. **Regulatory context**: The Operative Rotorua District Plan (ODP) requires that EH activities (assuming the Applicant's identification of non-complying activity status is accepted) are provided in a way that either is not contrary to the ODP objectives or policies or, has effects that are no more than minor. Only in this way can the ODP support or enhance the economic (as well as social, cultural and environmental) wellbeing of the district as a whole.[2]

35. To do otherwise creates effects on communities (including residents and businesses) that were unanticipated and unacceptable. Residents did not buy in Glenholme or Fenton Park (for example) on the basis that nearby motels could be used (unlawfully) for EH. Business owners did not invest in motels/hotels or other business premises on the basis that their neighbouring accommodation providers would convert to EH. These unanticipated outcomes can only be accepted/tolerated if the activity is consented (lawfully established) and operates in accordance with any conditions of that consent.

36. If any effect is significant (and can't be mitigated by consent conditions), it is unlikely that the activity can be approved. This is irrespective of the

[2] While the ODP helps manage environmental effects, there are also other regulations and functions of council play a key role in community wellbeing.

counterfactual (i.e., what will happen in the alternative), even if that means that adverse effects may be exacerbated by unlawful activities.

37. **The permitted (or consented[3]) baseline** for the 13 consent application sites is one of a number of potential land use activities:

    (a) providing tourist accommodation as motels/hotels up to their current maximum stay units (i.e. potentially at full occupancy all year round), if it is commercially viable (sustainable) for current or future owners to do so.

    (b) Depending on their zoning[4], the sites could (if they met zone standards) be redeveloped to provide:

        (i) More intensive tourist accommodation (adding units if the buildings do not currently maximise site coverage and building height standards for example);

        (ii) Community housing;

        (iii) Household units (up to the housing density rules and with some limitations on household units on the ground floor);

        (iv) Commercial activities (e.g. takeaways food, convenience retail, restaurants, retail shops, supermarkets);

        (v) Hospitals and medical centres (Residential 2 Zone only); or

        (vi) Holiday rental accommodation.

38. Any positive or negative economic effects of the above permitted (or consented) activities are anticipated by the ODP. EH or CEH is not part of the permitted baseline and is therefore operating unlawfully. My evidence considers the effects of the 13 CEH sites relative to the effects of the permitted baseline. This requires assumptions to be made on hypothetical economic (and social) conditions whereby EH had never existed in tourist accommodation establishments in Rotorua (and where vulnerable/homeless households would otherwise have been living).

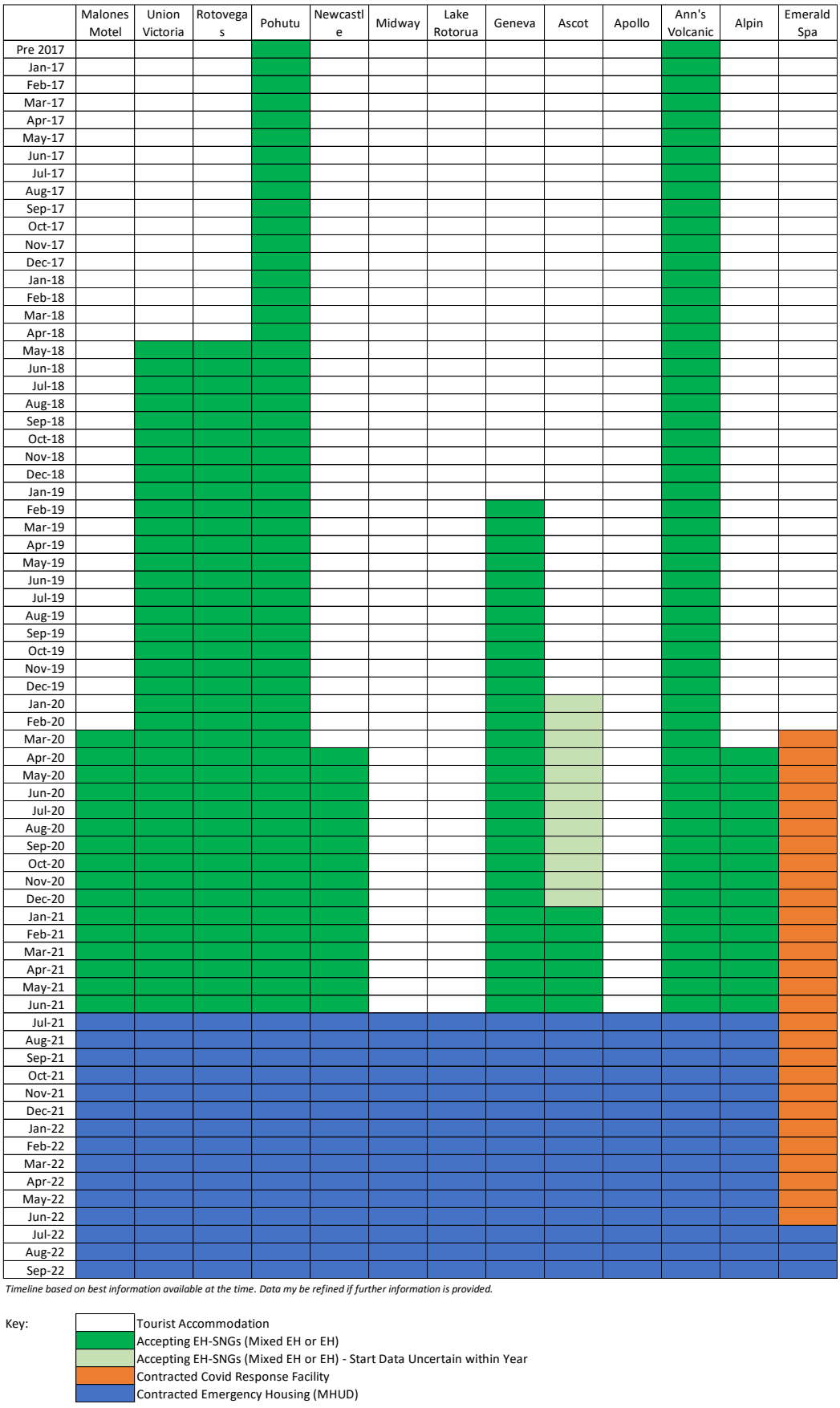
39. **The existing environment**: While assessing effects relative to the permitted baseline is the core evidence required for decision making, my

[3] One application site (The Rotorua International Motor Inn), the tourist accommodation activity was established through granting of a consent for a Discretionary Activity.
[4] Zoning of each site is set out in Mr Batchelar's Council Officers Overview Report.

evidence considers the effects of the 13 CEH sites relative to the existing environment for added context. This also provides alignment with other economic and social evidence and submissions that only considered effects relative to the existing environment.

40. Today CEH operates (unlawfully but seeking consent) in 9 tourist accommodation establishments that, prior to being contracted by MHUD, were receiving Emergency Housing – Special Needs Grants (EH-SNGs) for at least a year, and some for over four years. One CEH site is operating in a tourist accommodation establishment that was a contracted Covid Response Motel between March 2020 and June 2022. Three CEH sites are operating in tourist accommodation establishments that, prior to being contracted by MHUD, were operating as tourist accommodation. Twelve of the CEH sites have been operating as CEH since July 2021 and one has been operating only since July 2022. The timeline of the 13 CEH sites, and when they stopped operating as tourist accommodation is summarised in Figure 1.

Figure 1 – Timeline and Prior Use of 13 CEH Sites



Timeline based on best information available at the time. Data my be refined if further information is provided.

Key:

- Tourist Accommodation
- Accepting EH-SNGs (Mixed EH or EH)
- Accepting EH-SNGs (Mixed EH or EH) - Start Data Uncertain within Year
- Contracted Covid Response Facility
- Contracted Emergency Housing (MHUD)

41. In addition to the 13 CEH sites, the existing environment includes one consented transitional housing (TH) site (also within a tourist accommodation establishment) and a large number of uncontracted tourist accommodation establishments accepting (unlawfully) EH-SNGs. There are a range of estimates on the current scale of total EH units (across contracted and noncontracted models) being used in central Rotorua in the applications and submissions but it is difficult to get a clear picture of the CEH share of the total.

42. It is therefore very difficult to isolate the economic effects (including cumulative effects) arising from the CEH sites from other uncontracted EH, particularly when considering effects that are felt at the local community or wider community/district level.[5] Care is needed to distinguish (or appropriately apportion) the effects of operating CEH in 13 tourist accommodation sites from the wider economic effects of Rotorua's homelessness/housing crisis and the full extent of all EH activities.

43. It is also very important to distinguish economic effects of EH generally (and the 13 CEH sites in particular) on Rotorua's tourism industry from the effects of Covid-19. This applies to recent effects and potential and likely effects going forward. While it is clear Covid-19 has reduced demand for tourist accommodation, it is not straightforward to determine the point at which the use of 13 tourist accommodation sites for CEH (for up to 5 years) significantly constrains projected over-night tourist arrivals or length of stay. I discuss this later in my evidence.

44. When reviewing the existing evidence or providing new evidence on economic effects associated with the 13 CEH sites, my approach has been guided by the need to correctly attribute effects (to the extent possible and within the limitations of available data) to the relevant cause.

[5] I adopt the three geographic scales in the Beca SIA report (Figure 1).

HOUSING DEMAND AND CAPACITY – HBA AND PC 9 SUMMARY

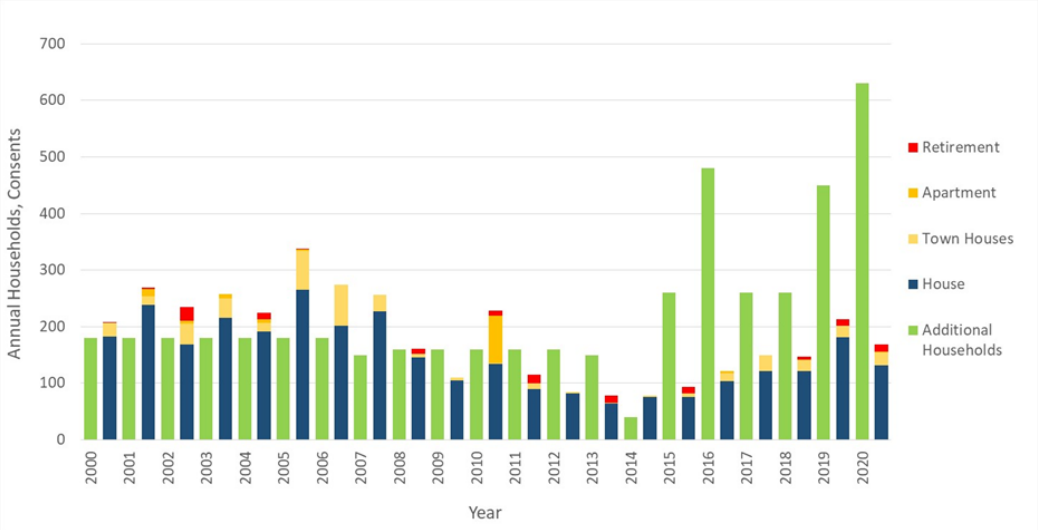
45. Rotorua's housing 'crisis' has been well documented. The conditions that have led to the current housing shortages and housing affordability issues have been briefly summarised in the consent applications. The Beca SIA report also provides a summary of some key figures[6] and recommendations from the RLC's HBA 2021 report. The purpose of this section of my evidence is to briefly draw out some additional context on Rotorua's housing market – recent trends and future projections.

46. Rotorua has household incomes that are slightly below the national average. For example, 37% of household in 2020 had incomes of less than $50,000/annum compared to 34% nationally. 63% of all households own their own home but home ownership is below average for Māori (47%), Pacific (41%) and Asian households (45%). 37% of resident households occupying dwellings are in some form of rented accommodation. Evidence has been provided elsewhere on the strong demand for public housing in the district (i.e. the public housing register).[7]

47. **The housing shortfall**: By the end of 2019, there was an indicative shortfall of 1,500-1,750 dwellings according to estimates by MHUD.[8] The escalation of a housing shortage is clear when comparing annual household growth with growth in residential dwelling consents over the past 20 years (Figure 2). While there was substantial supply of new dwellings in Rotorua between 2000-2008 (around 250 consents per annum and well ahead of household growth), the number of residential dwelling consents fell dramatically following the GFC. The 2012-2015 period saw only 80-90 new residential dwelling consents issued annually. These consents increased again during 2016-2020 to around 150-200 per annum but this was still outstripped by strong annual household growth since 2015 – hence the local housing crisis.

[6] I.e. dwelling shortfalls in the short, medium and long term and housing bottom lines.
[7] Beca SIA Report.
[8] The HBA 2021 adopts the lower of this range (1,500).

Figure 2 - Annual Residential Building Consents Issued Compared to Household Growth in Rotorua District (Year Ending June)



48. **<u>Supply growth required to meet demand</u>**: Residential dwelling consents in 2021 more than doubled those issued previously in 2020 at around 330[9], resulting in a significant improvement in the rate of housing supply (assuming they were all built). However, even if this number of consents is sustained over the next three years it would only cater for 67% of projected dwelling growth required in that period and would not have recovered any of the current shortfall. Instead, the shortfall would have gotten worse (and some of the projected growth would not be realised at all).

49. To cater for projected district dwelling growth and eliminate the current shortfall of say 1,500 dwellings in the next three years would require a supply rate of 1,090 dwellings per annum (about three times the number of residential dwelling consents issued in 2021). More realistically, if you spread the elimination of the current housing shortfall over the next 10 years, you would need a supply rate of just under 600 dwellings per annum to cover both projected underlying dwelling demand and the shortfall. The average rate reduces because the rate of dwelling demand growth is projected to slow over time, meaning demand is highest in the short term.

[9] This was the total for the year ending September 2021.

50. Achieving such dwelling supply rates will require a substantial increase in the capacity of the Rotorua construction sector (and more efficient ways of delivering houses). This is a big ask given current economic conditions and the limited ability of Rotorua to compete with other high growth urban areas to attract construction companies and workers.

51. **Rotorua's housing development capacity**: Under the NPS-UD RLC's job is to ensure that in the urban environment there is sufficient plan-enabled, infrastructure served, feasible and reasonably expected to be realised development capacity for the rapid urban growth to occur, plus an additional margin of 20% in the short and medium to ensure a competitive land market. Hence, the housing bottom lines reflect RLC's duty to deliver urban capacity, and not the actual number of urban or total district houses required in each time period (which is the responsibility of the market, including the public housing sector, to deliver).

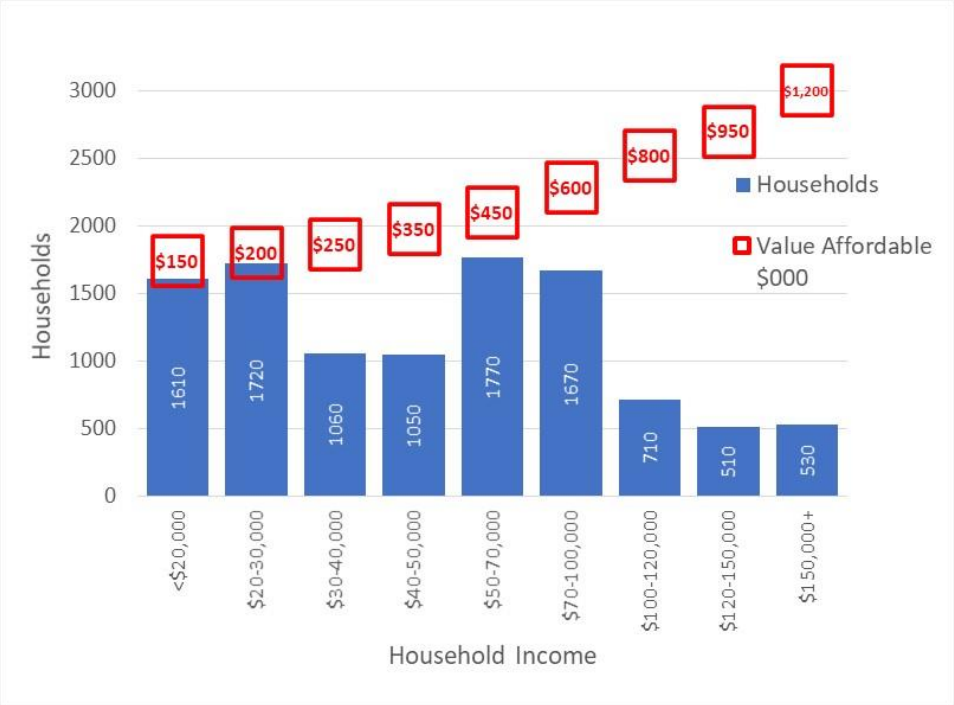
52. The HBA 2021 report examines how the ODP performs relative to the dwelling capacity targets in the urban environment in the short, medium and long term. Capacity in the short and medium term is limited to what is currently enabled in the ODP. The long term capacity can take into account the 'identified' growth areas in the 2018 Spatial Plan (on the basis that there is plenty of time left to zone them). Capacity estimates can also consider the greater of infill or redevelopment capacity in existing urban areas and greenfield land capacity.

53. The analysis in the HBA 2021 report showed that the ODP and Spatial Plan will not provide sufficient capacity to meet the housing bottom lines. For example, the short term urban shortfall for example was estimated at -1,890. This reduces to -1,400 in the medium-term as the provision of infrastructure will allow some greenfield areas to be developed. By 2050, the capacity short fall is expected to be between 320-3,630 dwellings depending on whether you allow for prices rises which make more capacity commercially feasible to develop. Therefore, while the Spatial

Plan almost achieves long term capacity, it is still not identifying enough growth areas (if the OPD was to continue unchanged).

54. **Current housing affordability**: Housing affordability is another key focus of the HBA 2021 report. In 2020, it was estimated that there were 10,750 non-owner resident households[10] within market rentals or public/social housing. Current (2020) housing affordability in the Rotorua market is based on what first home buyers in each income band would be able to afford (if they aspired to own a home). This is based on assumed loan parameters, applied to the distribution of dwelling values in the district as at 2020. Of note, 47% of the non-owner households had household incomes of less than $50,000 per annum.

Figure 3 – Housing Affordability by Non-Owner Income Band and Value Band, Rotorua 2020



55. The blue bars in Figure 3 show the distribution of the 10,750 non-owner households in the district. The red boxes show the value of house that non-owner households in each income band could afford. Some non-owner households have high incomes and can afford to purchase quite

[10] This is unlikely to include the households in EH, as Statistics NZ only identifies households as those within occupied dwellings.

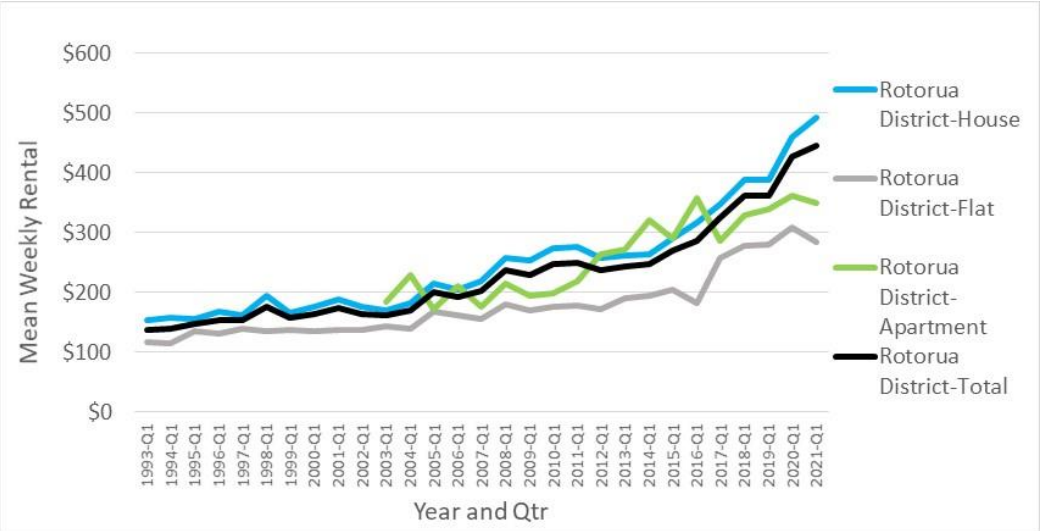
valuable homes. The focus is on the lower household income groups. For example, the 1,610 households that earn less than $20,000/annum (which, for the analysis includes all households housed by Kāinga Ora) can only afford a dwelling valued at $150,000. In 2020, there were estimated to be 570 dwellings in Rotorua in that price bracket. Even if they were all for sale, this would only allow a third of households that earn less than $20,000/annum to become homeowners.

56. There were estimated to be 1,800 dwellings in the value band 'affordable' to households earning between $20,000-30,000/annum. If these dwellings were all for sale, non-owner households would require 97% of those. As incomes increase, there are relatively more houses potentially available in the market, and non-owner households would only require a small share of those (i.e. no more than a quarter) in order to become home owners.

57. The issue arises because only a very small amount of dwellings in low price bands come onto the market, and non-owner households have to compete with everyone else to purchase them (including those with much higher incomes, investors wanting to have rental properties and those wanting holiday homes).

58. While non-owner households do not have to become homeowners, they do need to rent (including renting off public housing providers). Figure 4 shows how rental prices have increased since 1993. Over the last two decades rental prices have increased steadily at an average rate of 5% per annum. This was not as fast as the growth rate of dwelling prices in that same period (7% per annum on average). In 2021, the average weekly rental price was $446 in Rotorua, and $492 for a standalone house. Flats and apartments are relatively more affordable, highlighting the importance of delivering attached housing (something that the ODP does very poorly, but which PC 9 seeks to better enable). Rotorua's rents are now close to the national average, however we know that Rotorua has below average household incomes.

Figure 4 – Rental Trends by Dwelling Type in Rotorua District 1993-2021



59. **<u>Future housing affordability</u>**: The HBA 2021 report provides analysis of how housing affordability (i.e., the ability of non-owner household to buy) will change over the long term based on projected growth in households, changes in incomes, the future price band of new dwellings that the ODP and Spatial Plan are reasonably expected to facilitate and the price band of existing dwellings year on year.

60. As discussed above, RLC planning and infrastructure have been shown to provide insufficient capacity for projected dwelling demand. This means that without a planning and infrastructure response, housing affordability in Rotorua would continue to decline over time. This is because housing land and other costs are likely to be pushed up by supply constraints, even though household incomes are expected to continue to grow in line with income trends at the national level, and the increasing size of the Rotorua economy, including any associated increase in employment opportunities.

61. When wider economic influences on rising house prices are also factored in (on top of the impact of RLC planning and infrastructure) the future outcome for housing affordability is likely to be somewhat worse. Rotorua housing prices will continue to increase for a range of other reasons, including from growth in the Rotorua economy, growth in population, growth in employment opportunity, changes in interest rates

and the availability of finance, as well as the rising cost of construction materials and scarcity of labour. Commonly, urban land values increase at least in line with the growth of the economy.

62. In 2020, the short-fall of 'affordable' dwellings in the dwelling estate for non-owner households to try and buy (if available) is estimated at -3,550 dwellings. By 2023, this is estimated to increase to -4,670 and by 2030 to -4,810. While wider economic factors are outside of RLC's ability to control, the HBA 2021 report shows that RLC needs to respond to provide at least sufficient capacity, including more capacity for attached housing for which there is increasing demand due to demographic change (i.e. the ageing of the population), to ensure that council planning and infrastructure provisions are not contributing to worsening housing affordability.

63. **Plan Change 9**: RLC has responded to the results of the HBA 2021 report. Rotorua's proposed PC 9 to the ODP is intended to provide for sufficient capacity within the urban environment to meet demand within the existing urban area. It aims to provide for a range of different dwelling options and in locations of high accessibility and amenity in alignment with the NPS-UD Policy 5 requirements and the Medium Density Residential Standards (MDRS) within the Resource Management (Enabling Housing Supply an Other Matters) Amendment Act 2021.

64. M.E Consulting has provided an analysis[11] of how PC 9 increases plan enabled dwelling capacity in Rotorua's urban environment (relative to the assessment of the ODP in the HBA 2021 report). That assessment does not estimate the share of plan-enabled capacity that is commercially feasible, infrastructure ready and reasonably expected to be realised (as required for a full HBA).[12] The assessment recognises that only a portion of plan enabled capacity is likely to be realised over the planning period, with other factors affecting the take-up of capacity. It is on this basis that it includes an analysis of the share of plan-enabled capacity that would

[11] M.E Consulting, July 2022: Rotorua Intensification Economic Assessment – Intensification Plan Change. Prepared for RLC and appended to the section 32 report.
[12] Commercial feasibility modelling is being included in the FDS assessment.

be required to be taken up to meet demand for dwellings within the urban environment. Hence, it provides an indication on how sufficiency of capacity for attached and detached dwellings is likely to improve as a result of the intensification provisions.

65. Several options for intensification were tested and modelled by M.E. The option preferred and notified includes provision for higher density (5-10 storey), vertically attached apartment dwellings within the central commercial zones of Rotorua's urban environment. In addition, it has a High Density Residential (HDR) zone applied across the adjacent residential area to the south of the City Centre (5-6 storeys). The extent of the HDR zone is similar to the extent of the existing Residential 2 zone, extending up to 1km from the City Centre. The remainder of much of the residential area is covered by the Medium Density Residential (MDR) zone with the MDRS provisions applied. The MDRS provisions (applied to ODP zones) have already come into effect in August 2022. Changes in height limits also apply, including up to 24m (6-7 storeys) in the Commercial 4 zone along Fenton Street (up from 12m). PC 9 also makes development of papakāinga housing more enabling.

66. The introduction of the MDRS alone increases plan-enabled capacity for dwellings in existing urban areas (i.e. excluding greenfield areas) by nearly three and half times that of the HBA (Table 1). PC 9 increases plan enabled capacity from 20,100 additional dwellings in the short and medium term to an estimated capacity for an additional 129,500 dwellings (Table 1). Long term dwelling demand is estimated to require just 8% of the plan-enabled capacity delivered by PC 9. Once greenfield capacity is included, an even smaller percentage of total capacity is required over the next 10 years. These results give a high level of confidence that the changes proposed in PC 9 will more than ensure that the ODP provides sufficient housing capacity, including for attached housing.

Table 1 – Rotorua Existing Urban Area Total Short/Medium Term Plan-enabled Capacity – Impact of MDRS and PC 9

	Vacant Infill Capacity				Redevelopment Capacity				
	Detached Dwellings	Horizontally Attachd Dwellings (Duplexes/ Terraces)	Vertically Attached Dwellings (Apartments)	Max Infill	Detached Dwellings	Horizontally Attachd Dwellings (Duplexes/ Terraces)	Vertically Attached Dwellings (Apartments)	Max Re-development	Max Infill and Re-development
ODP Capacity (HBA)	5,500	100	600	6,200	10,100	1,300	8,600	19,800	20,100
MDRS applied to ODP Zones (August 2022)	12,100	15,300	4,500	19,900	42,100	59,000	8,700	68,700	71,100
Plan Change 9 (Including MDRS)	12,400	22,100	5,000	26,600	41,500	106,200	25,200	127,500	129,500

Source: M.E 2022. Excludes capacity in greenfield areas.

67. The proposed PC 9 provisions (including the application of the MDRS) are likely to generate significant changes through time to the nature and distribution of residential growth in Rotorua's urban area. Changes to growth patterns are likely to incrementally and cumulatively impact the city's urban form, becoming significant through time. Generally, the provisions provide a greater range of housing options that are likely to contribute toward addressing identified gaps within the market. In particular, they provide for dwellings to be constructed on smaller sites, and include a greater range of medium density attached housing options. These are likely to contribute positively to housing affordability within the urban area by first ensuring there is sufficient capacity for growth and second by enabling dwellings that are less expensive to build.

68. As discussed above, PC 9 ensures that planning decisions do not constrain dwelling growth in Rotorua's urban environment. It will still be up to the market to deliver the dwellings needed to meet demand and address the housing shortfall.

69. Based on discussions with Kāinga Ora for the HBA, the PC 9 intensification provisions will have a positive impact on the type and yield of public housing they can deliver in Rotorua.

70. I have considered whether the concentration of EH (of all models, including CEH) will hinder the realisation of PC 9 urban form outcomes by deterring investment, redevelopment and infill housing. This applies to

the land along the Commercial 4 Zone (i.e. Fenton Street) as well as in neighbouring medium and high density residential zones.

71. As discussed elsewhere in this evidence, the concentration of total EH in the Fenton Corridor catchment is causing adverse social and economic conditions including increased crime and reduced property values. Those commercial developers contemplating redevelopment in the catchment will be keeping a close eye on the existing environment and the 'temporary' nature of CEH sites as well as policy and enforcement changes that would be likely to influence the duration of other uncontracted sites. The existing environment potentially provides opportunities to purchase land at lower prices. If those sites can feasibly be land-banked until conditions in the catchment become more favourable, then it is possible that commercial redevelopment could be delayed in the catchment initially and then increase.

72. Developers like Kāinga Ora are not driven by the same market forces as the private development market. If they see opportunities in the Fenton Corridor catchment, they are likely to be early adopters of the provisions enabled by both MDRS and PC 9. Last, some infill development by existing residential landowners is not driven by market demand, but a need to provide additional accommodation for family members. Such decisions to invest in 'back yard' infill are less likely to be swayed by the adverse effects of EH on catchment conditions.

73. Overall, while the CEH sites will not be redevelopment opportunities while they are contracted to MHUD (and potentially for 5 years), there will still be significant development potential in the Fenton Corridor and if the permanent solution to public housing demand *can* be achieved in the short-medium term, then I see no reason why development capacity enabled by PC 9 won't be realised incrementally over the long term. However, there may be a short delay for commercial land development to take hold compared to some other locations where PC 9 will have an impact.

74. **Long term growth areas**: RLC is in the process of developing a FDS that will focus on long term changes to urban areas, including identifying future greenfield growth areas, and will replace the 2018 Spatial Plan. Given that the focus of the CEH consent hearing is on the short-medium term future, I do not provide further detail on the FDS here.

75. **Conclusions on the Rotorua housing market**: The current housing crisis has arisen because of a combination of Government initiatives and multiple local and national socio-economic factors such as: rapid recent growth, supply that has been too slow to respond to increasing demand, an ODP that did not support the delivery of more affordable housing types, rising house and rental prices and below average home ownership and household incomes.

76. PC 9 will enable the supply of more diverse housing typologies in accessible locations that will be better aligned to changing housing demand. This will benefit private housing developers, the developers of public/social housing and developers of papakāinga housing alike.

77. Some of the housing typologies that PC 9 enables will take time for the market (demand and supply sides) to adjust to and adopt (particularly apartment living). While recent data indicates that housing supply rates are improving, it is too soon to tell if the MDRS (initially) and PC 9 (once operative) will further accelerate that. Even with a faster rate of supply across the market, it will take many years before material progress can be made on the existing shortfall of housing in Rotorua.

78. On that basis, the need for EH in Rotorua (even if limited to Rotorua residents) will not disappear in the next few years and may never disappear entirely. However, it should decrease (slowly at first, and potentially faster in the medium term).[13] Further information is however needed from MHUD during the hearing on the proposed solution to EH to have greater certainty on projected demand and the role of the CEH sites in the overall EH capacity picture.

[13] Using NPS-UD terminology, the medium term would be 3-10 years.

EFFECTS ON CRIME AND OTHER POLICE RELATED INCIDENTS

79. The Assessment of Effects (AEE) in the applications does not identify any adverse effects arising from the use of the sites for CEH (individually or in aggregate[14]) on the amenity of surrounding neighbourhoods with respect to increased crime and anti-social behaviour.[15] The applications acknowledge that there are public "*concerns about crime and violence, and risks to public safety*" associated with EH and transitional housing (TH) but state that "*The RMA and District Plan do not provide scope to manage households based on people's circumstances, behaviour or socio-economic status*".[16]

80. The Beca SIA subsequently prepared for the applicant is clear that effects on people and communities, amenity, social wellbeing and safety are environmental effects to be managed under the RMA.[17] I agree that actual and potential effects of the proposed CEH on crime and antisocial behaviour (i.e. on social and economic conditions) are within the scope of effects that need to be considered[18].

81. Behaviour of tenants (including intimidation and violence), neighbourhood safety, and increased crime are the three most common themes identified in the Summary of Submissions. Many submissions also identify adverse economic effects as a direct consequence of increased crime and antisocial behaviour. A robust understanding of the location, nature and quantum of criminal offending and other police related incidents (i.e., incidents that required police involvement that did not result in a criminal offence) attributable to the 13 proposed CEH sites is therefore important.

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[14] In this context, aggregate means the sum of all 13 CEH sites or total CEH.

[15] Only following the completion of the Beca SIA report (in response to the s92 request) has MHUD accepted the findings on social effects.

[16] Application Report, Section 7.1 Public notification – section 95A, Step 4 – Special circumstances. Malones, page 29.

[17] Social Impact Assessment, Beca, page 15.

[18] Although potentially limited to non-complying consents if outside the scope of matters of discretion.

82. **Existing Analysis of Victimisation (Crime) Data**: Both the Beca SIA and the evidence of Mr Counsell for RRI provide similar but high-level analysis of crime data available online from www.policedata.co.nz to inform this issue. The Beca SIA draws on non-spatial victimisation data when referring to total Rotorua District and spatial 'Victimisations Time and Place' data when referring to specific communities within the district. Mr Counsell draws on 'Victimisations Time and Place' data when referring to total Rotorua District and specific communities. I discuss the differences between these two datasets further below.

83. The spatial dataset (Victimisations Time and Place) aggregates crimes/offences according to Census Area Units (CAUs). Both datasets capture reported crimes that, following investigation, resulted in a confirmed criminal offence.[19] It includes offences categorised into 11 groups within 5 divisions as shown in Table 2.

Table 2 – Police Victimisation Time and Place Data - Offence Groupings

Australia/ NZ Standard Offence Classification **Division**	Australia/ NZ Standard Offence Classification **Group**
Acts intended to cause injury	Common assault, serious assault not resulting in injury, serious assault resulting in injury
Sexual assault and related offences	Aggravated sexual assault, non-aggravated sexual assault
Abduction, harassment and offences against a person	Abduction and kidnapping * *Note, the data does not include harassment and other offences contained within this division.*
Robbery, extortion and related offences	Aggravated robbery, non-aggravated robbery, blackmail and extortion
Unlawful entry with intent/burglary, break and enter	Unlawful entry with intent/burglary, break and enter
Theft and related offences	Illegal use of a motor vehicle, illegal use of property, theft from a person, theft from a retail premises, theft from a motor vehicle, theft of a motor vehicle/parts or contents, theft not elsewhere classified

[19] If the investigation determined that no crime was committed, the incident is not recorded in the data.

84. The Beca SIA provides data and commentary on crime in section 5.2.3 of the report.[20] It shows:

(a) total victimisations for Rotorua District by month between 2015 to January 2022;

(b) victimisations by type for Rotorua District between 2015-2022; and,

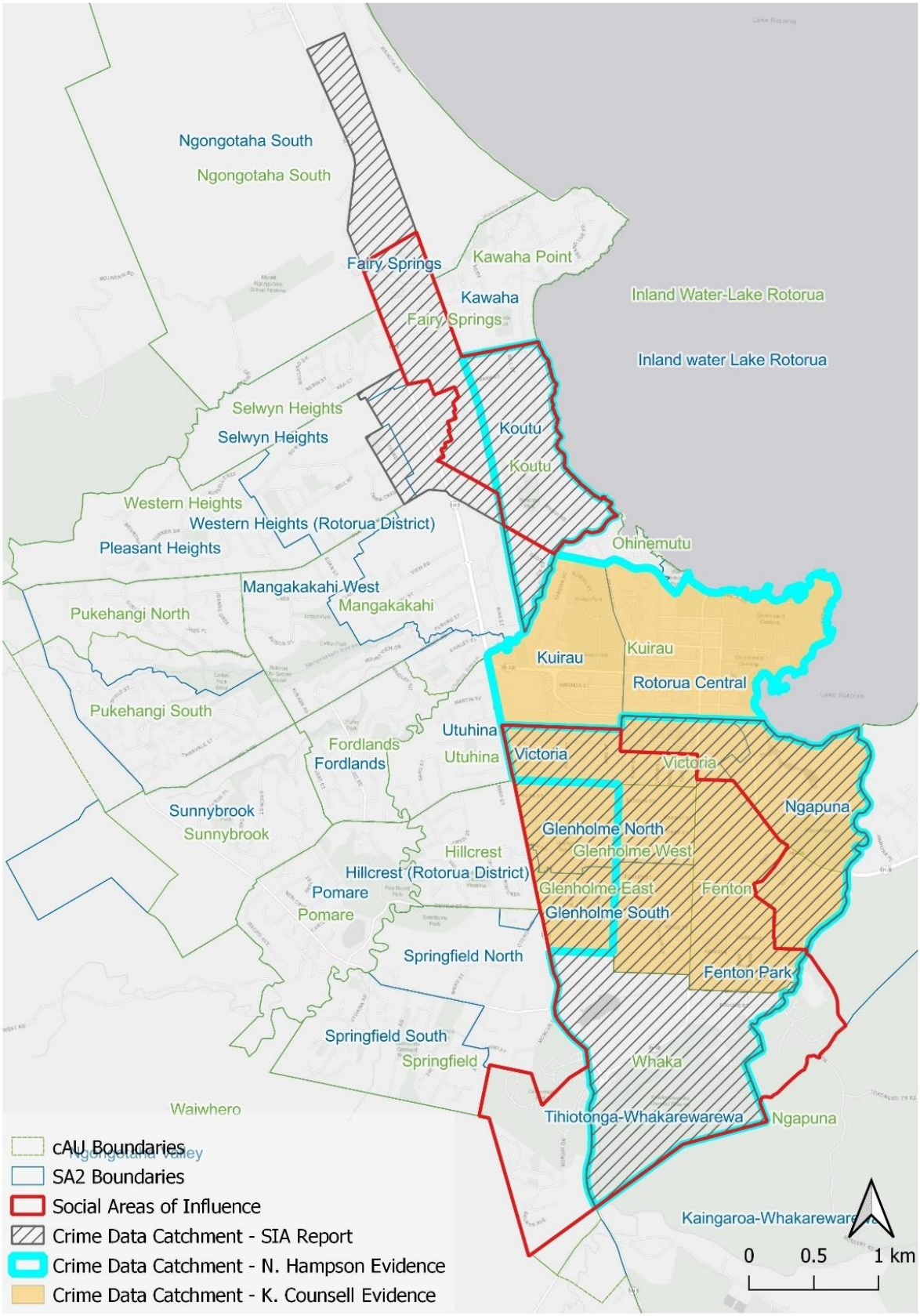
(c) total victimisations for each (individually) of the 5 CAUs that intersect the 'social area of influence 1' and the 2 CAUs that intersect the 'social area of influence 2' by month between 2017 and January 2022.

85. The two social areas of influence defined within the BECA SIA report are mapped in Figure 2 and 6 of that report and are defined by Statistical Area 2 (SA2) boundaries. Because the Police data relied on is based on CAUs and not SA2, the analysis of crime in the BECA SIA relates to a slightly different extent as the boundaries differ in some locations. I provide a comparison of those catchment boundaries (and other catchments referred to in this section of my evidence) in Figure 5 below.

86. The red boundaries in Figure 5 replicate the BECA SIA social areas of influence. The hatched area shows the CAUs included in the BECA SIA crime data analysis. The yellow area is a catchment used by Mr Counsell which I will discuss later in my evidence. The blue boundaries are the catchments I have applied to analyse Police data, also discussed further below.

[20] Beca SIA page 31-34.

Figure 5 – Boundaries of SA2s, CAUs, Beca SIA Social Areas of Influence and Victimisation Data Catchments



87. The Beca SIA report concludes:

(a) A total Rotorua trend of rising crime over 2019 that peaked at the beginning of 2020, followed by a drop associated with the first Level 4 Lockdown (Covid-19), a return to 2019 levels (but not the previous peak) and then fluctuations across 2021 and 2022. This trend was similar to the national pattern, albeit that nationally the volume of crime in 2022 has reached and exceeded the pre-Covid peak, something that is not evident in Rotorua.

(b) The main type of crime in total Rotorua in 2022 is theft and related offences, followed by unlawful entry and acts intended to cause injury (assault). This is consistent with national trends.

(c) There is no clear trend in most of the CAUs that fall within the two social areas of influence (in terms of total crimes), with the exception of Victoria and Whakarewarewa CAUs where there is a clear trend of increasing victimisations since 2019/early 2020.

(d) While not shown in the graphs provided, the underlying data showed that theft and related offences has shown an increasing trend since 2017 in Victoria, Whakarewarewa, Glenholme East and Fairy Springs. Assault has been increasing in Fairy Springs, Koutu, Victoria and Glenholme East since 2017 and unlawful entry offences has been increasing in Glenholme East over recent years.

88. The Beca SIA also reported Police feedback of a notable increase in callouts, particularly around the CBD and in the Fenton Street area. "*Calls for service vary from disorderly behaviour to incidents of serious violence, dishonesty crimes, burglary, interference with cars and wilful damage*".[21] I note that disorderly behaviour incidents are unlikely to be captured in the victimisation/offence data discussed in the BECA SIA.

89. It is important to acknowledge that the CAU level Police data observed in the BECA SIA (and Mr Counsell's evidence and my own evidence below) covers extensive residential and commercial areas (Figure 5) that are often some distance from either the 13 CEH sites or tourist

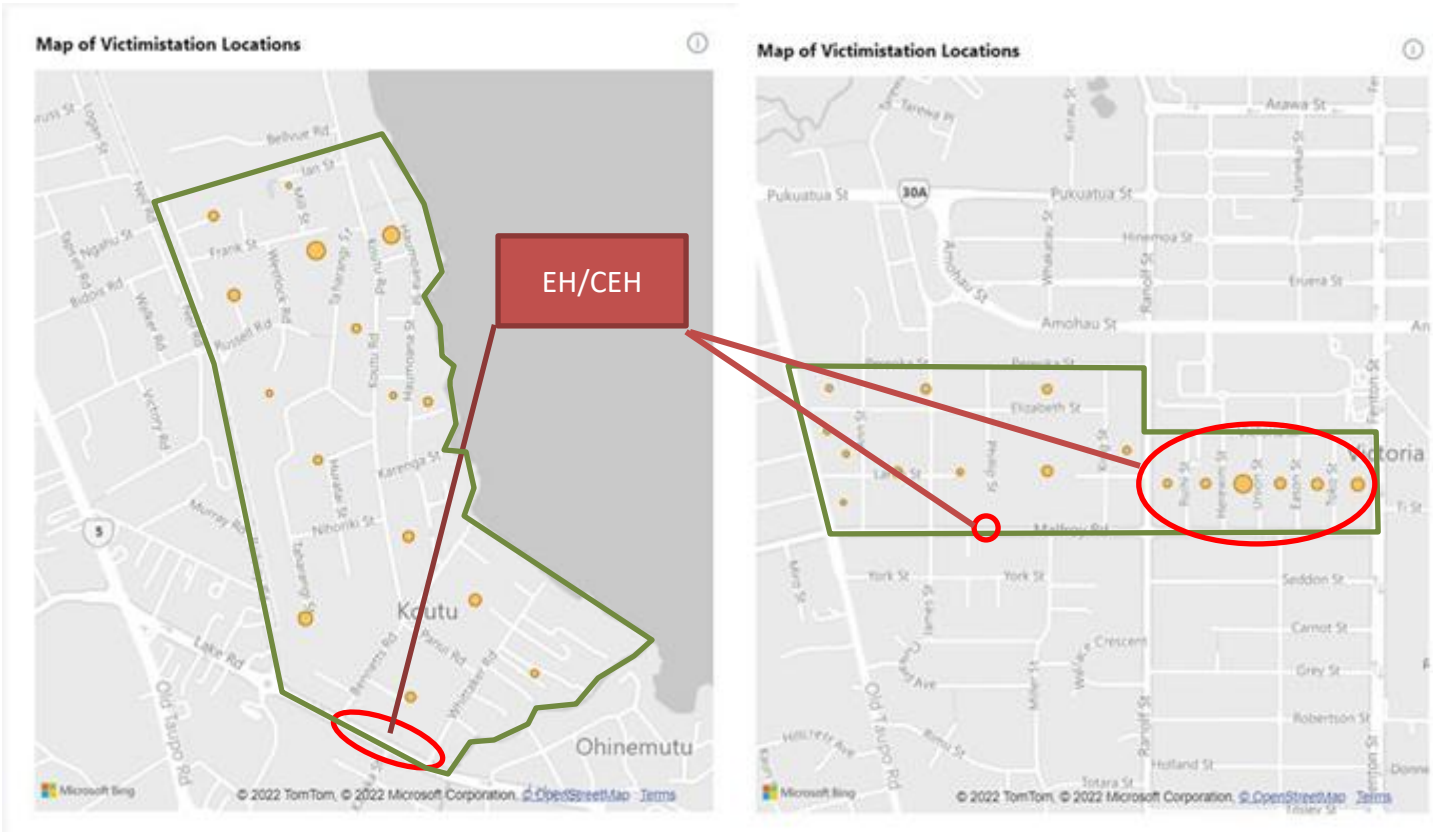
[21] Beca SIA, page 32.

accommodation establishments used for EH generally. The quantitative data relied on does not inform whether the offences/victimisations are concentrated near/along Fenton Street for example, or in other residential streets in the CAUs.

90. By way of example, Figure 6 shows the same Police victimisation data but with additional detail provided on the broad location of offences within the statistical areas[22], with concentrations of offences shown by the relative size of the dots. This data does not show the exact location of offences due to confidentiality reasons, but I understand it tags offences to a nearby 'proxy' such as a point in the centre of the relevant street block. This data has been provided to me by Council (via screen shots) and is not publicly available. Due to the limitations in the way the data is accessed and summarised, I have not made further use of it in my evidence. However, this data shows that when referring to the total victimisations in Koutu or Victoria (or any CAU or amalgamation of CAUs), that the offences may be dispersed across the whole area, with concentrations of offences often some distance from EH/CEH. There is no way to attribute crime occurring in neighbouring communities to EH clients based on this or any other secondary data available at this time.

[22] In this example, the offences have been summarised according to SA2 and not CAUs as available on the www.policydata.co.nz website.

Figure 6 – Copy of Year End June 2022 Victimisation Data by SA2 Boundary (Koutu (left) and Victoria (right)) showing grouped proxy distribution of offences (not exact addresses)



91. The Beca SIA certainly makes no assertions that all crime (including increasing trends in certain crimes) in the CAUs that intersect the social areas of influence is attributable to EH occurring in tourist accommodation. The author assesses crime within the local communities of EH on the basis that it is relevant to establishing the existing social environment that the CEH operates in. It is further information obtained from Police for the Beca SIA that specifies that "*the Fenton Street area has become a high call out area requiring a lot of police attention*" and "*had not traditionally required a lot of police resources*" prior to the last two years.[23]

92. Based on both the quantitative victimisation data aggregated to individual CAUs and information gathered from local Police, the Beca SIA concludes that "*Accommodation providing for emergency*

[23] BECA SIA, page 42.

accommodation (under various models) does require a lot of police attention. The CEH motels with security and social services had not exacerbated this issue (however not substantially reduced this either)".

93. Mr Counsell's evidence utilises the Victimisation Time and Place data to provide very brief commentary on economic effects related to crime. This is contained in paragraphs 7.1-7.4 of his evidence. It shows:

    (a) total victimisations for Rotorua District by month between 2017 to October 2021;[24]

    (b) total victimisations for New Zealand by month between 2017 to October 2021 (as a comparator); and

    (c) total victimisations for a combined catchment of 5 CAUs that broadly contain "Fenton Street and central Rotorua" by month between 2017 and October 2021.

94. This catchment, which is used to draw conclusions on crime trends "*in areas nearby to the hotels/motels being used for transitional and emergency housing*"[25] differs from the CAUs selected in the Beca SIA report (to intersect the two social areas of influence). For ease of comparison, I have included Mr Counsell's catchment in Figure 5 above. Notably, it includes the CBD, but excludes the Whakarewarewa area and does not include the area of Koutu where one CEH site is located.

95. Mr Counsell concludes from the Police data that the upward trend in victimisations has been stronger in the Fenton Street and central Rotorua catchment (where EH and TH is located) relative to the trend in the district overall. He states that this "*may result in adverse economic effects*" (paragraph 7.4) and provides some examples from literature. Mr Counsell has not provided any evidence that such economic effects are occurring in Rotorua. Some other submitters (business owners) have however identified site specific examples of economic effects that match the sorts of effects that Mr Counsell identifies as being causally linked to increases in crime and anti-social behaviour.

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[24] Due to the date of publication, the BECA SIA report utilizes data up to and including January 2022. At the time of preparing this evidence, data was available up to and including July 2022.
[25] Paragraph 7.3, Counsell evidence.

96. **Gaps in the evidence base**: The analysis of crime data in the Beca SIA, and especially the expert evidence of Mr Counsell, lacks additional contextual analysis that would provide a more complete assessment of crime trends in and around CEH (and EH generally). Some of these gaps include:

(a) The Beca SIA analysis identifies more useful catchments for assessment in my view, but are still unnecessarily extensive relative to the location of EH/CEH (specifically in the area of Fairy Springs). While the CBD included in Mr Counsell's catchment includes a small number of accommodation establishments that are being used for EH (7 backpackers and 4 motels)[26], it is distinctly different in land use and character from the area along Fenton Street which has a thin strip of Commercial 4 zoning backed by residential zoning. I consider that it is important to look at the CBD, but separately so as not to mask trends that may be occurring along Fenton Street but not in the CBD (and vice versa). A limitation of the Beca SIA crime data analysis is that it does not look at the catchments in aggregate which limits the ability to understand cumulative effects. I therefore prefer Mr Counsell's approach in that regard.

(b) While both analyses include total Rotorua District and EH area data, they do not examine if crime has simply shifted as a result of the establishment of EH which is concentrated in specific parts of the district. This is best achieved by looking at trends in the social areas of influence and the rest of the district, and not the district as a whole. Understanding the changing spatial patterns of crime is important to distinguish net increases in crime and other Police activity from transfers of crime or Police activity when evaluating effects at a wider community/district level.

(c) There is also more detail available in the Victimisation data than has been presented in the evidence. This includes trends relating

[26] According to the RotoruaNZ Accommodation dashboard (July 2014).

to the day and time of offending. Understanding when crime is occurring – i.e., daily or concentrated in particular parts of the week is relevant to understanding the social effects of crime (i.e. a weekend problem versus a daily problem). It is also important to compare these trends with areas that do not have high concentrations of EH to see if the concentration of EH is having a unique effect on social and economic conditions. Understanding the timing of crime may also be useful for understanding, in turn, how and when any antisocial or criminal activity associated with CEH can be better managed (i.e., with regard to any consent conditions imposed).

(d) As discussed above, the data relied on by the Beca SIA and Mr Counsell does not provide detail on the spatial distribution of crime across the CAUs or combined catchments. Understanding the location of criminal offending (victimisations) can help distinguish between site specific/neighbour effects and local community effects. Such data is not readily available (and the RLC data shown in Figure 6 is not sufficient for that purpose). While I have requested data from the Police that shows the coordinate of both offences and incidents[27], the request was declined. An OIA request for that information has subsequently been submitted by RLC, but the timing of this does not allow for that data to be included in my evidence (if successfully obtained).

(e) Last, the data presented in the Beca SIA and Mr Counsell's evidence does not provide insight on many of the Police related 'incidents' that are commonly referred to in the submissions and Beca SIA surveys. This includes incidents that do not necessarily result in a criminal offence such as disorder, breach of the peace, intimidation, and harassment or simply an increased Police presence. Crime or victimisation data represents the more serious

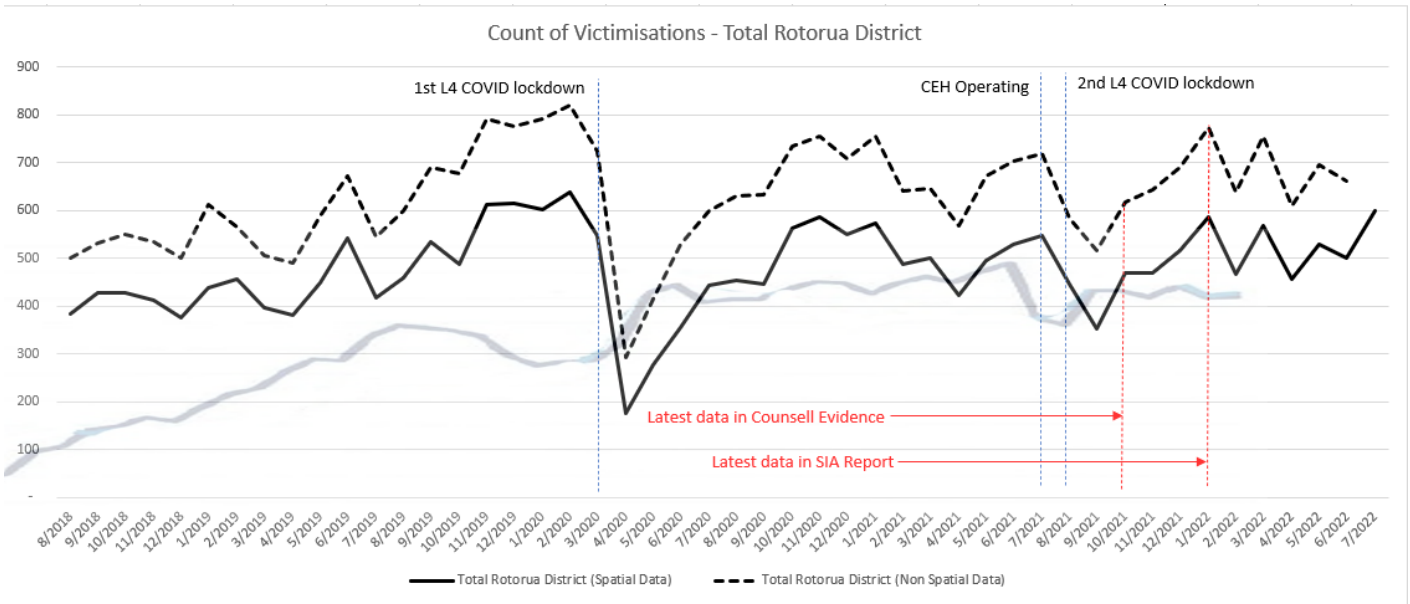
[27] This is the data that was recently revealed in the following article (following an OIA request): https://www.nzherald.co.nz/nz/rotorua-emergency-housing-motels-report-shows-police-demand-around-motel-areas/A6I4IMSZ6V2WHV4EC23TWLPHWM/

activities that require Police involvement but is only part of the social (and economic) effects attributed by submitters to CEH or EH generally.

97. The following provides my further analysis of available Police data which attempts to address the above gaps and provide a more comprehensive assessment from which the effects of CEH can be more robustly determined/validated.

98. **Distinction between spatial and non-spatial victimisation data**: First, I make a brief clarification of the difference between the total Rotorua District Victimisation (offence) data used in the Beca SIA in Figure 10 of that report and Figure 7 in Mr Counsell's evidence. The upper dashed line in Figure 7 below relates to all victimisations (Beca SIA data source) and the lower solid line relates to all victimisations that are able to be coded to a CAU (Mr Counsell's data source). The trends are the same, but the spatial (CAU) dataset accounts for approximately 75% on average of total crimes. The remainder of my evidence in this section utilises the spatial victimisation data, acknowledging that it may underestimate total crime to a moderate degree. My focus however is on identifying the trends over time.

Figure 7 – Spatial versus Non-Spatial Total Victimisations Data – Rotorua District



99. **<u>Total district victimisation trends over time</u>:** Figure 7 also shows the point of most recent data available to Mr Counsell at the time of preparing his evidence, and the point of most recent data available to the author of the Beca SIA at the time of drafting. My evidence has the benefit of data up to and including Jul 2022.

100. Setting aside the fluctuation in the victimisation counts each month, the key trend I have identified is that crime within the 'groups' captured by the data was increasing strongly between mid-2018 and early 2020. While the first Level-4 Covid Lockdown saw a sudden and significant drop in crime (nationwide), it returned to a slightly lower peak and has remained relatively stable around that level through to mid-2022.

101. Included in Figure 7 above is the point at which CEH was introduced. While there was a modest drop in the quantum of total district crime in July 2021 compared to the previous month, this is not evidence of a clear effect attributable to CEH given that there are regular fluctuations in the count of victimisations month on month. It was also followed closely by the second Level-4 Lockdown[28] which, by then, had a known positive effect on reducing crime. I conclude that CEH has had no discernible impact on the quantum of crime at the wider community/district level.

102. The faint grey line on Figure 7 has been added for context. It is an approximate transfer of the data recently provided by MHUD/MSD on the count of Rotorua households in EH funded by EH-SNGs by month.[29] The data excludes households whose address (when receiving the grant) was not within Rotorua District, so is conservative. Note, the decrease in households using the EH-SNGs in July 2021 shows the transfer of a number of families into the CEH system and is not a true presentation of the total number of households in some form of EH in Rotorua District. If the CEH households were included in the graph, my expectation is that the trend would continue to increase steadily to the current time.

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[28] https://covid19.govt.nz/about-our-covid-19-response/history-of-the-covid-19-alert-system/#timeline-of-key-events

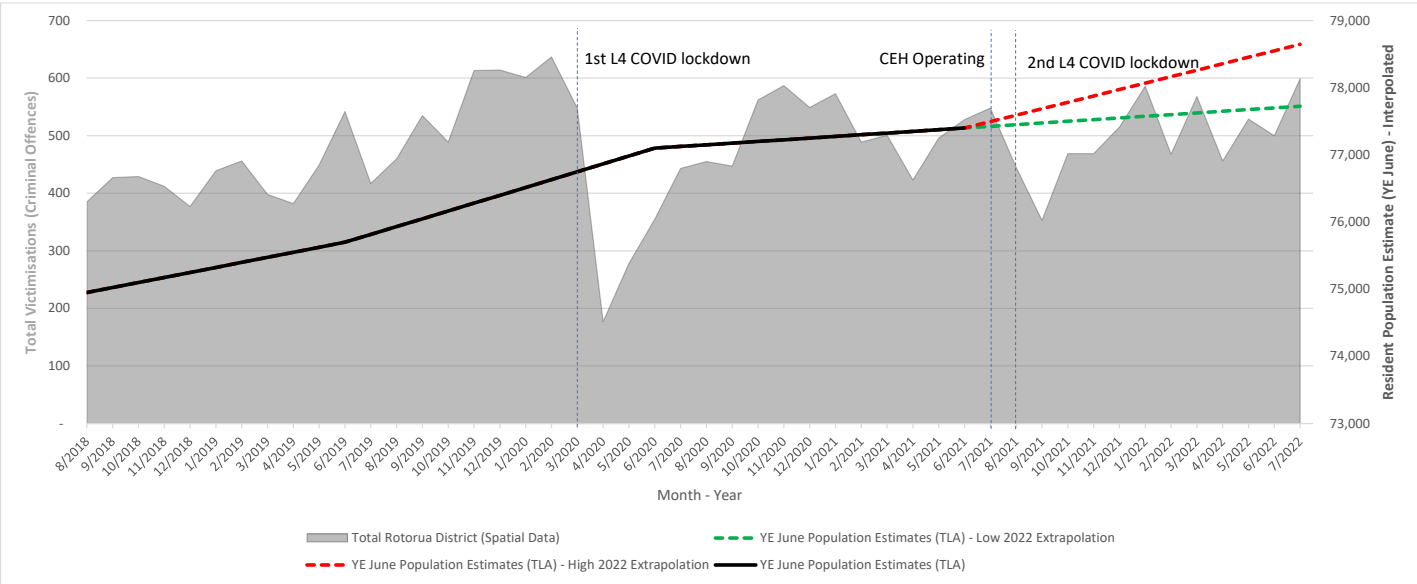
[29] See Figure 10 of the 'Rotorua Emergency Housing Analysis', Ministry of Social Development, 13 April 2022. As the data is not available in table form, I have overlaid the Rotorua trend line by stretching the x and y axis to match the axis in Figure 2.

103. The key trend in this EH household data is that the use of EH in Rotorua increased strongly from the beginning of 2018 through to mid-2019, decreased in late 2019 before a steep increase in early 2020 (Covid Lockdown) and has been increasing at a more modest rate through to January 2022 (where that data ends).

104. It is important to understand crime data in the context of residential population growth. Rotorua's population grew strongly between mid-2018 to mid-2020 and has grown more modestly since then. To the extent that those in EH in Rotorua are captured in the resident population estimates,[30] any non-local households brought into Rotorua for the purpose of EH may account for a portion of the population increase during this period, but the rest of the population growth is likely to be driven by normal net in-migration and natural increase during that period.

105. The latest resident population estimates are for June 2021. Figure 8 plots resident population growth alongside the trend in victimisations at a district level. I have projected the resident population beyond June 2021 using a low and high scenario to allow the data to span the same time period.

Figure 8 – Total Rotorua Spatial Victimisations Data and Population Growth

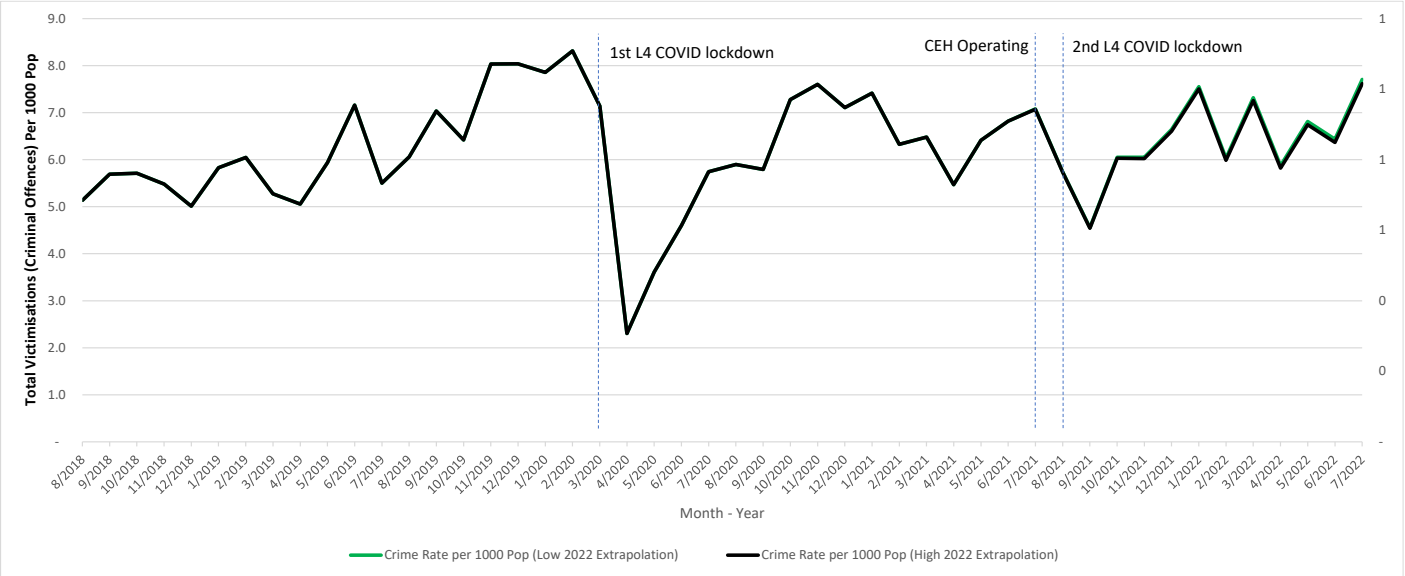


[30] I am uncertain of this with respect to Statistics NZ's methodology.

106. Increasing crime does not necessarily mean an increasing crime rate if population is also increasing. To test this further, Figure 9 shows total victimisations per 1,000 estimated population. If crime was occurring at a constant ratio with population change, the line in Figure 9 would be relatively flat/stable. However, the data shows that victimisation (crime) was occurring at a slightly faster rate than population increase from mid-2018 to early-2020, suggesting other factors at play during this period. The scale of change in the crime rate is however only minor. Since late 2020, the crime rate at the district level has not gotten noticeably better or worse. I note that this period of relative stability in total district crime (relative to population change) has occurred while total EH use (across all models) has continued to rise.

107. The key question then is whether the district-wide crime patterns (a period of growth followed by a period of relative stability) is evident across all parts of the district, or if there are sub-district trends that indicate that local level drivers are at play.

Figure 9 – Total Rotorua Spatial Victimisations Data Per 1,000 Population



108. **<u>Crime trends by catchment</u>**: For my analysis of sub-district Police data trends, I have adopted the same southern catchment used in the Beca SIA report and shown in Figure 5 above, with the exception of the

Glenholme West CAU which I have excluded on the basis that it is more distant from the Fenton Road corridor and very few submissions were attributed to addresses in Glenholme West (refer Summary of Submissions maps)[31]. I refer to this catchment as the "Fenton Corridor Incl. Ann's Volcanic" or just "Fenton Corridor". I have also limited the northern catchment to just the Koutu CAU on the basis that the majority of the Fairy Springs CAU has no obvious geographic relationship with EH located in the southern end of the Koutu CAU. Last, I have separately identified the CBD as a catchment between the two other catchments and include the balance of the district as the 'Rest of Rotorua'. My catchments have been included in Figure 5 (shown by the thick blue boundaries).

109. Figure 10 below shows the trend of total monthly victimisations in each of my catchments, including the Rest of Rotorua. It shows that the growth in district-wide crime observed between mid-2018 to early 2020 (Figures 7-9) was being driven by changes occurring in the Fenton Corridor and the Rest of Rotorua, with the CBD contributing to only a minor degree and the Koutu catchment not contributing at all to the increase over that period.

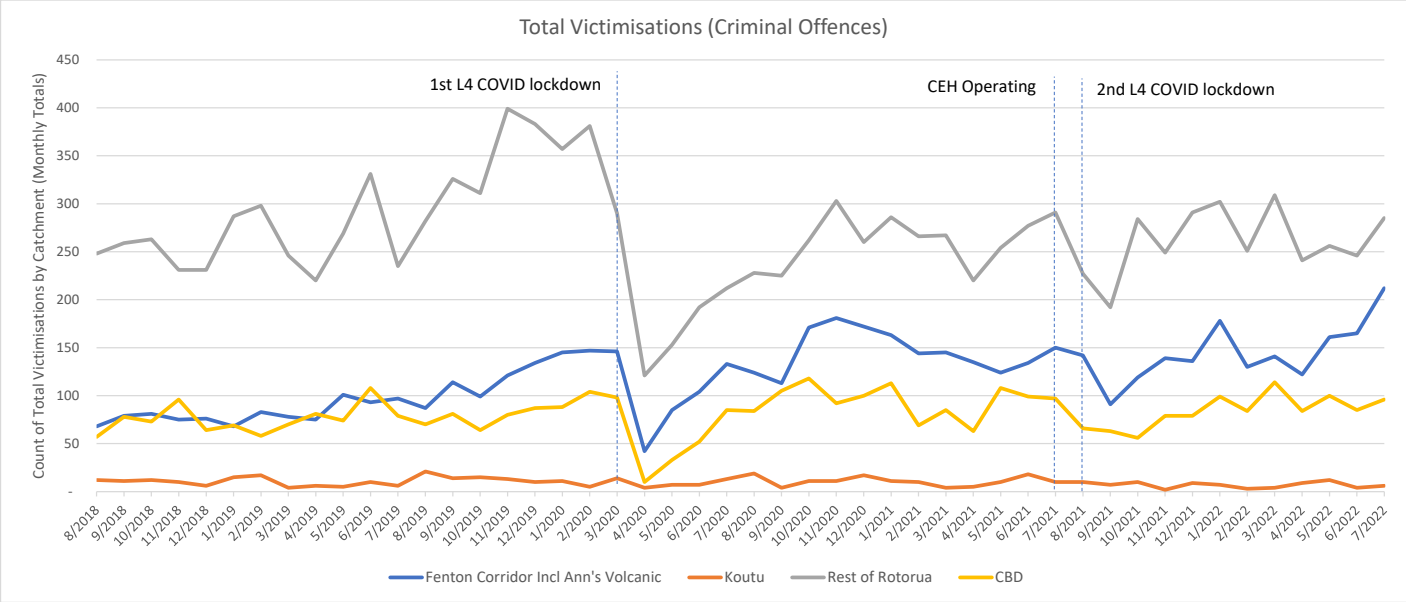
110. Monthly victimisations increased by 77 or 113% between August 2018 and January 2020 in the Fenton Corridor catchment and accounted for 36% of the total district increase in that period. Monthly victimisations in the Rest of Rotorua increased by 109 or 44% and accounted for 50% of the total district increase in that period. The corresponding monthly increase in the CBD in that period was 31 or 54% (accounting for the remaining 14% of the district increase during that time).

111. So, while the increasing concentration of EH along Fenton Street in 2018 and 2019 is likely to have been driving increased crime in the Fenton Corridor catchment, it was not the only driver of increased crime in that

[31] I appreciate that the BECA SIA includes Glenholme West because it matches the SA2 defined social areas of impact. While the two Glenholme CAUs had an east and west orientation, the SA2 boundaries changed to a north and south orientation, so in order to include the Fenton Road side of the Glenholme SA2s in the social area of impact, the full SA2s must be selected.

catchment as we know that residential and commercial areas that did not contain EH facilities across the rest of the district were also experiencing increasing crime at the time. Conversely, any increase in EH in the Koutu catchment leading up to the first Covid Lockdown (which is limited to only a few sites according to current data) had no adverse effect on monthly victimisations according to the data.

Figure 10 – Spatial Victimisations Data by Catchment (Monthly Total Counts)



112. Following the first Covid Lockdown in early 2020, the trends in total victimisations are not dissimilar between the CBD, Fenton Corridor and the Rest of Rotorua catchments, particularly up to early 2022. However, the Fenton Corridor and CBD catchments stand out during this period because monthly victimisations increased above the pre-Covid peak, while in the Rest of Rotorua, it returned to levels previously seen in early-2019, well below the peak. After the rise, all three catchments showed a slight reduction in monthly victimisations through to the end of 2021.

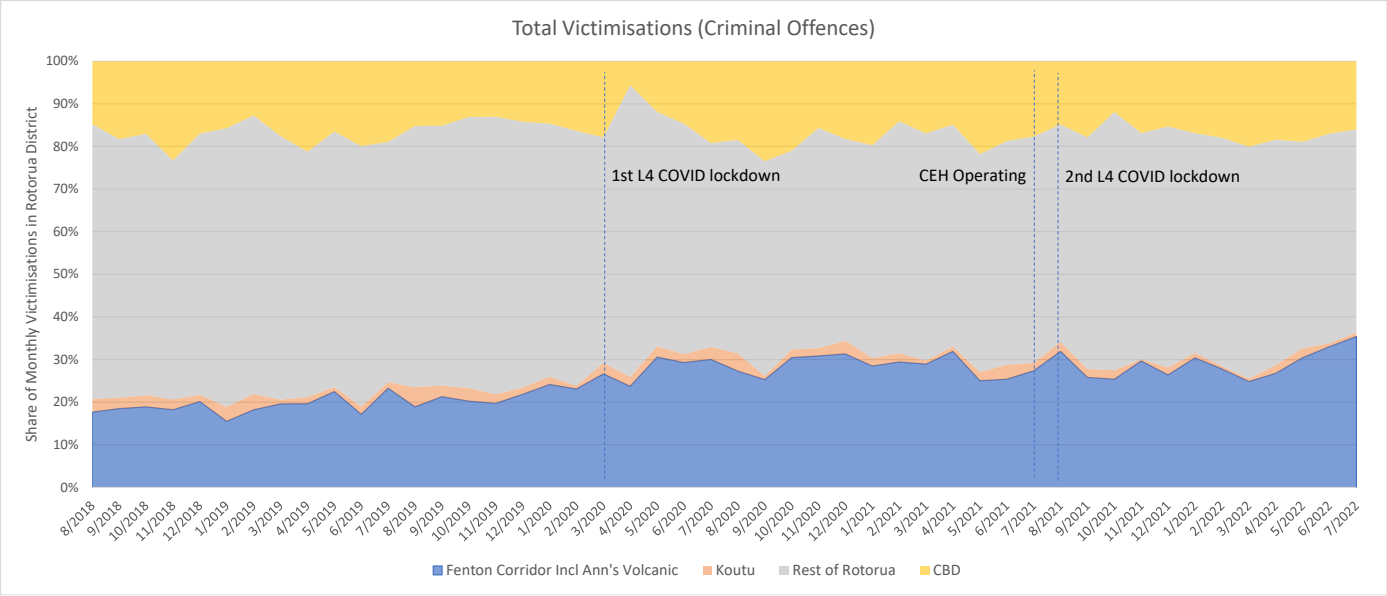
113. Since early 2022, the shift in the distribution of victimisations became more apparent (i.e., diverging trend lines). During a continued period of relative stability in total victimisations at a district level over the first seven months of 2022, the number of monthly victimisations in the Rest of Rotorua has decreased and the amount in the Fenton Corridor has increased (with the CBD showing little change). This means that the

Fenton Corridor community has been experiencing relatively more of the district's crime and Rest of Rotorua community has been experiencing relatively less of the district's crime over the last 7 months.

114. Considering net changes between August 2018 and July 2022, monthly victimisations have increased by 144 per month or 212% in the Fenton Corridor catchment (with just over half of that increase experienced before the beginning of 2020). In contrast, monthly victimisations in the Rest of Rotorua catchment is only 15% higher (a net increase of 37 offences per month) in July 2022 compared to August 2018. The net increase in the CBD has been 68% (with the significant majority of that increase experienced prior to Covid-19).

115. These distributional patterns within the district are further highlighted in Figure 11 which shows each catchment's share of total district victimisations each month. Whether crime has been increasing or more stable at the district level, the CBD has captured a similar share since mid-2018 (around 17%). Koutu has actually accounted for a decreasing share of district victimisations over time (dropping from 3% of the total to around 1% in July 2022). The notable trend is the increasing share within the Fenton Corridor (rising from 18% in August 2018 to 35% by July 2022) and the decreasing share within the Rest of Rotorua (dropping from around 60% in mid-2018 to 48% of the total in July 2022).

Figure 11 – Share of District Spatial Victimisations Data by Catchment Based on Monthly Totals



116. I consider that the steady increase in victimisations in the Fenton Corridor catchment represents a significant change in social conditions that can be attributed in part to the growth and concentration of EH. This is because the rate of change is over and above what can be expected from other social and economic drivers occurring elsewhere in the district.

117. There is also evidence that the concentration of EH in the Fenton Corridor is likely to have redistributed some crime that may otherwise have been expected to occur in other communities of the district. As the increase in crime in the Fenton Corridor catchment is concentrated in a relatively small geographic area, the negative change (as experienced by the catchment community) would be more pronounced relative to the positive change (of any reductions in crime or the share of crime) experienced in aggregate across the Rest of Rotorua catchment.

118. While EH potentially played a minor role in increasing crime at the district level over 2018 and 2019, there is no evidence that EH has made total district crime worse since mid-late 2020. Any recent effects on crime are therefore limited to effects on neighbours and local communities where EH facilities are located and not the wider community.

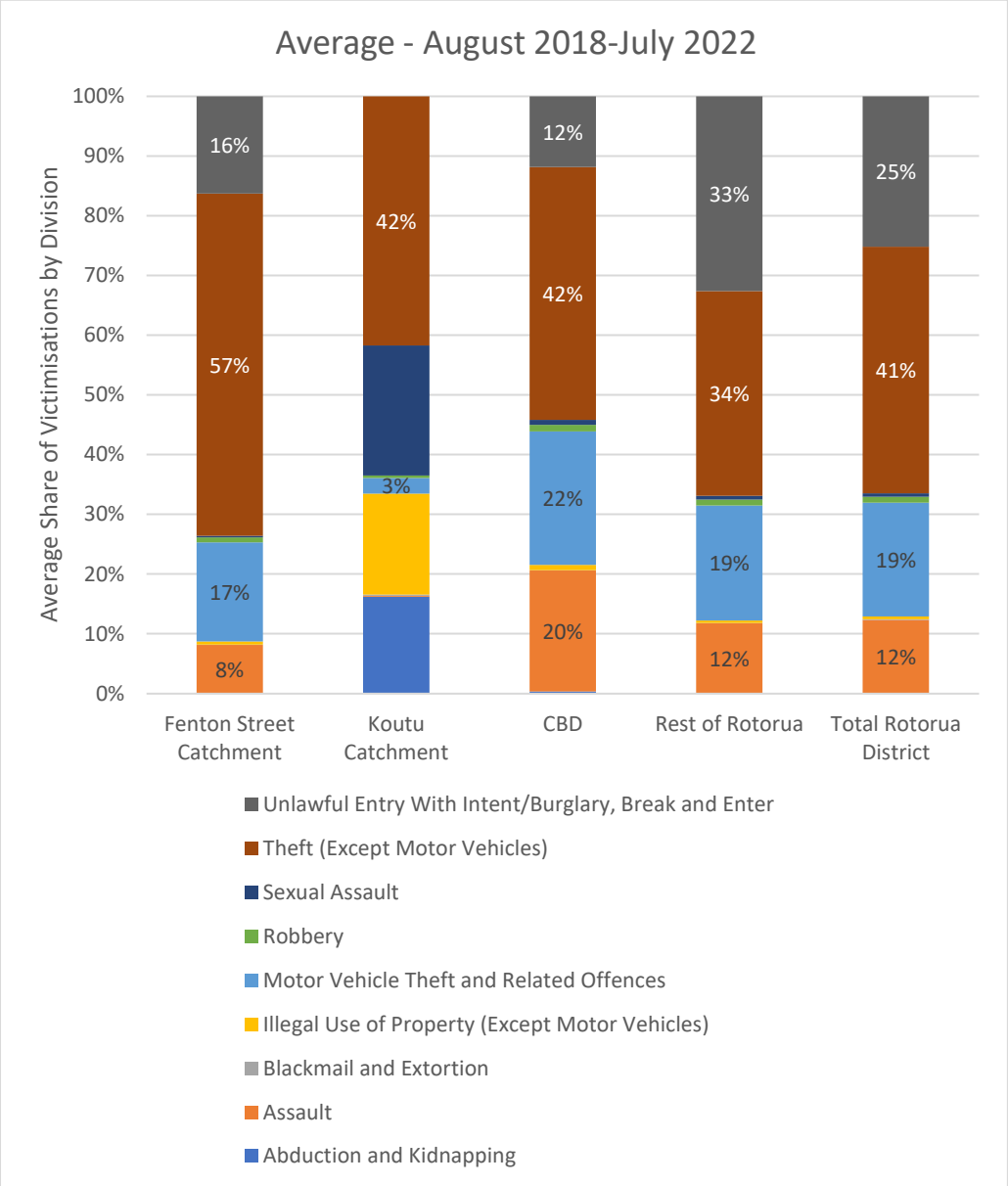
119. When considering submissions that refer to increasing crime in the Fenton Corridor catchment (or CBD for that matter), it is important to attribute that change to the appropriate time period. While there were steady increases during 2018 and 2019, 2021 was a period of relative stability. So far, 2022 has shown signs of a return to increasing crime in the Fenton Corridor catchment only (with July 2022 the highest month on record).

120. **The nature of crime by catchment**: The following analysis provides further detail on the nature of crime in each catchment but focussing on the Fenton Corridor catchment.[32] Figure 12 compares the average mix of victimisations over 2018-2022. Care is needed with the Koutu catchment because it is based on a very small count of average monthly victimisations. Compared to other catchments and the district overall, the Fenton Corridor catchment has a slightly lower share of 'Motor Vehicle Theft and Related Offences' and a moderately lower share of 'Assaults'. While a higher share than in the CBD, the share of 'Unlawful Entry With Intent/Burglary, Break and Enter' is also lower than in the Rest of Rotorua and the district overall.

121. The share of victimisations that are 'Robberies' is no different in the Fenton Corridor catchment from other catchments but the share of total crime that is 'Theft (Except Motor Vehicles)' is significantly greater at an average of 57% of the total and in fact 71% of the total in just the month of July 2022. Between the period of 2018-2022 the Fenton Corridor catchment accounted for an average of 36% of all non-vehicle thefts in Rotorua District, and in July 2022 this share was 48% (up from 26% in August 2018).

[32] As discussed above, crime is relatively low and has been reducing in the Koutu catchment over time, and is therefore not a key focus of further crime analysis.

Figure 12 – Share of Catchment Victimisations by Division 2018-2022



122. Figures 13A and 13B show the trends in victimisation (crime) in the Fenton Corridor catchment over time. The difference between the graphs is that Figure 13B excludes Thefts so that the trends in the remaining offence divisions can be seen more easily. The dominance of Theft crime in the catchment is clear, including the increasing trend over time (Figure 13A). I note that the introduction of CEH in the catchment in July 2021 has had no noticeable influence on the number of Thefts occurring in the catchment, with the number further increasing in recent months.

123. Figure 13B shows that there is potentially a minor upward trend in Assault and Motor Vehicle Theft and Related Offences in the catchment since mid-2018. There is also some evidence that while Unlawful Entry With Intent/Burglary, Break and Enter was gradually increasing over time in the catchment, the levels decreased at about the time that CEH began to be operated in the catchment, and has stayed relatively stable since.

Figure 13A – Count of Monthly Victimisations by Division 2018-2022 – Fenton Corridor Catchment

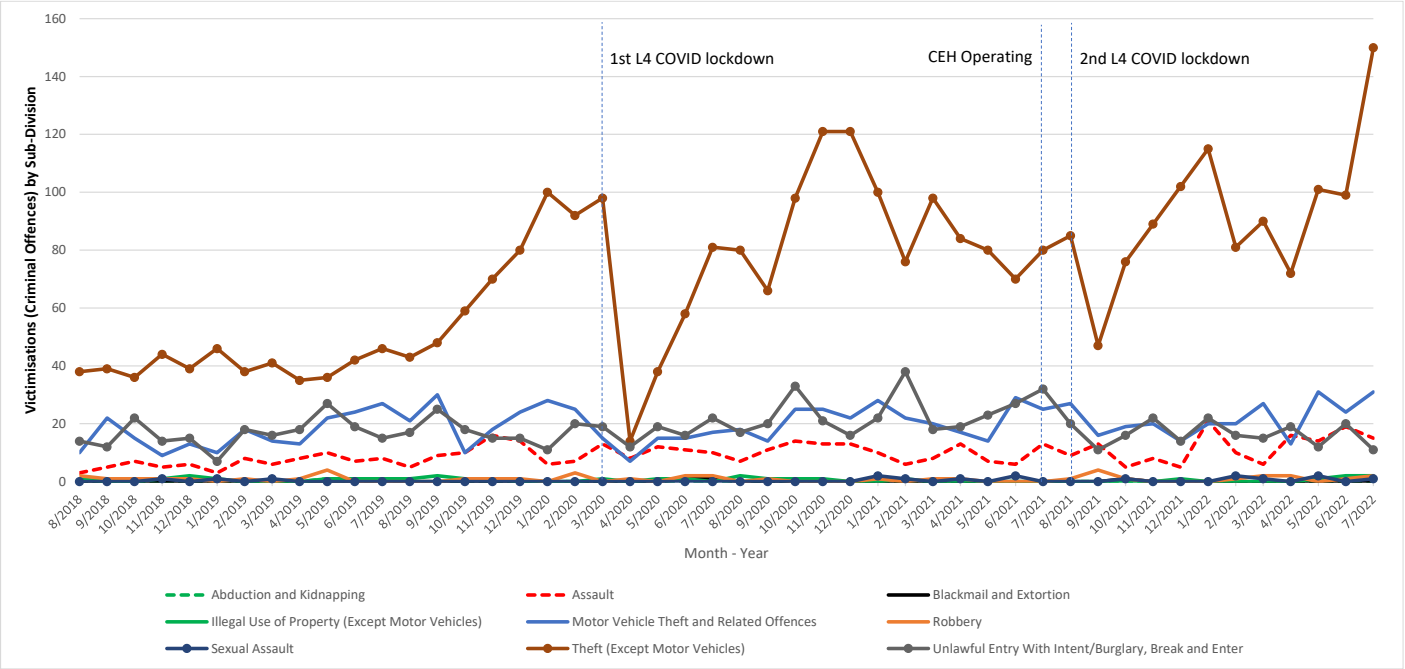
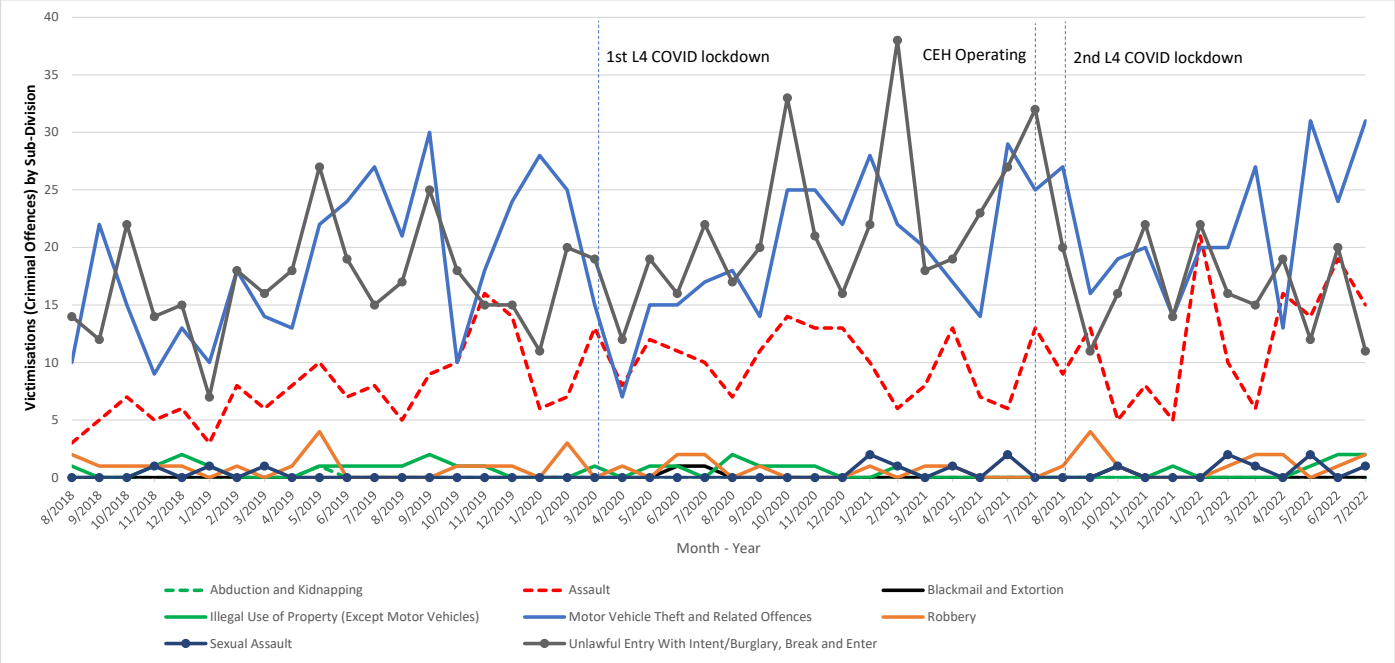
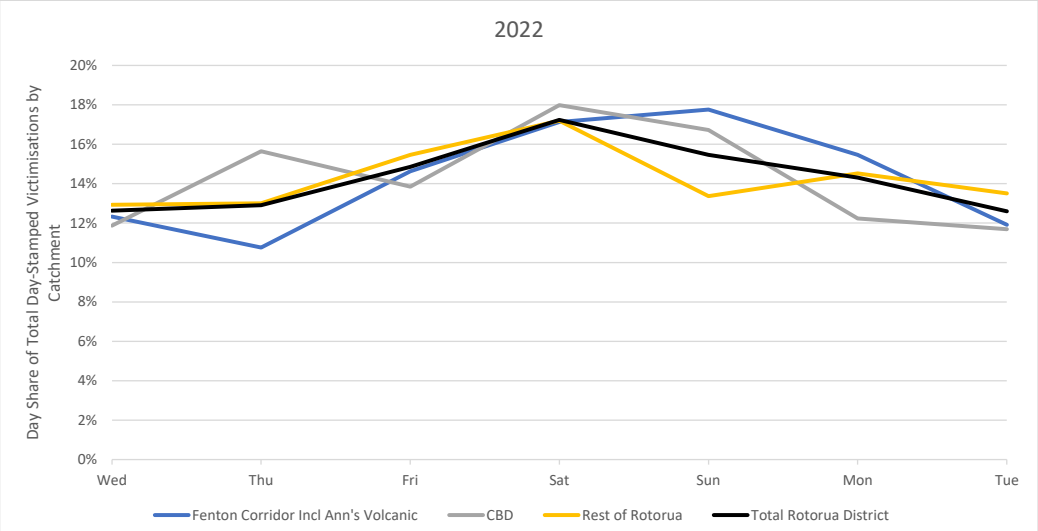


Figure 13B – Count of Monthly Victimisations by Division 2018-2022 – Fenton Corridor Catchment (Excluding Non-vehicle Theft)



124. **<u>Patterns of crime by catchment and day of week</u>**: Figure 14 examines whether the concentration of EH in the Fenton Corridor catchment is creating unique patterns in the time of victimisations occurring across an average week. This is based on 2022 data. There is a general trend across the district of crime peaking on Saturday, although that is not a strong peak (17% compared to an average of 14% if crime was evenly spread across all days).

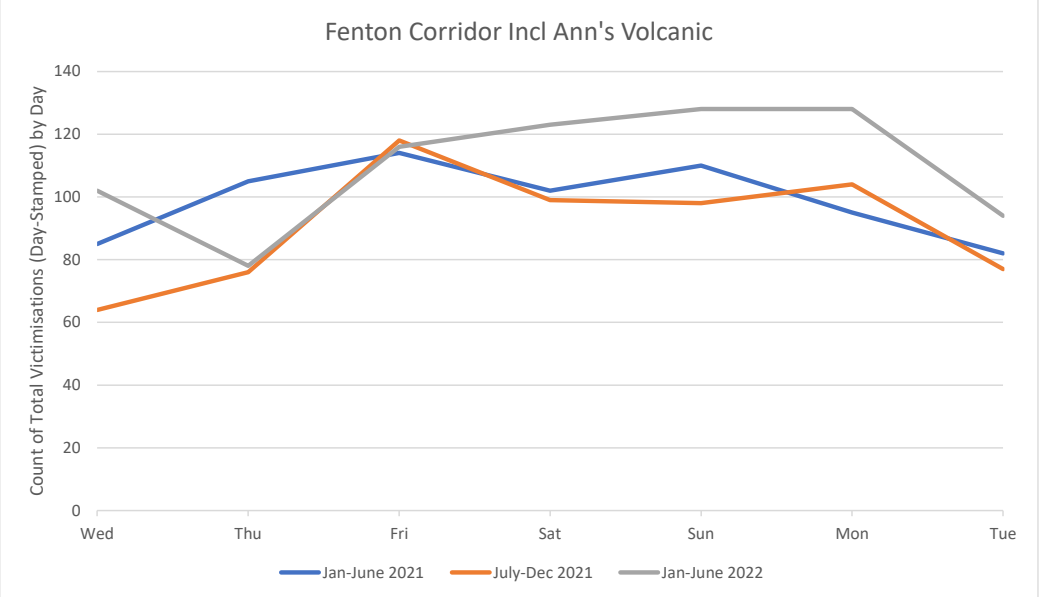
Figure 14 – Share of Total 2022 Victimisations by Catchment and Day of Week



125. The pattern of crime in the Fenton Corridor catchment differs from the average and other catchments in the district. Figure 14 indicates that crime (which we know is dominated by Non-vehicle Theft) peaks on a Sunday rather than a Saturday and has an above average propensity to occur on a Monday compared to other catchments and less likely to occur on a Thursday. I am uncertain what is driving these unique patterns.

126. The following graph (Figure 15) looks at the quantum of total victimisations by day in the Fenton Corridor catchment in the 6 months prior to some EH facilities being contracted as CEH in the catchment, and the two 6-month period following that change. There is no clear or consistent effect evident at the catchment (local community level). This is not surprising as CEH accounts for only a minor share of EH occurring in the catchment.

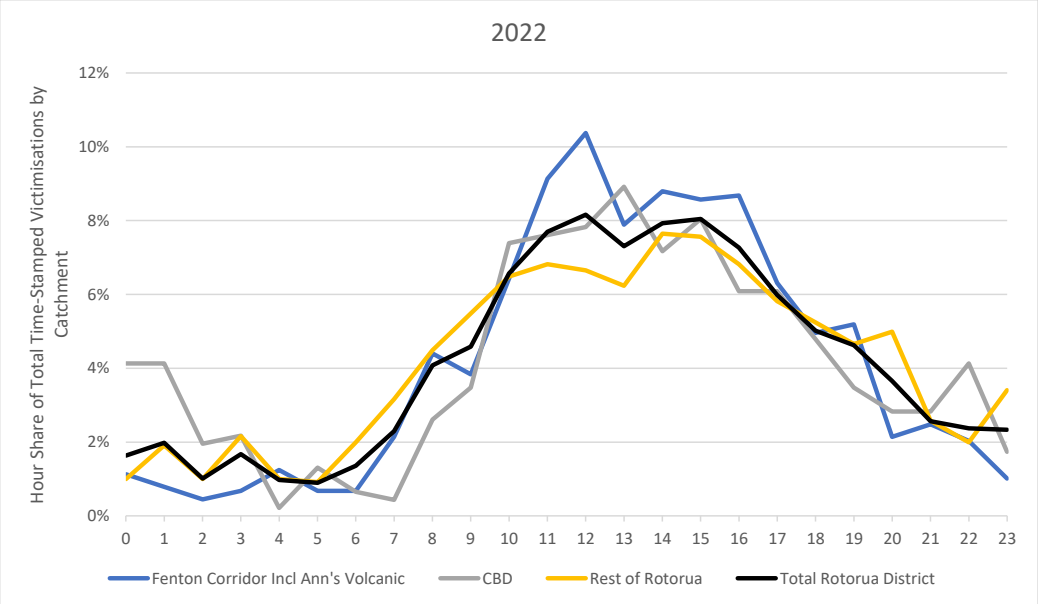
Figure 15 – Count of Victimisations by Day of Week Prior and Following CEH in the Fenton Corridor Catchment



127. **<u>Patterns of crime by catchment and time of day</u>**: Figure 16 examines whether the concentration of EH in the Fenton Corridor catchment is creating unique patterns in the time of victimisations occurring across an average day. This is also based on 2022 data. There is a general trend across the district of crime peaking between 11am and 4pm.

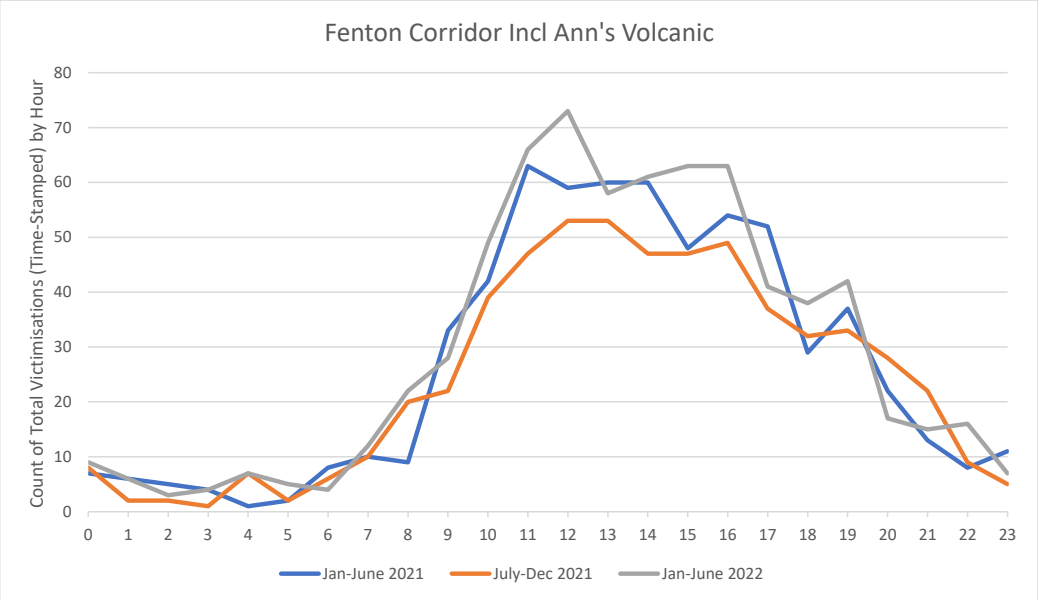
128. The pattern of crime in the Fenton Corridor catchment differs slightly from the average and other catchments in the district, especially the Rest of Rotorua catchment. Figure 16 indicates that crime (which we know is dominated by Non-vehicle Theft) peaks quite significantly at mid-day and retains a higher peak between 2-4pm. The catchment in turn has below average crime occurring between 11pm and 3am. I am uncertain what is driving these unique patterns.

Figure 16 – Share of Total 2022 Victimisations by Catchment and Hour of Day



129. The following graph (Figure 17) looks at the quantum of total victimisations by hour in the Fenton Corridor catchment in the 6 months prior to some EH facilities being contracted as CEH in the catchment, and the two 6-month period following that change. There is no clear or consistent effect evident at the catchment (local community level). Again, this is not surprising as CEH accounts for only a moderate share of EH occurring in the catchment.

Figure 17 – Count of Victimisations by Hour of Day Prior and Following CEH in the Fenton Corridor Catchment



130. **<u>Other available Police data</u>**: As indicated earlier, the submissions and the Beca SIA report identified changing social conditions in the areas where EH and TH is located that were not limited to crime or victimisations as recorded by the Police. There is also Police data available on recorded incidents where no crime was determined ("No Crime data") and data on other Police "Activity" that can explain a greater Police presence in a local community. I have extracted additional spatial data in order to examine (using the same methodology as for crime data) both No Crime incidents and other Police Activity and any patterns attributable to increasing EH in Rotorua District and the introduction of CEH.

131. For the purpose of this evidence, I have limited this to the following subdivisions of No Crime and Activity occurrences (Table 3).[33] This particular data is available from September 2019 to July 2022 so does not capture any potential effects associated with the rise in EH in Rotorua District from 2018.

[33] No Crime sub-divisions I excluded were those that were more random in location (such as attending vehicle breakdowns, assisting fire/ambulance/traffic, vehicles crashes) or were demands unrelated to urban areas (e.g. water rescue and land rescue). Activities that I excluded were those carried out within police stations, airports, courts or schools (among others).

Table 3 – Police Occurrences - Demand and Activity Data – Selected Subdivisions

Selected Australia/ NZ Standard Offence Classification **Sub-Division** **No Crime**	Selected Australia/ NZ Standard Offence Classification **Sub-Division** **Activity**
• Car/Person Acting Suspiciously • Breach Of The Peace • Other Incident • Mental Health • Unaccompanied Child or Young Person (Section 48) • Bail Breach • Drunk Custody/Detox Centre • Unauthorised Street And Drag Racing • Threatens/Attempts Suicide • Alarm Sounding • Warrantless Search • Forbidden To Drive • Drunk Home • Noise Control • Child Protection Report • EM Bail Breach • Premises Insecure • Solvent Abuse • Bullying of Children and Young Persons • Juvenile Complaint (Action Taken Under Cyp & F Act)	• Enquiry/Investigation • Hotel Compliance Checks • Family Harm Investigation • Directed Patrol • Escort Duty • Warrant to Arrest • Execute Search Warrant • Other Service Request Response • Family Violence Act Protection Order • Foot Patrol • Watching/Observations • Summons • Victim Intervention Plan Management • Police Youth Development Intervention • Parole Recall Warrant • Other Preventative Task • Attend Scene/ Meeting/ Course/ Other Misc • Defended Infringement Offences • Warrant To Arrest/Fines Enforcement • Breach Police Bail Conditions • Family Violence Information Disclosure Scheme (FVIDS) • Warrant Of Seizure

132. **<u>Non-Crime (Incident) Data</u>**: Briefly, Figures 18, 19 and 20 show that selected non-crime incidents in Rotorua District fluctuates month by month but has been slowly decreasing since a peak in November 2019 (Figure 18). This is despite an increasing population – showing that the rate of non-crime incidents per capita is slowly dropping. Conversely, the monthly count of non-crime incidents in the Fenton Corridor catchment has been slightly increasing over time. The increase is considered only

minor (Figure 19). It is the only catchment experiencing an increase. As a result, the Fenton Corridor catchment is accounting for an increasing share of total district non-crime incidents (Figure 20). For example, that share has increased from 14% in September 2019 to 20% of the total in July 2022.

Figure 18 – Total Rotorua Spatial Police No Crime Occurrence Data

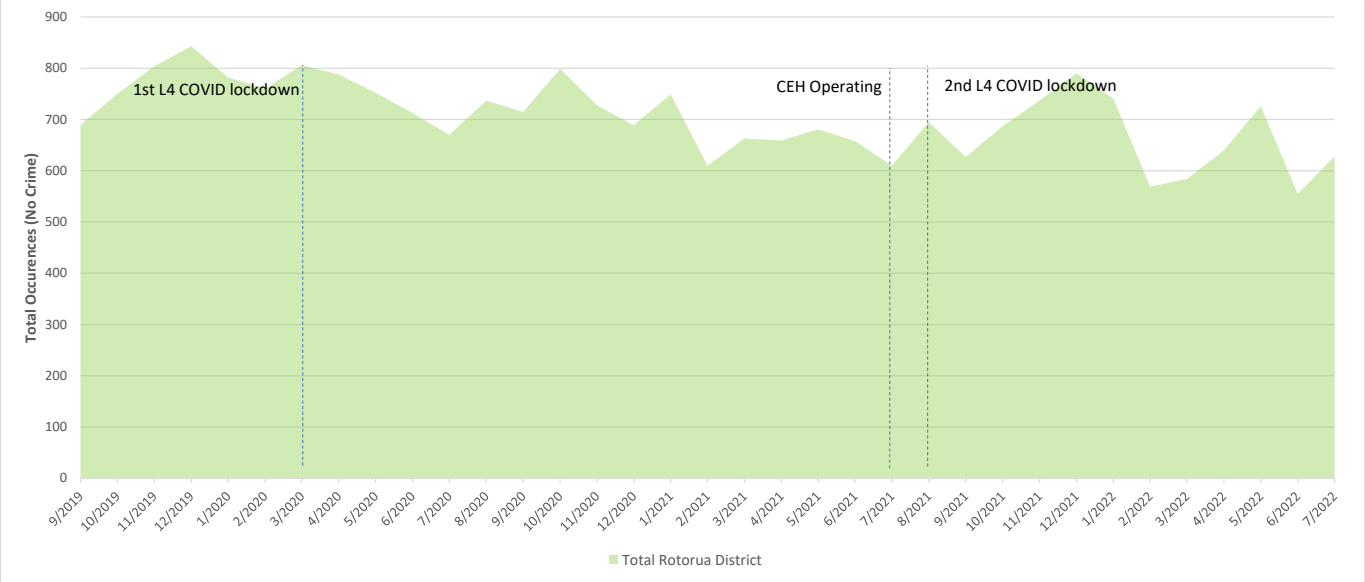


Figure 19 – Total Fenton Corridor Catchment Police No Crime Occurrence Data

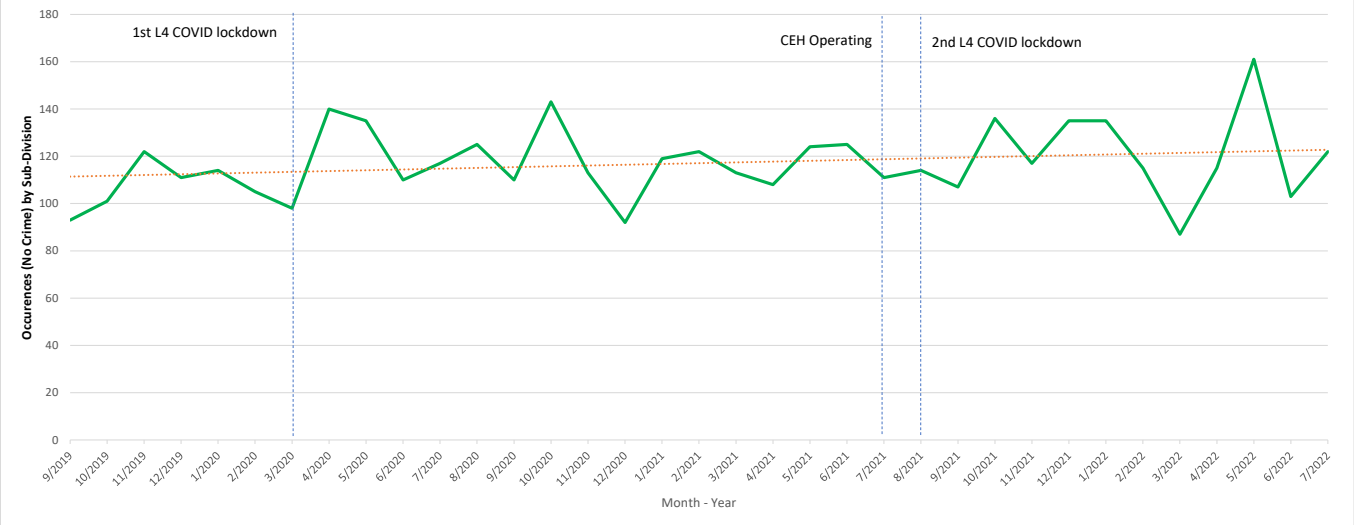
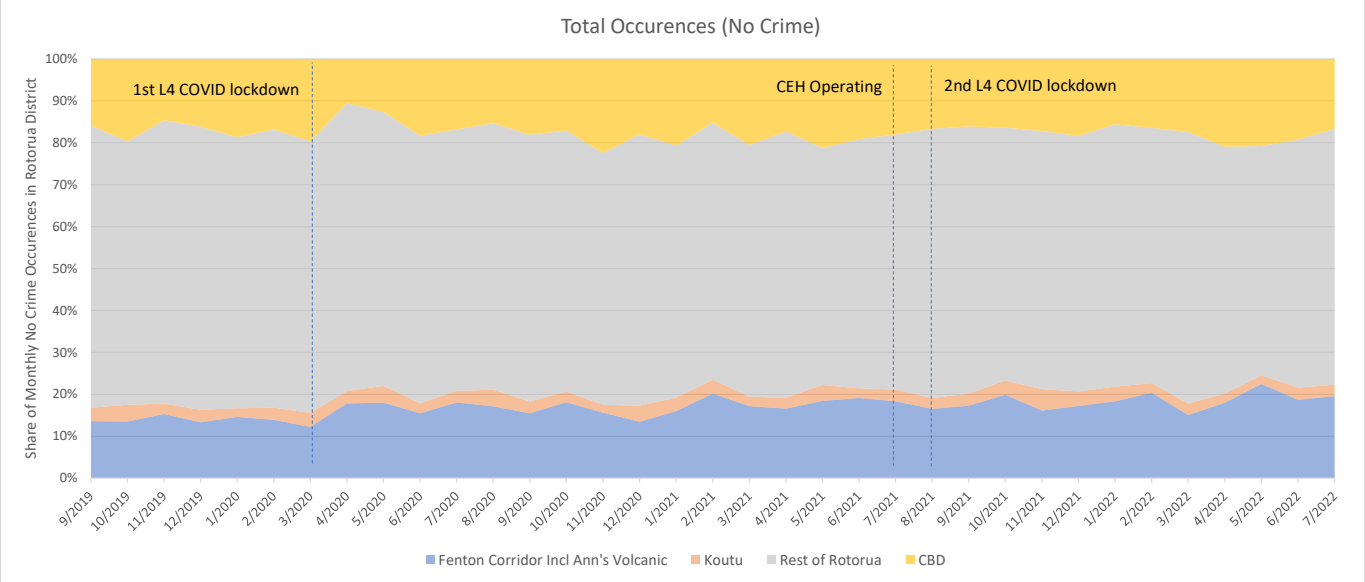


Figure 20 – Share of Total District No Crime Occurrences by Catchment



133. The minor increase in total monthly non-crime incidents in the Fenton Corridor catchment is driven by small increases in Bail Breach, Forbidden to Drive, Car/Person Acting Suspiciously and Unaccompanied Child or Young Person incidents since September 2019. While Car/Person Acting Suspiciously made up on average 31% of catchment incidents in 2022, this share is not materially different from the make up of all incidents across Rotorua. Rather, the non-crime incidents that make up a slightly greater share of the Fenton Corridor catchment total than they do the whole district are Searches, Drunk Custody/Detox Centre and Unaccompanied Child or Young Person. While playing a greater role in this catchment than the district average, such incidents combined make up only 7% of all catchment incidents in 2022, so are very marginal differences. Breach of Peace incidents makes up 14% of the catchment total in 2022 and this has decreased slightly in the catchment since September 2019.

134. **Police Activity Data**: Briefly, Figures 21, 22 and 23 show that selected Police Activity occurrences in Rotorua District fluctuate month by month but currently is not at a level materially different from September 2019 despite a rise in activity after July 2021 (that peaked in December 2021 before dropping again) (Figure 21). This is despite an increasing

population – showing that the rate of selected Police activity per capita is very slowly dropping.

135. The monthly count of total Activity occurrences in the Fenton Corridor catchment has been relatively stable between September 2019 and July 2021, then increased strongly to August 2021 and has remained at an elevated level since then. While the increase in July 2021 corresponds to the introduction of CEH in some motels/hotels, it also coincides with the second Covid Lockdown which seems more likely to be the cause of the increase given that similar increases in activity are also observed in the CBD and Rest of Rotorua catchments in that month, with the latter not where EH or CEH is located. Nonetheless, the step change was retained (even when the Lockdown ended) and the increase in Police activity in the Fenton Corridor catchment in July 2021 put it on par with Police activity taking place in the CBD. The step change in the activity in the Fenton Corridor catchment is considered moderately significant but not wholly explained (Figure 22).

136. The change evident in the Fenton Corridor catchment is sufficient to show that is it accounting for an increasing share of total district Police activity compared to late 2019 and relative to other catchments (Figure 23). For example, that share has increased from 13% of District Activity in September 2019 to 19% of the total in July 2022. That shift in Activity appears to have been drawn away from the Rest of Rotorua (i.e. a transfer effect).

Figure 21 – Total Rotorua Spatial Police Activity Occurrence Data

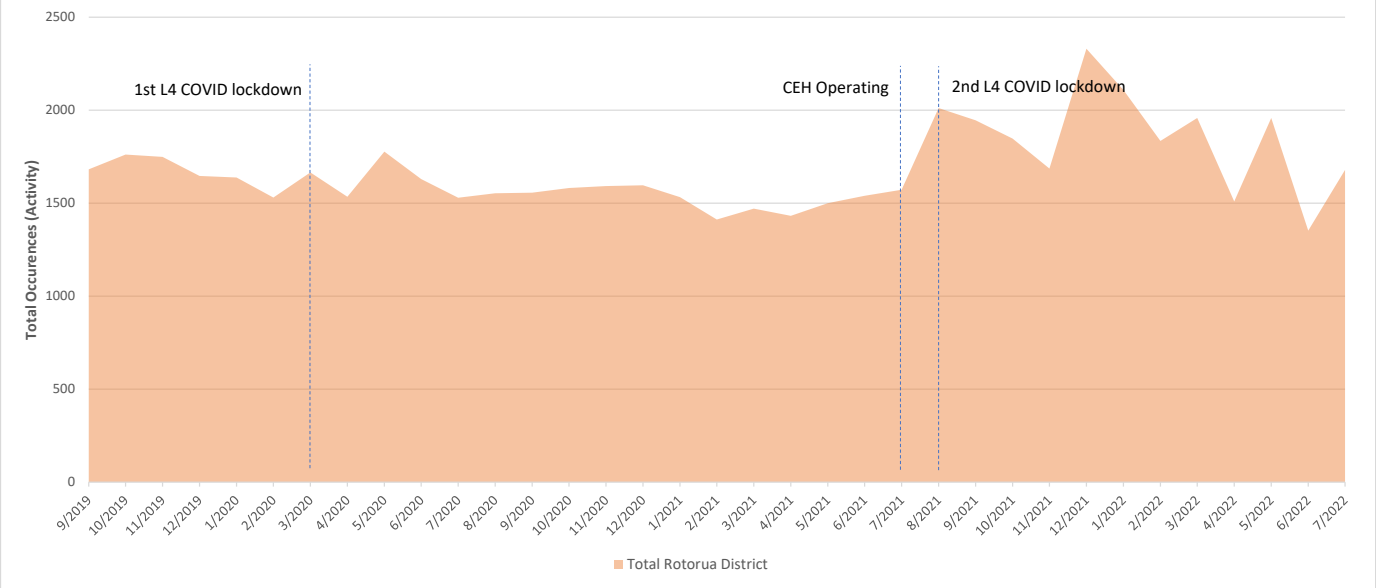


Figure 22 – Total Fenton Corridor Catchment Police Activity Occurrence Data

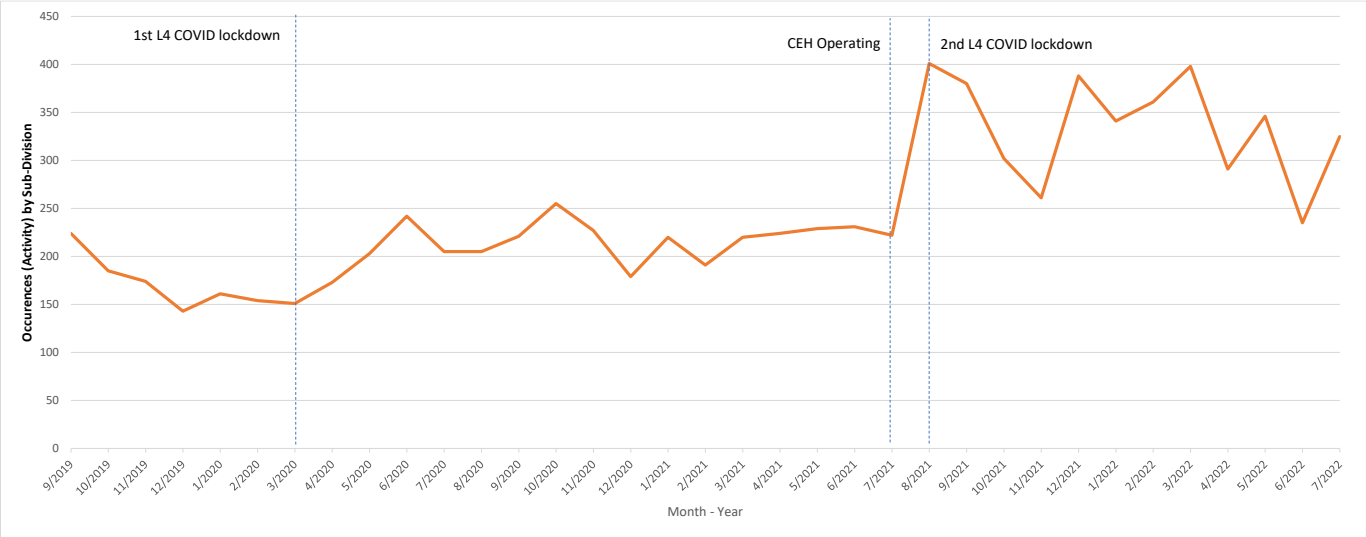
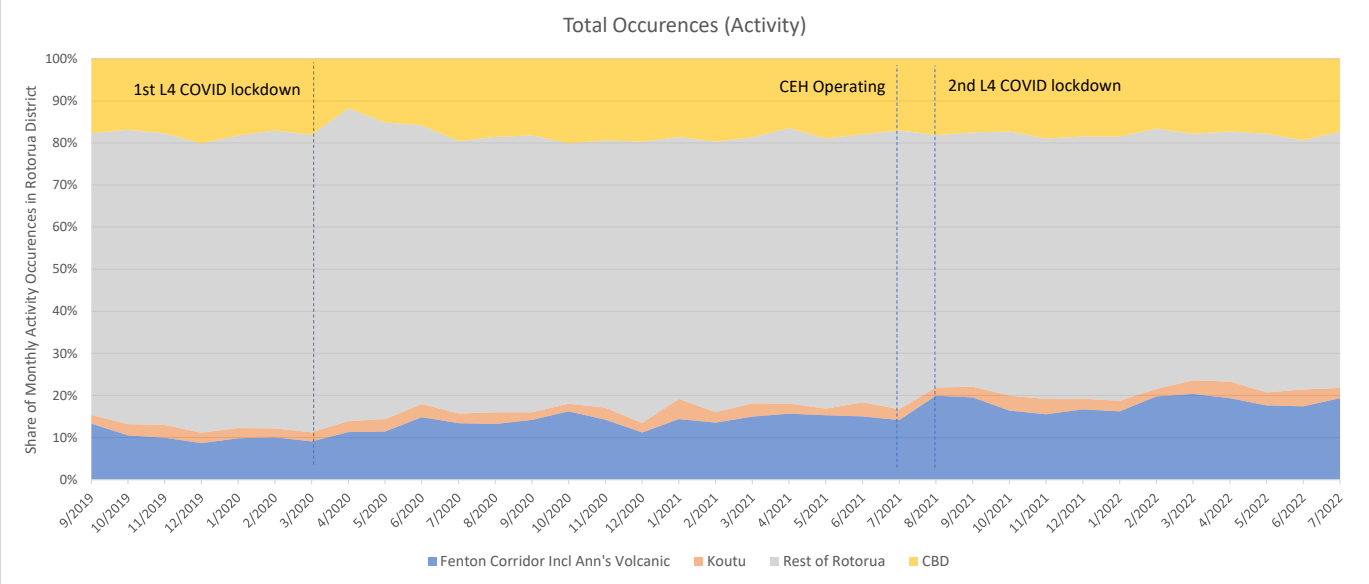
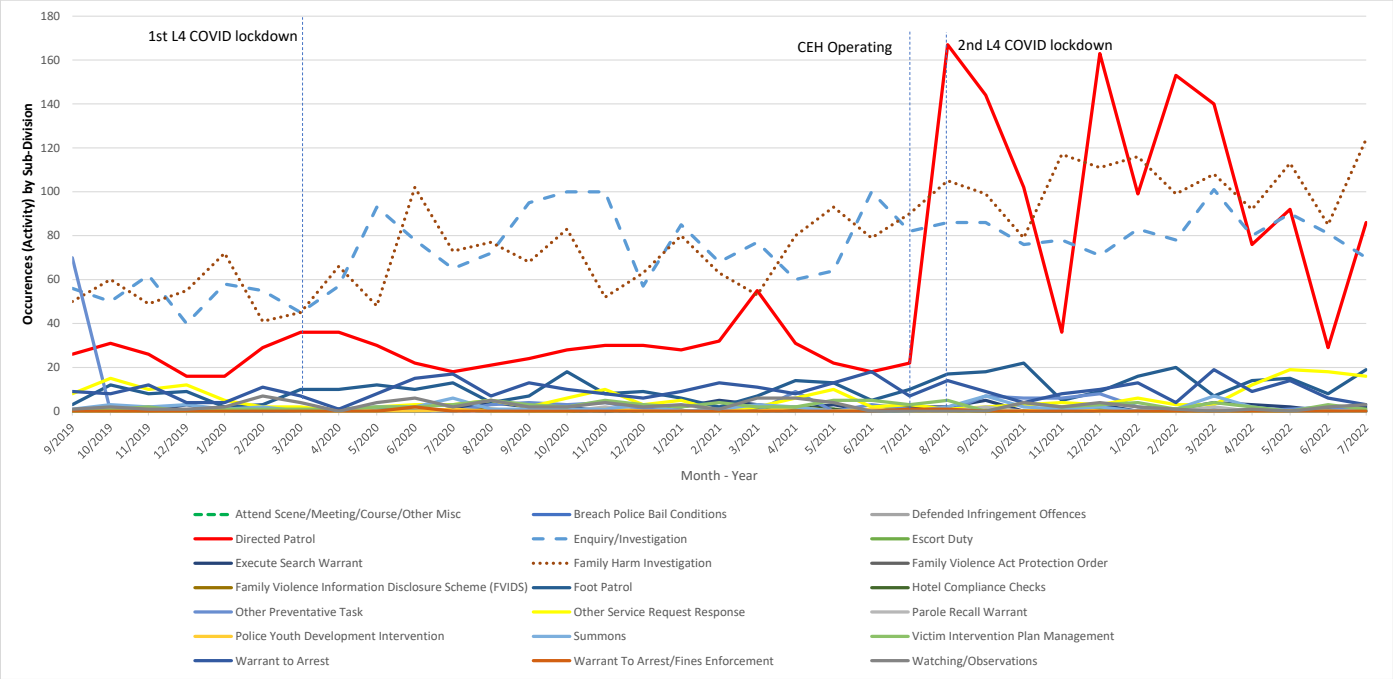


Figure 23 – Share of Total District Activity Occurrences by Catchment



137. Figure 24 shows the trends in Police Activity in the Fenton Corridor catchment since September 2019 by selected sub-division. The sudden increase in activity in July 2021 was in Directed Patrol. On average across the first seven months of 2022, this activity makes up 29% of the total catchment activity (an above average share, but still a lower share than in the CBD). An activity that has increased more gradually since July 2021 in the catchment is Family Harm Investigation (32% of 2022 activity occurrences, but still only an average share compared to the overall district). The activity that plays a larger (but still only minor) role in the Fenton Corridor catchment compared to other catchments is Foot Patrol (4% of activity) and Other Service Request Responses (3% of catchment activity)[34].

Figure 24 – Count of Activity Occurrences by Selected Sub-division in Fenton Corridor Catchment



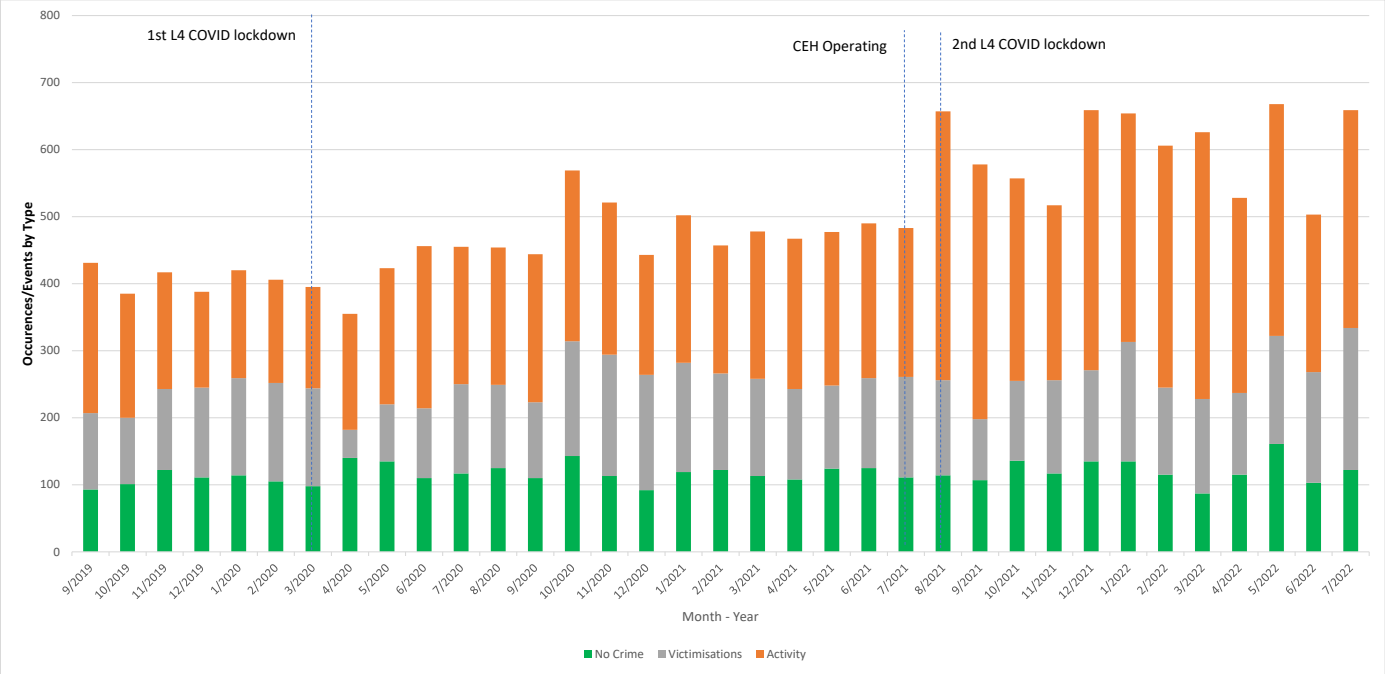
138. Overall, I consider that the concentration of EH in the Fenton Corridor catchment has not resulted in significantly different types of demands on Police Activity in the area relative to other parts of the district based on

[34] Koutu has an above average share of Other Service Request Response also.

data available from September 2019. It is acknowledged that the data does not show the true scale of changes from a time when EH had only a low incidence in the catchment. There are some minor differences in activities and some activities have increased in demand in the last three years which appear to be driven by the concentration of EH in the catchment. This substantiates comments in the Beca SIA from Police that said Fenton Street now requires a lot of Police resources, but historically did not. It is less clear whether the introduction of CEH in the catchment has materially changed the occurrence of Police activity that is neither incident or crime related.

139. **Combined Police Data**: The combined effect of victimisations (crimes), non-crime incidents and other Police activity in the Fenton Corridor catchment is summarised in Figure 25. Non-crime incidents make up a small share of total Police presence in the catchment and this has increased by only a minor degree from September 2019 (the earliest month of data available in that data series). It makes only a minor contribution to the overall increasing trend. Monthly victimisations have increased in the catchment in recent years and contribute moderately to the overall increasing trend. Prior to July/August 2021, Police activity in the catchment was relatively consistent each month (with data only going back to late 2019). The step change in July/August 2021 is more than minor but not wholly linked to the presence of EH or CEH.

Figure 25 – Count of Total Victimisations, Non-Crime Incidents and Activity Occurrences in Fenton Corridor Catchment September 2019 to July 2022



140. **<u>Conclusions and Review of Submissions</u>**: There is a lot of rich Police data that can be analysed, but it is, at times, complex to interpret. While I have tried to show potential cause and effect relationships between EH (across all models) and the deteriorating social conditions in the Fenton Corridor identified in many submissions, the role of EH in those changes is not always clear. The Police data does not enable site specific or neighbour effects of the EH sites to be clearly understood. It is limited to informing local community (catchment) and wider community (district) effects only.

141. With regard to district level effects, I consider that there is no evidence that the increase in in the number of households in EH (across all models) in the last two years has led to an increase in crime at the district level in Rotorua. Total district crime has been relatively stable during that period. But, EH may have had a minor effect on the increase in total district crime in 2018 and 2019.

142. There has been a net increase in crime (particularly Theft) in the Fenton Corridor over the last four years. There is evidence that EH is not driving all of the increase in crime in the local community. This means that in the absence of EH (i.e. the permitted baseline), some growth in crime may

have occurred in any case, particularly during 2018 and 2019 in line with trends in other parts of the district. However, there is evidence that EH within the Fenton Corridor catchment has exacerbated the amount of crime occurring in the Fenton Corridor community. There is evidence that it may have shifted some crime away from other parts of the district. It is also more likely than not that EH has created a unique pattern/profile of crime in the Fenton Corridor catchment that differs from the rest of the district.

143. EH (all models) is likely to be the cause of a minor increase in non-crime incidents recorded in the Fenton Corridor catchment over the last three years that would have been unlikely to occur under the permitted baseline. There is also some evidence that EH has shifted some Police activity away from other parts of the district and to the Fenton Corridor, particularly since July/August 2021.

144. Cumulatively, I conclude that the change in the social conditions of the existing environment in the Fenton Corridor has been significant and over and above changes in social conditions that may be expected from the permitted baseline.

145. The effects of EH (all models) on crime, anti-social behaviour, and general police presence appears, in the data, to be primarily limited to the Fenton Corridor. The same effects are not apparent in the Koutu catchment. Any adverse effects on the social conditions of the CBD (overall) attributable to EH are also estimated to be no more than minor.

146. This implies that there is a level and concentration of EH (across all models) that can occur without significant adverse effects on the local community. EH (across all models) in the Fenton Corridor catchment exceeds that threshold, but it is not known by how much (i.e., by how much the number and concentration of EH would need to reduce before the crime and incident data would return to levels that are closer to those that may be generated by activities anticipated under the ODP). For the avoidance of doubt, I consider that reducing the concentration of EH in the Fenton Corridor catchment will have a positive reducing effect on the

cumulative effects of crime, incidents and Police activity in that catchment.

147. While EH generally has caused a spatial shift and localised increase in total crime, incidents and Police activity in the Fenton Corridor catchment, those adverse effects started well before CEH began operating. My analysis of the Police data shows no definitive evidence that CEH (in aggregate and relative to the total EH activities occurring in the catchment) is having a net positive or net negative effect on the social conditions at a local community scale. I agree with the Beca SIA findings in that regard (which considers effects relative to the pre-CEH baseline). The available Police data does not assist in understanding the effect of CEH at a site-specific level or on immediate neighbours. I agree with the Beca SIA that, in theory, a marginal improvement would be expected compared to an uncoordinated and less supported service. It is worth noting that the current effects of CEH are occurring in the absence of any consent conditions. If approved with conditions, I would expect further improvement in the management of effects.

148. The key challenge is to determine if the effects of 12 CEH sites (individually and in aggregate) in the Fenton Corridor catchment (out of the 13 proposed) would have an adverse effect on crime, incidents and Police activity that is more than minor relative to the permitted baseline (that is, if there was no other EH activities occurring in the catchment that contribute to cumulative effects).

149. The only practicable way of estimating that is by using a pro-rata approach. Based on data from RotoruaNZ[35], and the current status of tourist accommodation establishments as at the 13th of September 2022, there were 16 establishments operating wholly as EH-SNG sites in the Fenton Corridor catchment, and 10 establishments operating partially as EN-SNG sites (i.e. mixed EH).[36] We know the number and mix of

[35] With some minor amendments to incorporate data provided by the applicants on stay units in each CEH establishment.

[36] The Kāinga Ora Transitional Housing site (ex-Motel) is also in the Fenton Corridor catchment, but I have excluded it from this pro-rata analysis.

establishments providing EH has changed over time (i.e. prior to CEH most of those sites were EN-SNG sites (refer Table 1 of my evidence) and the number of establishments is likely to have increased commensurate with demand). It is a fluid market, but I am limited to using the current snap-shot of EH activity. This is a total of 38 establishments operating under some form of EH in the Fenton Corridor catchment.

150. CEH therefore makes up 32% of the total EH establishments currently, but 39% of the total stay units of all EH establishments. The share of stay unit capacity will not be entirely accurate because there is no unit count data for one mixed EH site and current EH-SNG occupancy of mixed EH establishments will be less than the 100% of stay units (and is unknown). For the fully EN-SNG and CEH sites I also assume that operates at 100% occupancy for simplicity, but this too will be overstated to a minor degree. I have rounded the CEH shares of catchment EH up slightly to a third (33%) and 40% of the total catchment EH activity based on either establishments or stay units respectively.

151. Put simply:

(a) the net increase in victimisations in the catchment over the period of available data (i.e. 4 years which broadly represents the difference between a permitted baseline environment and the social environment existing today),

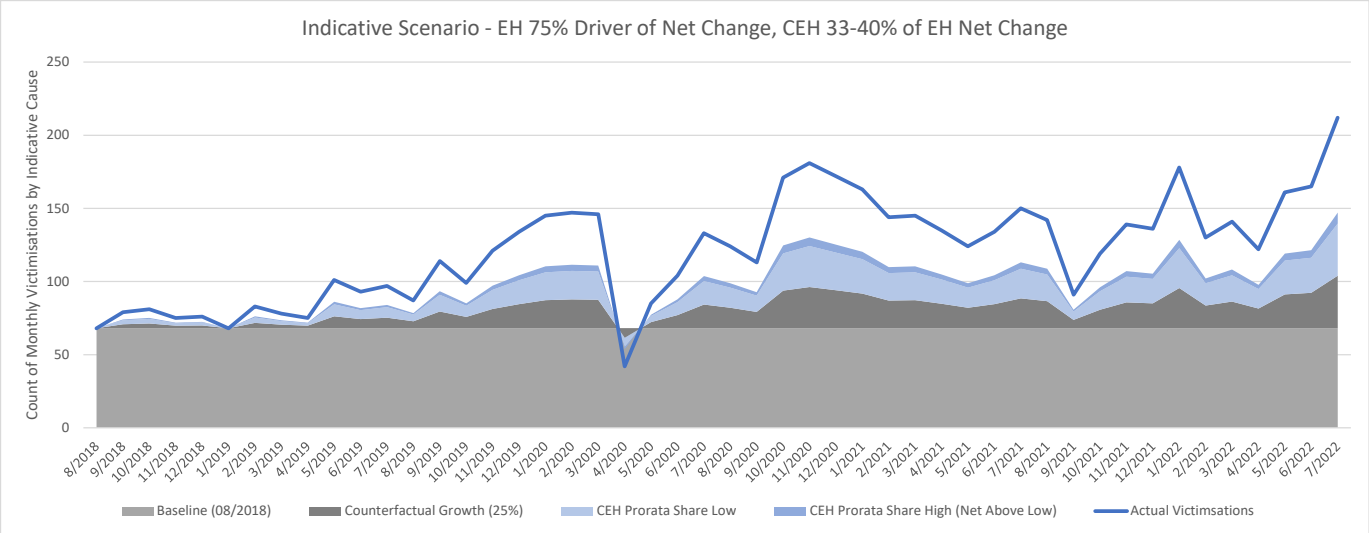
(b) and indicatively assuming that EH (all models) is collectively responsible for most of that change (say 75%),

(c) and 25% is attributable to other underlying catchment changes (the counterfactual scenario of crime),

(d) and then isolating 33-40% of the EH driven change to the use of the CEH sites over time,

the pro-rata effect of just the 12 CEH sites on monthly victimisations in the Fenton Corridor catchment (assuming they operated as EH throughout the period) could look like Figure 26 below.

Figure 26 – Scenario of Monthly Victimisations in Fenton Corridor Catchment with 12 CEH Sites Operating Only



152. This scenario (which is a back of the envelope analysis but is still a reasonable approach given the limitations of the data) shows that in the absence of all EH, monthly victimisations may have increased by 53% since August 2018 based on general crime trends observed across the Rest of Rotorua. If only 12 sites had been used for EH (i.e. the 12 CEH sites proposed) over that period, the total increase in monthly victimisations may have been 105-116% to July 2022 (with 53% attributed to the counterfactual). This is significantly lower than the 212% increase in actual victimisations each month that has been observed with a range of non-contracted EH sites also operating in the catchment.

153. This pro-rata scenario assumes a linear relationship between the number of EH establishments and the amount of crime attributed to EH activities. That is, that 33-40% of the establishments equates to 33-40% the EH change in crime. I think it is highly possible that there is not a non-linear relationship and that the greater the concentration of EH in a catchment the faster that crime accelerates (i.e. a synergistic or multiplier effect). Therefore, the cumulative effect of 12 EH sites in the same catchment would be less than half of the effect of 24 EH sites for example. There is insufficient data to confirm that synergistic effect is occurring in the

Fenton Corridor catchment[37], but if it is, then the effect of the 12 CEH sites would be less than shown in Figure 26.

154. The same approach can be applied to estimate the effect of just 12 CEH sites on non-crime incident and Police activity trends in the Fenton Corridor catchment. Given that the total change of non-crime incidents was only minor since 2018, the contribution of the 12 CEH sites in the catchment as a share of the total EH effect would be minimal. Similarly, I expect the effect of the 12 CEH sites on Police activity would be no more than minor.

155. Collectively, when estimating the effect of all 12 CEH sites on catchment crime, other incidents and Police activity relative to the permitted baseline, and in the absence of all other EH activity, I consider that the actual adverse effect on social conditions (crime, police presence, sense of safety etc) is likely to have been minor, and not significant at the local community level. This is based on the analysis of past trends.

156. In reality however, the other EH sites operating in the Fenton Corridor catchment will continue to exist until demand reduces, MSD's policy on EH-SNGs changes, and/or district plan enforcement is effectively applied. Relative to the existing environment, I consider that consenting all (or some) of the CEH sites would not have any material net additional adverse effect on social conditions over the term of the consents and may have a very minor positive effect.

157. I reach the same conclusions for the 1 CEH site seeking consent in the Koutu catchment given that in that local community, the data indicates that it had a less than minor adverse effect on social conditions such as crime and other incidents/activities involving the Police.

158. **Economic Effects on Businesses From Increased Crime and Anti-social Behaviour:** With respect to adverse economic effects arising as a direct consequence of adverse effects on (i.e. deteriorating) crime and antisocial behaviour, Mr Counsell cited examples from an article that

[37] It would require data on the monthly growth of EH capacity (sites and stay units) over the same time period as the Police data.

crime can impose medical costs, property losses, loss of income, increased security costs, reduced productivity, and reduced investment. While I talk about effects on the tourism sector and private property values further below in my evidence, with respect to these other types of economic effects of crime, I consider that consenting some or all of the CEH sites (in the Fenton Corridor and Koutu catchment) is likely to have only a minor actual or potential adverse economic effect at the local community level based on my findings above.

159. There are submissions provided on some site specific adverse economic effects which relate to theft (loss of product or equipment)[38], the need for new/upgraded security cameras or systems[39], vandalism[40] and anti-social behaviour[41] – all with financial implications. Many of these submissions are not directly attributable to the CEH sites but refer to EH sites generally. Without further detail on these costs, I consider that they would be unlikely to have had a material effect on the commercial viability of the impacted businesses.

PROPERTY VALUE EFFECTS

160. Submissions claim that the concentration of EH (of all models including CEH) is having an adverse economic effect on property values in neighbouring dwellings and local communities. Verifying these cause-and-effect relationships using readily available data is very challenging. House price effects are best identified through sales data. Sales volumes at a local community level, or an even smaller catchment of neighbouring properties, are too low to provide a reliable sample. Dwelling prices are

[38] Soft toys stolen from gift shop by children at the adjacent CEH hotel, Noah's Hotels submission. See also submission by Willow Fashion Boutique (Marie Walsh) which has experienced a robbery and submission by Silver Fern Rotorua Accommodation and Spa (Fenton Street) which has experienced stolen furniture and a stolen guest vehicle.

[39] Hennessy's Irish Bar located in the centre of the CBD, Willow Fashion Boutique located on Fenton Street and Silver Fern Rotorua Accommodation and Spa located on Fenton Street.

[40] See for example the submission by Silver Fern Rotorua Accommodation and Spa on Fenton Street.

[41] Willow Fashion Boutique located on Fenton Street (drunkenness and loitering outside premises, intimidation of staff and customers and entering the premise to ask for money. The shop owner also experienced assault which may have impacted staff productivity.

also influenced by multiple factors including section size, house type, age, quality, other features like pools or gardens, proximity to amenities and commuting distance and more. These factors are very difficult to control for without complex economic modelling. Such modelling is beyond the scope of my evidence.

161. I have therefore sought to provide more information on the potential effects of EH on property values by examining available literature in order to draw conclusions on the likely probability and scale of such effects occurring in Rotorua. I have relied on a recent academic paper (published in 2021) titled "*Does concentration of social housing influence house prices? Evidence from New Zealand*" (Sequeira, V. and Filippova, O.). I attach a copy in Attachment 1 to this evidence.

162. This New Zealand research tests the relationship between the concentration of social housing, levels of deprivation and residential property values. At the outset, this and other similar international research cited in the article do not relate to EH occurring within tourist accommodation. It is based on social housing models such as provided by Kāinga Ora or other CHPs. It relates to social housing that is likely to meet the local residential housing standards and is therefore not necessarily distinguishable in design from surrounding private dwelling types (whether attached or detached; low, medium or high density). As such, the research is not directly comparable with EH occurring in Rotorua and care is needed in inferring similar effects. I discuss the transferability of property value effects caused by social housing to EH in Rotorua further below.

163. The New Zealand research article provides a useful summary of earlier research from around the world that sought to test the effects of social housing on private property values/sales prices. In studies where property values are negatively affected, "*author's point to the design, management and integration of social housing projects as causal factors for such an impact*" (Galster et al., 1999). While CEH in Rotorua includes a strong management approach, the temporary use of buildings designed

for tourist accommodation suggests that design and integration could be relevant factors to potential property impacts in Rotorua.

164. Various studies also show that the introduction of state houses to already-vulnerable areas results in a negative effect for the area beyond a certain concentration. Even well received new social housing developments have a limit in terms of how much can be absorbed at a community level. This is a relevant factor for Rotorua. The Beca SIA report (Table 4) shows the deprivation index of statistical areas making up the southern and northern social areas of impact. Victoria, Glenholme North and Koutu are some of the most deprived communities in New Zealand (scoring 10 – most deprived). Fenton Park and Fairy Springs are only marginally less deprived (scoring 9). The very southern end of Fenton Street (Tihiotonga-Whakarewarewa) scored a 7, and Glenholme South was the least deprived in relative terms (scoring a 5).

165. Lyons and Loveridge (1993) found that "*the number of subsidised units near a residential property has a small, statistically significant negative effect on its value, which diminishes with greater distance*". But that same research showed that the value loss was only marginal. To put the value loss in context, they stated that upgrading the living area of a house would add value to the property that would equal the loss caused by nearby social housing.

166. Lee et al. (1999) hypothesised that the poverty concentration associated with public housing developments would lead to a consistently negative impact on property values, that the effects would be magnified by the scale of the public housing development and diminish with distance. Their results show that public housing developments, aggregated around a quarter mile radius, exert a modest negative impact on property values. However, the study also found that scattered-site public housing rented with a subsidy had only a slight negative impact.

167. Morriss et al (2012) found that when there is a high concentration of public housing, it compounds the negative effects of poverty, and a "*concentration of poverty*" can have negative spill over effects on

neighbouring property values. Skuzinski (2007) also states that while large-scale developments do not seem to have a negative impact on property values, clustering of social housing units seems to reach a threshold, after which the concentration of poverty produces negative impacts.

168. It is relevant to point out that social housing in some countries that were studied is of a scale and density not seen in New Zealand – such as entire high-rise buildings which often get the reputation of being slums. The literature also points out that effects on property values are driven by a combination of the physical appearance/presence of the social housing units (particularly their upkeep/maintenance and age relative to surrounding private dwellings) and the household occupying the residential unit (low socio-economic/vulnerable households). This means that even putting vulnerable households into brand new dwellings/units can still have an adverse effect on property values simply by virtue of being used as social housing.

169. The recent New Zealand research study sought to address some of the limitations of past research and adopt approaches that showed strong statistical and spatial patterns. It applied a standard hedonic pricing model alongside testing of spatial (SARAR) and spatiotemporal (STAR) models to isolate the effect of proximity and concentration of social housing on house prices. This is because previous research has found that the concentration of social housing units is a better predictor of house prices than proximity alone.

170. The authors studied sales and valuation data in the legacy Auckland City and Manukau City territorial authorities, capturing the count of social housing titles and private residential tiles within 500m of the property sold. The 500-m buffer used in the study proved to be the best estimator of influence on property values. Furthermore, it was also chosen to allow for comparisons with existing research. It was assumed that social housing further than 500m would have little to no impact on sales values because of being outside the immediate neighbourhood.

171. The research made allowance for variation in the types and quality of the properties being sold as well as the deprivation index of the meshblock, accessibility to job areas, property market cycles and more. Auckland City represented a more affluent area of Auckland Region (on average) and Manukau City represented a more deprived area of Auckland (on average). The share of social housing properties/units relative to total dwelling units within the buffer distance was categorized into low (a social housing share of 3-10%), medium (a share of 11-30%) and high (shares above 30%). The research used a sample of over 33,000 sales over 2014-2016, split evenly between Auckland City and Manukau City.

172. The authors noted that at the time of the research (sales data period) social housing stock (largely owed by Housing New Zealand Corporation (now Kāinga Ora) had historically not seen continual refurbishment and reinvestment because of budgetary constraints. The poorly maintained housing stock of social housing is an argument that NIMBY proponents make, which leads to the negative property value impacts. Maintenance and visual appearances (including 'tired' and dated buildings) are therefore all relevant factors for EH's potential effect on property values in Rotorua (as evidenced by submissions).

173. I note that widespread redevelopment of social housing stock by Kāinga Ora is now occurring across New Zealand, and it is therefore expected that the appearance of social housing will slowly reduce as a causal factor on surrounding house prices (as the housing stock is modernized), and new developments may also increase surrounding property values in some neighbourhoods. Such changes would need to be tested with further research.

174. The results of the models run for both cities (Table 4) produce statistically significant and negative coefficients for all of the proximity and concentration variables of social housing. Surprisingly, among proximity variables (blue shaded results), houses adjacent to social housing (first row of table) were less impacted than houses located further away.

Generally, sales value losses peak at the 200–250m distance and then begins to dissipate.

Table 4 – Property Value Impacts Driven by Distance and Concentration of Social Housing in Auckland City and Manukau City 2014-2016 (Source: Sequeira, V. and Filippova, O., 2021).

Table 5.
Marginal impact of social housing variables estimated in the STAR model

Variable	Spatial spillover effect (%)		Long–term dynamic spatial effect (%)	
	Auckland City	Manukau City	Auckland City	Manukau City
adj_SH	−1.23	−2.77	−1.66	−3.34
Dist_51to100	−2.24	−3.03	−3.03	−3.66
Dist_101to150	−2.89	−3.15	−3.91	−3.80
Dist_151to200	−2.25	−2.80	−3.04	−3.38
Dist_201to250	−3.80	−3.44	−5.13	−4.15
Dist_251to500	−2.92	−2.21	−3.95	−2.67
B500m_Con_Low	−4.90	−5.25	−6.62	−6.33
B500m_Con_Med	−7.39	−11.41	−9.98	−13.77
B500m_Con_High	−9.17	−19.17	−12.39	−23.13

175. As expected, increased concentration leads to steeper decreases in prices of houses within a 500-m buffer (green shaded results in Table 4). Where social housing had a low concentration[42] within 500m of a sale property, the sales values were between 6-7% lower. At these low concentrations, the vulnerability of the community did not make a difference in the property value decreases. Where social housing had a medium concentration[43] within 500m of a sale property, the sales values were around 10-14% lower and the differences between the two sample communities begins to show. There is a significant gap in the observed marginal effect of the median and high[44] concentration levels of social housing between Auckland and Manukau, with the discount nearly double at the high levels of social housing from -12% to -23%, respectively. The results are consistent with the literature that wealthier neighbourhoods are better positioned to absorb the negative effects of social housing concentrations than severely deprived neighbourhoods.

176. It emerged from the findings of the study that social housing concentrations at any level have a significant negative impact on the

[42] I.e. social housing made up 3-10% of total houses within a 500m radius.
[43] I.e. social housing made up 11-30% of total houses within a 500m radius.
[44] I.e. social housing made up more than 30% of total houses within a 500m radius.

prices of houses within a 500-m buffer. A point to highlight is that social housing on its own, when measured in the form of proximity/distance, has a lesser negative effect on property values than concentration. NIMBY proponents argue that social housing regardless of placement strategy will have a negative impact on their property values. The research found empirical evidence to support these claims and that presence of social housing in the neighbourhood has a detrimental impact on house prices.

177. The authors concluded that that ingrained negative externalities of social housing cannot be ignored and long-term government policies are needed to regenerate deprived neighbourhoods. The findings highlight that "*a dispersed development strategy that incorporates a balanced mix of tenure and socio-economic groups should be preferred over a high-density of social housing concentrated in already deprived neighbourhoods*" (Sequeira, V. and Filippova, O., 2021).

178. **EH effects on property values in Rotorua**: While the available research did not consider the effects of highly concentrated vulnerable households living in tourist accommodation, I consider that there are sufficient similarities with the sorts of social housing examined, not only in the recent New Zealand study but elsewhere, to conclude that there is a high probability that property values have been adversely affected by the scale of EH (or all models) along Fenton Street and in Koutu. I estimate that that effect has potentially been significant.

179. When EH, mixed EH, CEH and TH establishments are all combined, (each with a high household density) the concentration of activity is considered significant and relatively unique in the context of social housing supply in New Zealand[45] It is therefore possible that:

    (a) the 'High Concentration' impacts previously found in Manukau City (-23% sales value impacts) in 2014-2016 are representative of

[45] There may be high-rise buildings in the main cities being used for social housing that also have a high density. The new City Mission building in Auckland CBD would be an example of this.

property value impacts experienced in parts of the Fenton Corridor community; and that

(b) the 'Low Concentration' impacts previously found in Manukau City (-6% sales value impacts) are representative of property value impacts experienced in parts of the Koutu community.

180. Given that the use of tourist accommodation is considered by Central Government to be a temporary solution for EH, and that the permanent social housing solution may not be concentrated in the same locations (i.e. is likely to be dispersed over a range of zones and locations in Rotorua's urban area), the adverse effects of EH on property values in Rotorua are also likely to be temporary and would be expected to dimmish over time as and when the number and concentration of EH establishments/clients (across all models) decreases.

181. **CEH effects on property values in Rotorua**: The key issue for this hearing is whether consenting CEH, as proposed in 13 tourist accommodation sites, will have significant adverse effects relative to the permitted baseline. In the absence of unlawfully established EH, the concentration of vulnerable households being housed in tourist accommodation in both catchments is significant reduced (down to indicatively 257 households at any one time if all CEH units (excluding service units) are occupied in the Fenton Corridor catchment and down to around 38 households at any one time in the Koutu catchment).

182. Using the assumption that each household in CEH is equivalent to one social housing unit as modelled in the recent research by Sequeira, V. and Filippova, O. (2021), and taking the 2018 counts of private occupied dwellings in each social area of impact set out in Table 4 of the Beca SIA, and the findings of the 2021 study, this would give an indicative concentration of social housing of less than 3% in the northern social area of impact (Fenton Corridor) and 6% in the southern social area of impact (Koutu catchment). This does not take account of any other social housing that may be located in the catchments.[46] These results are likely

[46] Including the consented transitional housing.

to put the two social areas of impact within the Low Concentration category and therefore marginal sales value impacts along the lines of those seen in Manukau City (-6% on average) would potentially be experienced.

183. **Conclusions on Property Value Effects**: The literature, and my assumptions around its applicability to EH occurring in Rotorua, support those submissions stating that the concentration of EH is causing reductions in private property values. Care is needed to attribute those effects to CEH. I consider the potential adverse economic effects of CEH on property values to be more than minor, but not significant. The evidence does not suggest that the effects on adjoining properties will be any greater in scale than average effects on dwellings located further away from the sites but within 500m distance. Research suggests that effects are unlikely to apply when dwellings are located further than 500m from the CEH sites.

184. The effects may be mitigated by consent conditions that help ensure that the appearance of the sites is maintained at a high standard and that any anti-social behaviour of clients is controlled where practicable. If it was decided that any of the CEH sites should not be approved, then this will further reduce the concentration of households in CEH in the catchments, and this will in turn reduce adverse effects on property values. As above, property value impacts attributed to the CEH sites are expected to be temporary effects limited to the duration of the CEH contracts.

TOURSIM EFFECTS

185. There were a number of themes related to tourism effects raised in submissions. These centred around effects on the tourism sector associated with loss of capacity to accommodate over-night guests, and effects on Rotorua's reputation in the tourism market. Tourism effects are a key focus of Mr Counsell's evidence. Both Mr Counsell and the Beca SIA report provide a summary of the (pre-Covid) tourism industry in

Rotorua, including its historical growth. I do not re-examine that wider context.

186. **"Motels should be used for tourism":** An Important starting point for my evidence is that, in the absence of the contracts offered by MHUD (and indeed the demand from EH-SNG's prior to that for most establishments), the application sites may not have stayed as tourist accommodation. They also may not return to tourist accommodation when the MHUD contract ends (even though this outcome is emphasised in the consent applications).

187. Market conditions are or will have changed by the time the contracts end (depending on duration), including zone changes in PC 9 being operative (increasing the value of Fenton Street sites for higher density development, including housing) and there are likely to be changes in tourist accommodation supply which will affect market share and the ability of older motels in particular to compete. Landowners of the CEH sites will have greater options and will need to evaluate whether or not they return to running tourist accommodation post-contract.

188. The local and wider economic conditions being felt in Rotorua make the counterfactual scenario with respect to tourist accommodation capacity difficult to project. The sustained closure of several backpackers to date, is, for example, unrelated to the housing crisis/demand for EH – it reflects the wider economic effects of Covid. While the motel sector within total tourist accommodation is more resilient to the loss of international tourists, Covid alone is likely to have caused some changes in supply. Therefore, in the absence of EH demand, it is likely that many more tourist accommodation establishments would have closed in Rotorua and some of those would likely have been repurposed by now (permanent closures). I consider that a minor reduction in tourism capacity may have been inevitable post-Covid. Any future effects associated with a shortfall of tourist accommodation capacity (discussed further below) needs to take account of net additional effects of EH within tourist accommodation, and not attribute the whole effect to EH (or CEH).

189. Nearly 50 submitters[47] have stated a preference that the sites be used for tourist accommodation instead of CEH. The ODP does not (and cannot) dictate which permitted (or otherwise plan enabled) activity occurs on each individual site within a zone. It cannot make the owners retain the sites as operational motels/hotels for tourist accommodation. This is at the discretion of the owner and reflects the normal operation of the market within the constraints of land use regulations. I therefore consider that the end or alternative use of the CEH sites should have little bearing on the decision of whether or not to consent CEH for a fixed period.

190. **The scale of EH, CEH and TH within tourist accommodation establishments**: The purpose of this section of my evidence is to provide a current and detailed summary of the scale of different EH models occurring in tourist accommodation and relative to the total stock of commercial tourist accommodation establishments in Rotorua. It is a snap-shot in time, but represents the existing environment. Later sections of my evidence look at trends that reached this point in time, and potential trends going forward.

191. Mr Counsell provides a snap-shot of the status of tourist accommodation in Rotorua as at November 2021 in Table 1 of his evidence. At the time, there were 6 CEH sites seeking consent, 3 hotels were still being used as MIQ sites and 2 hotels were being used by the NZ Defence Force staffing the MIQ facilities. Those 5 MIQ hotels have since returned to tourist accommodation use and we are now considering 13 CEH sites. This highlights that the status of tourist accommodation establishments in Rotorua since Central Government's response to Covid-19 began is fluid and constantly changing.

192. I provide an update of the status data for tourist accommodation in Table 5 below. The source of my data is from RotoruaNZ, which has been cross checked against data from RLC and the consent applications (with respect to the 13 CEH sites). I retain the full scope of establishment types included in the Accommodation Dashboard maintained by RotoruaNZ. The data is

[47] Source: Top Fifteen Submission Themes, Summary of Submissions report.

based on the best information available at the time (as at September 2022), but may not be totally free of errors/discrepancies. Table 5 provides more detail on the different models of EH operating in Rotorua than in Mr Counsell's Table 1. I also provide a breakdown of establishments by the same catchments I used for my analysis of Police data discussed above.

Table 5 – Current Status of Commercial Tourist Accommodation in Rotorua District (September 2022) by Catchment and Type – Count of Establishments

Catchment (N. Hampson)	Establishment Type	Status (13th September 2022)						Total Commercial Visitor Accommodation Establishments
		Closed	EH	Mixed EH	EH - contracted	Transitional Housing KO	Operating	
CBD	Apartments	-	-	-	-	-	3	3
	Bed and breakfast	-	-	-	-	-	3	3
	Holiday Park / Campsite	1	-	-	-	-	-	1
	Hostel/Backpackers	3	6	-	-	-	3	12
	Hotel/Resort	-	-	-	-	-	7	7
	Motel	-	4	3	-	-	4	11
	Lodge	-	-	-	-	-	-	-
	CBD Total	**4**	**10**	**3**	**-**	**-**	**20**	**37**
Fenton Corridor	Apartments	-	-	-	-	-	1	1
	Bed and breakfast	-	-	-	-	-	3	3
	Holiday Park / Campsite	-	-	-	-	-	-	-
	Hostel/Backpackers	-	-	-	-	-	-	-
	Hotel/Resort	-	1	-	1	-	6	8
	Motel	-	15	10	11	1	9	46
	Lodge	-	-	-	-	-	-	-
	Fenton Corridor Total	**-**	**16**	**10**	**12**	**1**	**19**	**58**
Koutu	Apartments	-	-	-	-	-	-	-
	Bed and breakfast	-	-	-	-	-	-	-
	Holiday Park / Campsite	-	-	-	-	-	1	1
	Hostel/Backpackers	-	-	-	-	-	-	-
	Hotel/Resort	-	-	-	-	-	-	-
	Motel	-	1	-	1	-	1	3
	Lodge	-	-	-	-	-	-	-
	Koutu Total	**-**	**1**	**-**	**1**	**-**	**2**	**4**
Rest of Rotorua	Apartments	-	-	-	-	-	1	1
	Bed and breakfast	-	1	-	-	-	13	14
	Holiday Park / Campsite	-	-	-	-	-	11	11
	Hostel/Backpackers	-	-	-	-	-	-	-
	Hotel/Resort	-	-	-	-	-	7	7
	Motel	-	1	-	-	-	6	7
	Lodge	-	1	-	-	-	6	7
	Rest of Rotorua Total	**-**	**3**	**-**	**-**	**-**	**44**	**47**
Total District	Apartments	-	-	-	-	-	5	5
	Bed and breakfast	-	1	-	-	-	19	20
	Holiday Park / Campsite	1	-	-	-	-	12	13
	Hostel/Backpackers	3	6	-	-	-	3	12
	Hotel/Resort	-	1	-	1	-	20	22
	Motel	-	21	13	12	1	20	67
	Lodge	-	1	-	-	-	6	7
	Total District Total	**4**	**30**	**13**	**13**	**1**	**85**	**146**

Source: RotoruaNZ Accommodation Dashboard, RLC, The Property Group.

193. Some key observations from Table 5 include:

(a) The dataset contains 146 unique establishments. 40% of these (58) are located in the Fenton Corridor catchment. 25% are located in the CBD, 3% are in the Koutu catchment and 32% in the Rest of Rotorua.

(b) 4 establishments (3%) are currently closed. All are in the CBD and 3 of these are backpackers. One is now being used for long-term rental[48].

(c) A total of 56 premises (38%) are being used for some form of EH. These have been mapped in the S42A Overview Report (detailed map). I note that as at November 2021 Mr Counsell estimated 53 EH establishments (excluding 1 TH establishment), while this is a similar total, it represents a 59% share of the 90 establishments included in his analysis (Table 1) – a much higher share than my 38%, but is likely overstated for reasons explained further below.

(d) 30 establishments (21%) are being used wholly for EH using EH-SNGs. 33% of these are in the CBD (6 backpackers and 4 motels, 10 in total). 53% of these are in the Fenton Corridor catchment mainly within motels, while 1 is in a motel in the Koutu catchment. The remaining 3 (10%) are in the Rest of Rotorua.

(e) 13 establishments (9%) are being used for mixed EH. 77% of these (10) are in the Fenton Corridor catchment. The balance (3) are in the CBD.

(f) 13 establishments are being used for CEH (9%). 92% of these (12) are in the Fenton Corridor catchment. The remaining CEH establishment is in the Koutu catchment.

(g) 1 establishment is being used (consented) as TH. This ex-motel is located in the Fenton Corridor catchment.

(h) In total, 85 of the 146 recorded tourist accommodation establishments (58%) are still operating as tourist only businesses. These are also shown in the map in the S42A Overview Report. These span a range of accommodation types, including 20 hotels and 20 motels. 24% of operating tourist accommodation establishments are located in the CBD, 22% are in the Fenton Corridor catchment, 2% are in the Koutu catchment and 52% are

[48] While these rents are likely to be paid for with Accommodation Supplements (benefits), it is my understanding that they are not being paid for with EH-SNGs.

in the Rest of Rotorua. I note that Mr Counsell identifies only 30 establishments (out of 90) that are operating for tourists only in Rotorua as at November 2021 (shown in his Table 1). This is very low compared to the Dashboard data (even excluding Bed & Breakfast) and the ADP data (which showed 65 'active' establishments[49] in that month). Mr Counsell's evidence therefore starts from a position whereby EH dominates tourist accommodation establishments, when this is not the case according to the current Accommodation Dashboard.

194. To appropriately understand the potential effects of EH and CEH, it is important to also look at the capacity of establishments. This is measured in 'stay units'. The Accommodation Dashboard contained stay unit data on 129 of the 146 tourist accommodation premises. The majority (11 out of 17) of those missing data are located in the Rest of Rotorua, but 2 are in Fenton Corridor and 4 are in the CBD. They are mainly apartments, bed and breakfast and holiday parks. The following table (Table 6) is limited to the establishments that had stay unit data so is a minor under-representation of total potential capacity.

[49] Active establishments is the only indicator not further defined in the ADP website. While it originally included MIQ hotels, the data was later changed to exclude them from Active establishments.

Table 6 – Current Status of Commercial Tourist Accommodation in Rotorua District (September 2022) by Catchment and Type – Stay Units

Catchment (N. Hampson)	Establishment Type	Status (13th September 2022)						Total Commercial Visitor Accommodation Establishments
		Closed	EH	Mixed EH	EH - contracted	Transitional Housing KO	Operating	
CBD	Apartments						36	36
	Bed and breakfast						8	8
	Holiday Park / Campsite	18					-	18
	Hostel/Backpackers	293	127				61	481
	Hotel/Resort						1,033	1,033
	Motel		58	62			77	197
	Lodge							-
	CBD Total	**311**	**185**	**62**	**-**	**-**	**1,215**	**1,773**
Fenton Corridor	Apartments						7	7
	Bed and breakfast						8	8
	Holiday Park / Campsite							-
	Hostel/Backpackers							-
	Hotel/Resort		28		39		714	781
	Motel		224	147	218	32	195	816
	Lodge							-
	Fenton Corridor Total	**-**	**252**	**147**	**257**	**32**	**924**	**1,612**
Koutu	Apartments							-
	Bed and breakfast							-
	Holiday Park / Campsite						90	90
	Hostel/Backpackers							-
	Hotel/Resort							-
	Motel		8		38		31	77
	Lodge							-
	Koutu Total	**-**	**8**	**-**	**38**	**-**	**121**	**167**
Rest of Rotorua	Apartments						-	-
	Bed and breakfast		3				45	48
	Holiday Park / Campsite						217	217
	Hostel/Backpackers							-
	Hotel/Resort						136	136
	Motel		8				88	96
	Lodge						43	43
	Rest of Rotorua Total	**-**	**11**	**-**	**-**	**-**	**529**	**540**
Total District	Apartments	-	-	-	-	-	43	43
	Bed and breakfast	-	3	-	-	-	61	64
	Holiday Park / Campsite	18	-	-	-	-	307	325
	Hostel/Backpackers	293	127	-	-	-	61	481
	Hotel/Resort	-	28	-	39	-	1,883	1,950
	Motel	-	298	209	256	32	391	1,186
	Lodge	-	-	-	-	-	43	43
	Total District Total	**311**	**456**	**209**	**295**	**32**	**2,789**	**4,092**

Source: RotoruaNZ Accommodation Dashboard, RLC, The Property Group. Excludes capacity of 17 establishments.

195. Some key statistics from Table 6 include:

(a) Total known capacity of 4,092 stay units as at September 2022.

(b) 8% or 311 units are within premises that are currently (temporarily or permanently) closed.

(c) Premises being used for some form of EH contain a total of 960 stay units. While these EH premises make up 38% of total recorded establishments, they account for 23% of total Rotorua

commercial stay units (or 25% of total stay units excluding those currently closed)[50].

(d) Wholly EH-SNG premises take out 456 stay units.[51] This is 11% of capacity (or 12% of total stay units excluding those currently closed).

(e) Mixed EH premises contain 209 stay units.[52] This is 5% of total capacity (or 6% of total stay units excluding those currently closed). It is not known what share of the 209 stay units are available for tourists. It is likely that the share fluctuates.

(f) CEH premises contain 295 stay units. This is 7% of total stay unit capacity (or 8% of total stay units excluding those currently closed).

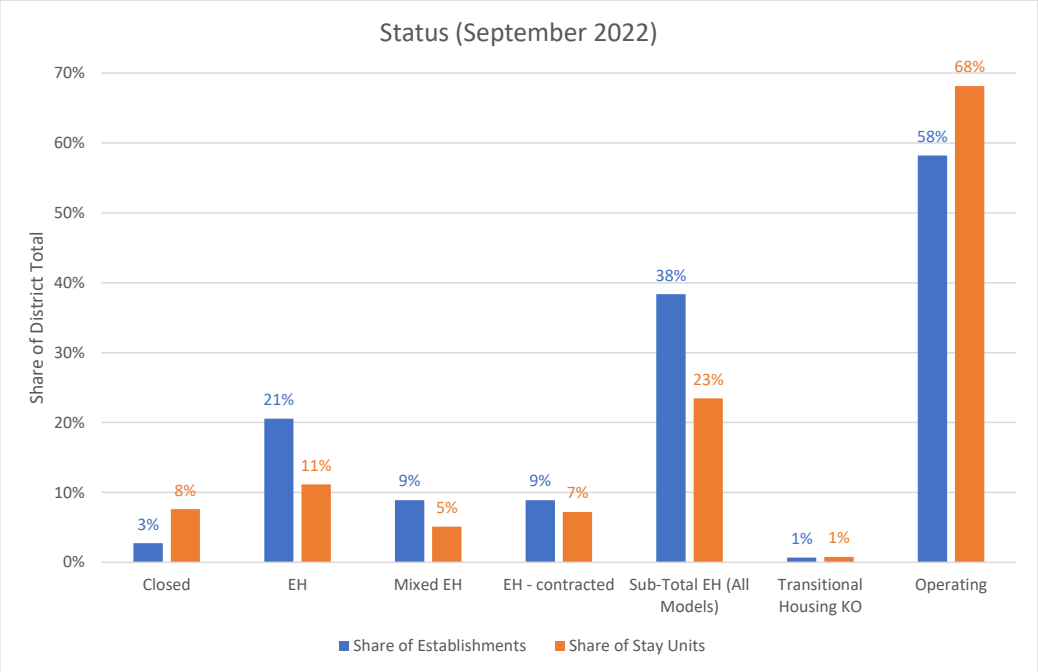
(g) Premises currently operating as tourist accommodation contain 2,789 stay units.[53] This is 68% of total establishment stay unit capacity (or 74% of total stay units excluding those currently closed).

(h) 44% of operating stay units (and excluding any in Mixed EH premises) are located in the CBD where they make up 69% of the CBD's pre-Covid capacity. A further 33% of operating stay units are in the Fenton Corridor catchment where they make up 57% of the catchment's pre-Covid capacity. 4% are located in the Koutu catchment (and account for 72% of total capacity) and the remaining 19% are in the Rest of Rotorua (where they account for 98% of total capacity).

196. Figure 27 summarises the share of establishments against the share of stay unit capacity across the different status of establishments based on the Accommodation Dashboard data. CEH sites account for a minor loss of total capacity.

[50] These percentage shares may be slightly lower if the data was complete.
[51] There is no stay unit data for 1 motel and 1 lodge.
[52] There is no stay unit data for 1 motel.
[53] There is no stay unit data for 14 operating premises.

Figure 27 – Share of Pre-Covid Establishments and Stay Unit Capacity by Status September 2022



197. In total, establishments being used for EH under any model make up about a quarter of total stay unit capacity at present. I do not know if demand for EH establishments has plateaued, or if the number could increase further (i.e. whether demand will grow at a faster rate than existing establishments can cope with and that permanent housing solutions can satisfy). It is hoped that MHUD can provide further information on this in the course of the hearing.

198. The operating capacity of the *commercial* tourist accommodation sector[54] is currently sitting at 68% of its potential capacity (based on establishments that have traditionally been used for tourist accommodation).

199. There are a number of ways that capacity can increase while CEH sites are under contract:

(a) closed premises re-open (likely once backpacker tourists return),

(b) new establishments are built,

(c) EH and Mixed EH establishments reduce in number,

[54] The Accommodation Dashboard does not include other types of tourist accommodation such as in residential dwellings.

(d) existing establishments are redeveloped to a higher capacity/intensified within the ODP rules, or

(e) other forms of accommodation increase to meet demand (i.e. residential visitor accommodation)[55].

200. The significance of the effects of current capacity now and in the next few years is entirely driven by the projected scale and nature of over-night tourism demand and the ability of the market to adjust to meet that demand without constraint. I discuss this further below.

201. **Differences in Data Sources**: While I have the benefit of extracting more current data on tourist accommodation for my evidence there are some other differences with the data that Mr Counsell has used that I consider relevant to point out. Mr Counsell states that he uses data from the Accommodation Data Programme (ADP)[56] and that in October 2021, that data showed 90 establishments in Rotorua District, consistent with his own estimates by status (as shown in his Table 1). I have recently accessed the ADP and it shows that in October 2021 there were 102 establishments and not 90. I am unsure how Mr Counsell arrives at 90 establishments in that month, but note that he may wish to clarify that during the hearing.[57]

202. Compared to the Accommodation Dashboard data I have relied on above, the ADP data under-represents tourist accommodation establishments. The ADP data excludes Bed & Breakfast which is included in the Accommodation Dashboard data. It also excludes establishments with less than 6 stay units. Given the detail in the Dashboard data, I am able to work out total establishments excluding Bed & Breakfast and those establishments with less than 6 units. Taking the latest month of ADP data (July 2022, showing down to 97 active and inactive establishments compared to 102 in October 2021, but still more than the 90 identified by Mr Counsell and comparing it (like for like) with the latest Dashboard data

[55] E.g. Airbnb, Book a Bach, Bach Care etc.
[56] Funded by MBIE and managed by Fresh Info.
[57] There are some notes in the ADP data of updates/changes made to the data, but I am unsure if these explain the difference of 12 establishments.

(September 2022), it shows that the ADP under-represents total tourist accommodation (by at least 20 establishments). Information provided with the ADP does indicate that "*the accuracy of the ADP is dependent on the number of responses we receive to the monthly survey*". These differences between datasets need to be acknowledged. I consider that the Accommodation Dashboard provides the most accurate picture of the current status and scale of the tourist accommodation sector.

203. **CEH will exacerbate already reduced capacity**: This is the first key statement in Mr Counsell's summary of evidence and relates to future changes to the existing environment where EH is prevalent, and not from a permitted baseline perspective.[58] In that context, I do not consider the statement correct. Prior to being contracted for EH by MHUD, 9 out of 13 of the sites were already being used for EH via EH-SNGs and one was being used as a Contracted Covid Response Facility for just over 2 years (Figure 1). The contracts only change the model of EH delivery on 9 of those sites. The only exacerbating effect of CEH on tourism capacity **on the existing environment** is limited to the Midway Motel, Apollo Hotel and Lake Rotorua Hotel which were operating as tourist accommodation up until being contracted in July 2021. This is a loss of 92 stay units or a reduction of 3% of operating stay units (if the change occurred today).[59]

204. **Loss of accommodation capacity means a loss of guest arrivals**: This is perhaps the key premise of Mr Counsell's evidence on tourism effects. He applies economic theory of supply and demand (summarised in Figure 1 of his evidence) to associate "*the removal of the motels as accommodation providers*" with a resulting "*reduction in tourism*" (guest arrivals) in Rotorua.[60] He states that this effect can only be mitigated if other accommodation providers (those still operating as tourist accommodation) can accommodate the displaced guest arrivals (i.e. have spare capacity). If this is the case, tourism will not decrease (no net

[58] K. Counsell evidence, paragraph 2.2(a).
[59] Or the difference of the total commercial tourist accommodation sector current operating at 68% instead of 70%.
[60] K. Counsell evidence, paragraph 4.2.

change in guest arrivals/nights). However, he concludes that there is no evidence (using data from the recent past) that demand that would have used CEH sites has been transferring to other operating tourist accommodation and therefore will not in the future. On that basis, he determines that the loss of 6 CEH sites will cause a reduction in tourist arrivals and expenditure that will be a more than minor effect on the local economy. Pro-rata, I assume that the Mr Counsell's would conclude that the 13 CEH sites constitutes a significant adverse effect on tourism.

205. I have a number of concerns with the rationale applied in Mr Counsell's evidence. Tourist accommodation both facilitates guest arrivals (by providing them somewhere to stay), but also exists only in response to demand. It is typically not the reason people come to a destination – it is an enabler of guest arrivals, not the driver of it. I therefore disagree that a reduction in capacity *necessarily* leads to a reduction in visitors to Rotorua.

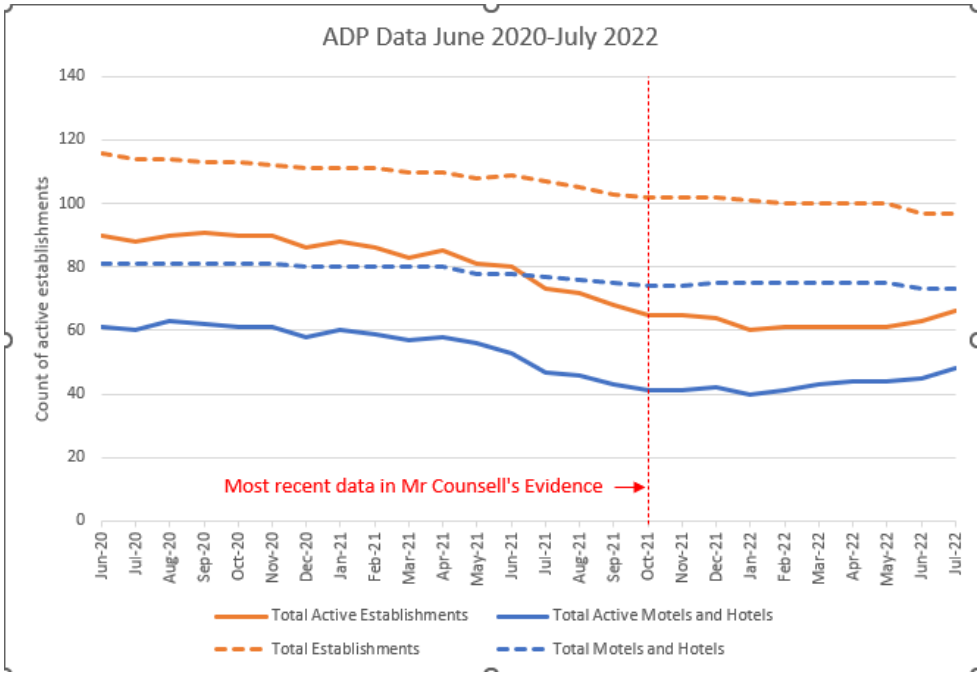
206. Mr Counsell's economic theory applies only when demand is constant. If demand decreases, then capacity can also decrease with no constraining effect on tourist arrivals. If demand increases and capacity increases with it, there is also no constraining effect. Only for the periods when demand is greater than capacity is there a constraint and an opportunity cost for the local economy. The scale, frequency and duration of that opportunity cost is the key issue.

207. **Reducing tourist accommodation capacity over time**: In Figure 2 of his evidence, Mr Counsell provides data on the decreasing number of 'active' establishments, including active hotels and motels since June 2020 to October 2021, but particularly since January 2021. The graph is based on the ADP data, which as explained above, provides a lower count of establishments (active or inactive) relative to the local dataset maintained by RotoruaNZ (the Accommodation Dashboard).

208. The ADP data is helpful in that it provides a time series (the Dashboard data is a current snap-shot only). Unfortunately, there is not one consistent dataset available that goes back to when EH activity was

starting to pick up in Rotorua (i.e. around 2018), or even pre-Covid. I have replicated Mr Counsell's Figure 2 below in Figure 28 and added the most recent data to July 2022. The latest data shows some recent recovery in the number of active establishments, but it is still below the number of active establishments in January 2021, and well below the total number of establishments at the beginning of the data series (the dashed lines). As discussed previously, there are a number of ways that the recovery (increase) of active/operating establishments can occur over time in the market and I therefore consider it more likely than not that this trend will slowly continue over the medium term. This is directly relevant to the duration of any future capacity effects (if established).

Figure 28 – Change in Total and Active Establishments in Rotorua District June 2020 to July 2022 – Total and Combined Motels and Hotels

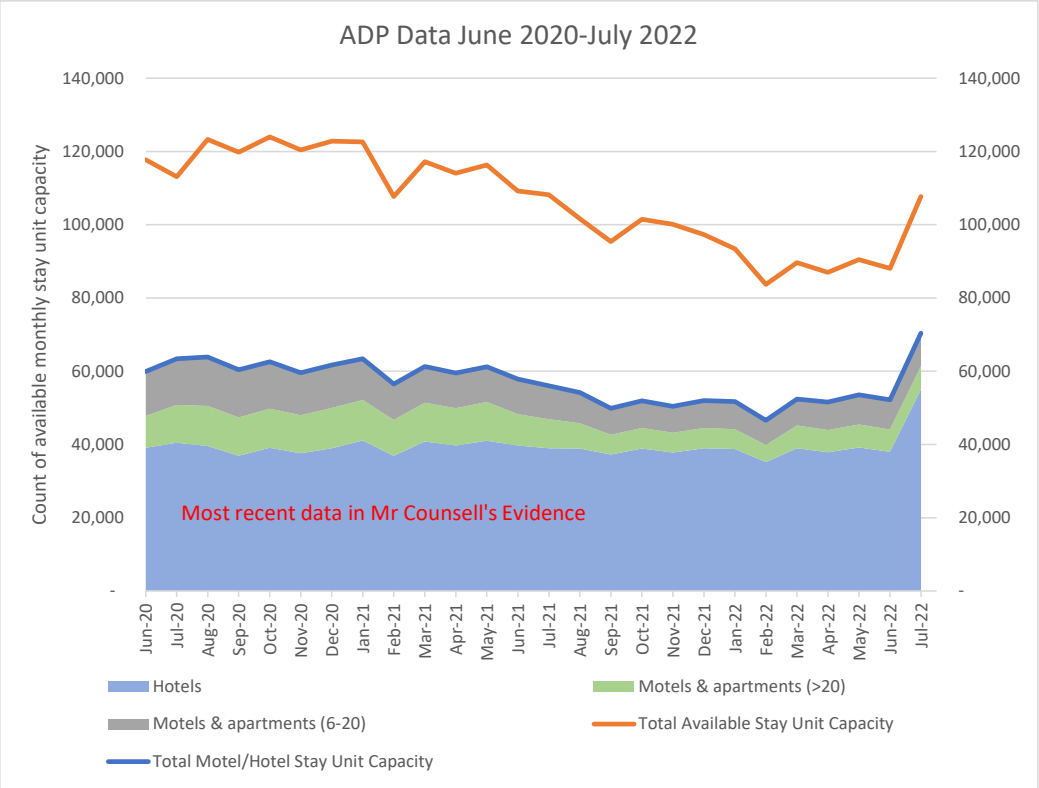


209. As I discussed above, the number of establishments is relatively less important than the change in stay units. This is not considered in Mr Counsell's evidence. Using the same ADP data, Figure 29 shows the change in available monthly stay unit capacity since June 2020. This is the

number of stay unit nights in each month[61] available to be occupied by short-term guests. The ADP website states that this "*excludes stay units temporarily removed from the inventory due to closures, maintenance, emergency housing etc*".

210. The data shows little change in hotel capacity since June 2020 when 5 hotels were already removed for MIQ related purposes. The increase in July 2022 reflects those MIQ facilities closing and the hotels becoming operational again as tourist accommodation. According to ADP data, hotels are now back to 100% of available capacity. Motel stay unit capacity was at its lowest level in February 2022 but has started to recover slowly.

Figure 29 – Change in Monthly Available Stay Unit Capacity in Rotorua District June 2020 to July 2022 – Total and Combined Motels and Hotels



211. So while Mr Counsell reports a -30% reduction in combined active motel and hotel establishments between January 2021 and October 2021

[61] 150. Monthly stay unit capacity is defined in the ADP as the number of stay units multiplied by the number of days in the month.

(which is -32% based on the ADP data I extracted), my analysis shows that the available stay unit capacity decreased by only -18% in that same time period. As at July 2022, the change from January 2021 in active establishments is down to -20% (compared to -32% in October 2021). Available stay unit capacity in motels and hotels combined is now 11% higher than in January 2021.

212. This latest data highlights that there is still some flexibility in the existing tourist accommodation sector and the picture changes month to month.

213. **Transferability of demand**: Mr Counsell expects that *if* the reduction in tourist guest arrivals at the CEH motels *could* be captured by other operating tourist accommodation establishments, then there would be evidence of this, with occupancy rates increasing in the remaining active (operating) tourist accommodation establishments.[62] He presents ADP occupancy data for motels and hotels combined between June 2020 and October 2021 in Figure 3 of his evidence and concludes no clear evidence of a transfer of guest arrivals to remaining motels and hotels.[63]

214. I note the submission from the Sliver Fern Rotorua Accommodation and Spa stated that they have experienced an increase in occupancy with the reduced capacity associated with EH.

215. I agree with Mr Counsell that if guests are struggling to find capacity in motels (because it is reduced due to CEH or EH generally)[64], then backpackers, camp sites, and bed & breakfasts (hosted accommodation) are unlikely to be common trade-offs/substitutes and lodges are more likely to be much more expensive. Contrary to Mr Counsell, I do consider that there is likely to be a degree of substitution between motels and cabins in holiday parks and these are likely to have a similar price point. I also consider that there is a degree of substitution between motels and hotels where the price differential is acceptable and the need to be able to self-cater is not essential. I also think that there may be some similar

[62] K. Counsell evidence, paragraph 4.8.
[63] Taupo occupancy rates are used to measure any potential shift occurring in Rotorua.
[64] There are some submissions that provide anecdotal evidence that visitors have found it harder to find accommodation (including accommodation that is not being run as mixed EH.

priced serviced apartments and holiday rentals (i.e. Airbnbs etc) that would be considered by those originally seeking a motel room. Mr Counsell acknowledges the potential substitution with holiday homes in paragraph 7.5 of his evidence.

216. I have analysed the Accommodation Dashboard data on nightly tariff price ranges in commercial tourist accommodation in Figure 30A. I have limited the data to stay units in Apartments, Motels, Hotels, and Holiday Parks[65] based on my assumptions above.[66] The data shows that CEH mainly occupies units that were priced $150-200/night or $200-250/night, with a very small share that were $300-350/night. The TH site has removed capacity that was priced $200-250/night. Wholly EH-SNG establishments (shown as EH) occupy establishments that were between $150-200/night and $300-350/night. Last, Mixed EH is concentrated between $150-200/night and $200-250/night (similar to CEH).

217. Operating establishments which include motels and accommodation types substitutable for motels being used for some form of EH or TH provide most capacity (50%) in the $250-300/night range, and some more expensive. However, they also provide 30% of their capacity in the $150-200/night and $200-250/night price range. There is definitely some price overlap between establishments still operating and those establishments being used for some form of EH/TH.

218. Figure 30B shows the data (where available) on the quantum of stay unit capacity in those tourist accommodation types that I consider substitutable with motels by price band. This further shows that not only is there price overlap between still operating establishments and EH establishments by price, but the operating capacity in those overlapping price ranges exceeds (in aggregate) the capacity lost to EH.

[65] I have examined the price range data of holiday parks in the Dashboard Data and it is clear that they relate to cabins/units and not tent sites.

[66] 20% of the establishments in these selected types that have stay unit data do not have price range data. The data is likely to still be representative of % trends, and will be moderately conservative for trends in the quantum of stay units.

Figure 30A – Share of Stay Units by Price Range and Establishment Status – excludes backpackers, lodges and bed & breakfast establishments

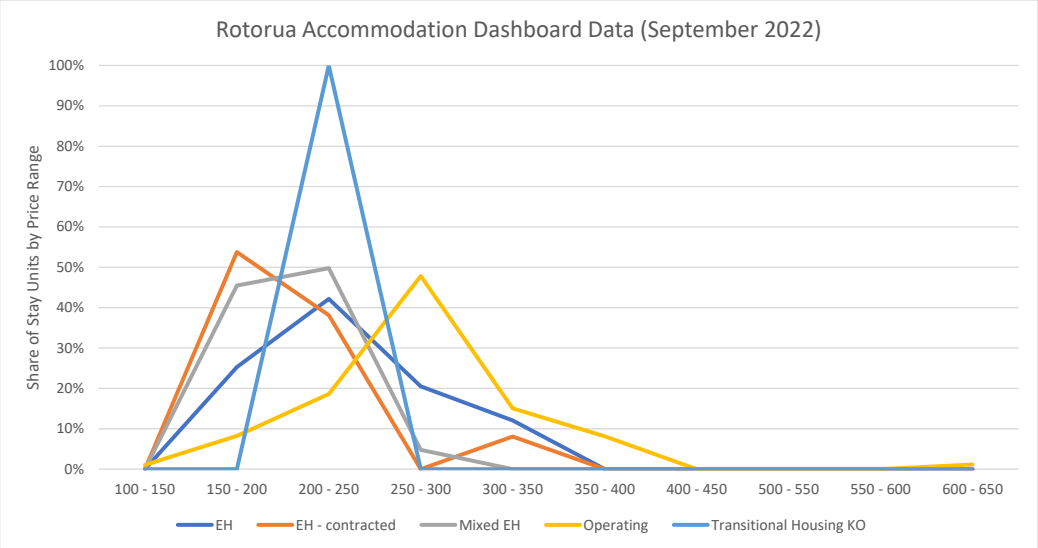
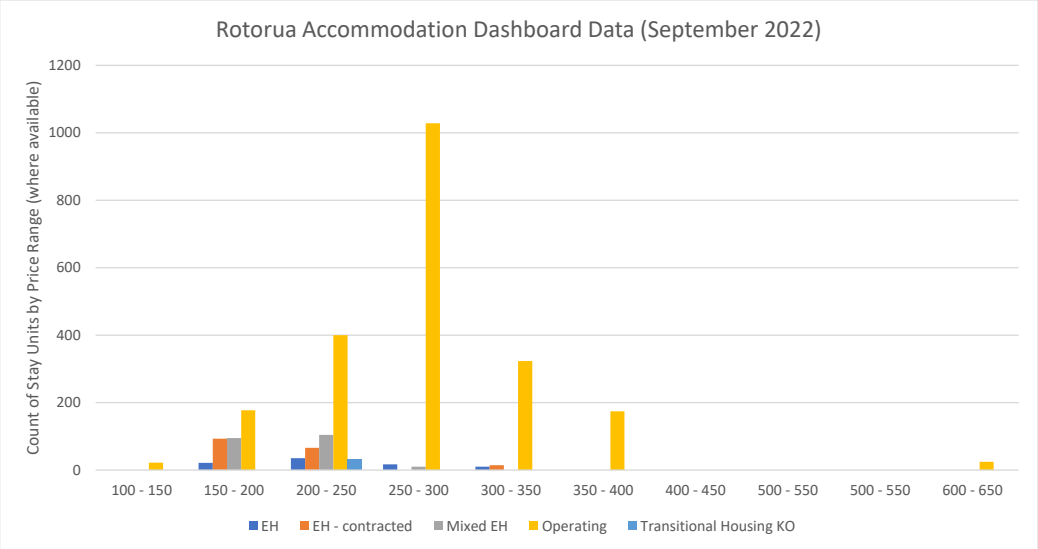


Figure 30B – Count of Stay Units by Price Range and Establishment Status – excludes backpackers, lodges and bed & breakfast establishments



219. While Mr Counsell discounts the potential for CEH capacity to be met by other operating tourist accommodation, I consider that there is potential from a type and price point of view.

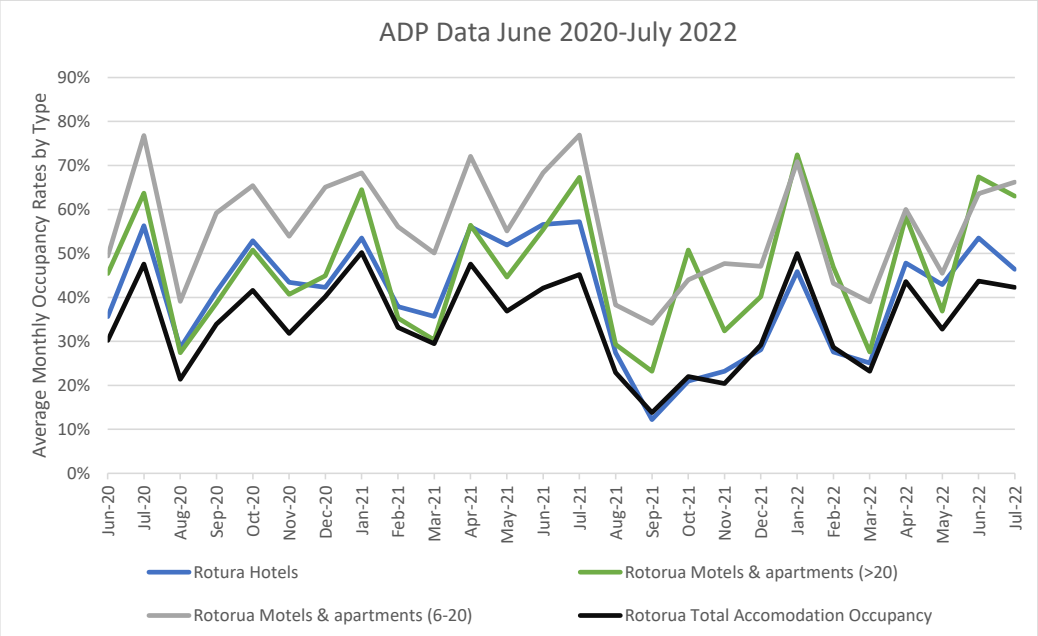
220. I agree that there is not a clear trend of increasing occupancy rates in active establishments relative to Taupo (a comparative market with little reduction in active establishments) but this is not sufficient evidence to say that demand is not, or could not be transferable. For example, in an interview with RotoruaNZ for this evidence, they pointed out that some

of the EH motels relied strongly on the 'Chinese small bus tour' market. That demand has not returned, and is not expected to return for some time. This is an example of there being no demand to transfer. It follows that those establishments least likely to benefit from the domestic tourist market during the pandemic were those that would be most likely to close or switch to EH.

221. There is a far more important trend in the occupancy data then simply the relativities with Taupo that Mr Counsell does not identify. That is the occupancy rates themselves. The occupancy indicator is very helpful because it captures both changing demand and changing available stay units at the same time. Care is always needed with using monthly occupancy averages as in the ADP data, as occupancy rates in hotels and motels is usually higher in the weekends and lower mid-week. Short term events also create a spike in occupancy. According to a report published by Fresh Info (who maintain the ADP), "*a monthly occupancy rate of 85-90% is generally considered to be difficult to sustain for a long period of time due to room maintenance cycles and the desire to have redundancy in the system when unforeseen issues arise*".

222. If 85-90% is the ceiling for a monthly occupancy rate, then Figure 31 shows that there has been spare capacity in active/operating tourist accommodation establishments since June 2020. Active hotels have had average monthly occupancy rate (June 2020 to July 2022) of 40% and a peak monthly rate of 57%. Smaller motels and apartment complexes have averaged 47% and had a peak monthly rate of 72%. Larger motels and apartment complexes have averaged 56% and had a peak month at 77%. Across all active accommodation types, the average has been 35% and a peak of 50%. This shows that active establishment capacity is below maximum sustainable guest arrivals, has broadly kept pace with demand over time and, has potential to accommodate further tourist growth even if supply does not change (which is unlikely).

Figure 31 – Average Monthly Occupancy Rates in Active Tourist Accommodation Establishments by Type



223. The occupancy data over the last two years is consistent with feedback from RotoruaNZ that the tourist accommodation sector has not had a material capacity issue over most of the period since the beginning of Covid. This includes the period when CEH has been operating.

224. The key and relevant question is whether tourist guest arrivals/nights will be constrained in the coming years. This depends on how demand is projected to change. Mr Counsell's evidence does discuss future tourist demand.

225. **Demand for Tourist Accommodation**: I have analysed Data Ventures data supplied by RotoruaNZ which shows the count of domestic visitors on the first of each month based on unique cell phone 'pings'. The data therefore captures all visitors (with cell phones) no matter what type of accommodation they are staying in (commercial, holiday homes, or staying with friends of relatives). It is still historical data and not future projections but the latter is not readily available. A benefit of the Data Ventures data is that includes at least a couple of months before the first Level 4 Lockdown in Mach 2020. It does not however include a full year of pre-Covid data to show seasonal trends.

226. The Data Ventures data shows that Rotorua has experienced similar visitor trends as the country as a whole. Figure 32A shows domestic visitors and Figure 32B shows international visitors. Notwithstanding the impact of the March 2020 and August 2021 Lockdowns on domestic tourism, there has been a is slight downward trend in domestic tourism in Rotorua district and nationally. However, the decrease in Rotorua is occurring at a slightly faster rate than the national average. This is reflected in Rotorua's reducing market share which in January 2020 was 2.8% of total New Zealand domestic tourists, reducing to 2.6% in January 2021 and 2.5% in January 2022.

Figure 32A – Count of Total Domestic Visitor Cell Phones in Rotorua District January 2020 to August 2022 – 1st of Each Month Only (Data Ventures)

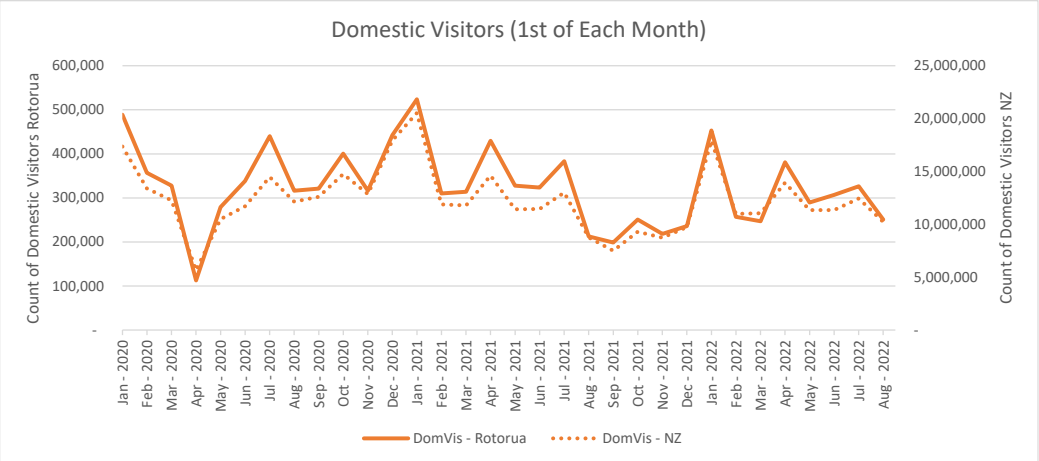


Figure 32B – Count of Total International Visitor Cell Phones in Rotorua District January 2020 to August 2022 – 1st of Each Month Only (Data Ventures)

227. Feedback from RotoruaNZ was that Tourism NZ's recent marketing campaign to encourage kiwis to 'try something new' which was combined with more funding given to rural Regional Tourist Organisations (RTOs) to market their destinations plus increasing damage to Rotorua's reputation (brand damage) (discussed separately below), has caused some domestic tourists to travel elsewhere instead of Rotorua.

228. Looking forward, I estimate that domestic tourism may stay at a similar level to that seen in 2022 over the medium term (say next 5-10 years), or further slow decline is also possible.

229. International guest arrivals are only just starting to return (Figure 32B). RotoruaNZ indicate that the recent damage to Rotorua's tourism image has not yet impacted overseas markets. The Tourism Export Council NZ (TECNZ) forecasts[67] the return of international visitor numbers to New Zealand "*will be a gradual process, a slow burn. In a year's time, we anticipate total number of annual arrivals by YE May 2023 will be approximately 55-60% of pre-COVID arrivals, by YE May 2024 an increase to 82-85% annual arrivals and by YE May 2025 we anticipate about 95% of pre COVID annual arrival numbers will have returned. By YE May 2026 we believe New Zealand will be back to pre-COVID visitor arrivals of 3.9million*."

230. Data Ventures data showed that in January and February 2020 (pre-Covid), international visitors made up around 20% of total visitors in Rotorua. This means that the return of international visitor demand will only have a moderate effect on projected total guest arrivals in Rotorua over the next 5 years and beyond. It is noted that international tourists have a greater propensity to stay in commercial visitor accommodation.

231. I therefore consider that demand for commercial guest nights is likely to increase slowly (with the usual fluctuations) over the next 5-10 years, taking at least five years to return to pre-Covid guest nights in commercial tourist accommodation.

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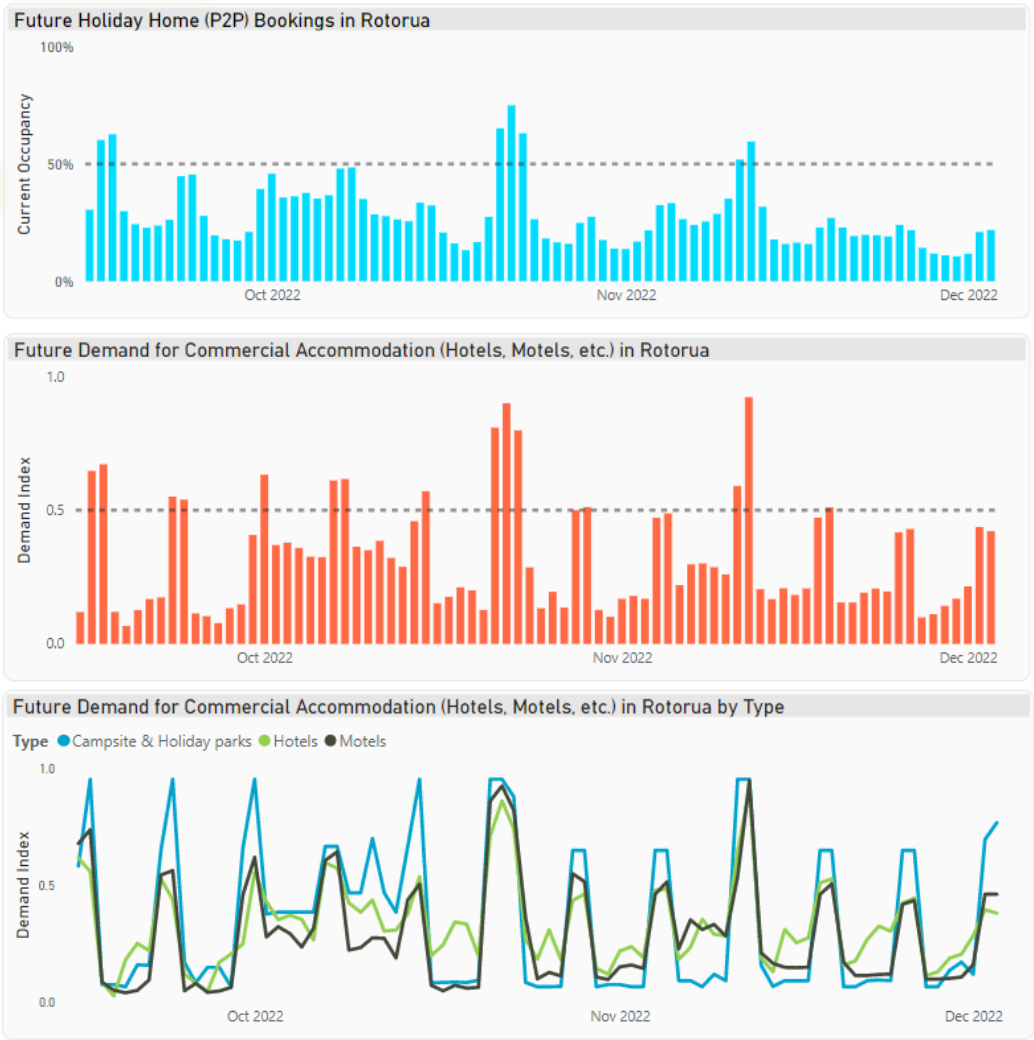
[67] https://www.tourismexportcouncil.org.nz/tecnz-update-forecast-and-commentary/ (June 2022)

232. RotoruaNZ provide a short-term projection of demand in holiday homes and total commercial tourist accommodation. Figure 33 shows that projection out to early December 2022. On discussing future capacity with them, they indicate that they may see the first notable capacity constraint in the last two years in November this year – related to a concert planned at the Rotorua International Stadium. This is a potential constraint lasting one night. Overall, I anticipate that even if there were no further increase in operating/active stay unit capacity in the next five years or so (very unlikely) that there will be scope to accommodate projected demand much of the time, with capacity constraints limited to specific events of very short duration, gradually becoming more apparent in peak seasons (summer).

Figure 33 – Projected Tourist Accommodation Demand and Occupancy Mid-September to Early December (Rotorua Insights Data)



233. It is far more likely that commercial stay unit capacity will continue to increase as international demand grows (continuing recent trends). For example, there are three backpackers that are currently closed (and not being used for EH) in the CBD that would be expected to re-open (or new backpackers could replace them) as young, free independent travellers (FITs) return. While not ideal, mixed EH motel establishments can scale up tourist accommodation and scale down EH if they want to capture some increased demand. A sinking lid of non-contracted EH establishments may[68] be achievable. New premises may be developed. This market response will reduce the probability and scale of any capacity constraints over the duration of the CEH consents.

234. **Effect of CEH on tourist guest nights**: Mr Counsell considers the effects of 6 CEH sites on future tourism capacity and guest arrivals based on his data of the existing environment (which includes 54 establishments being used for EH/TH and five hotels being used for MIQ), and the assumption that demand cannot be transferred to remaining operating establishments. Without consideration of future demand, current occupancy rates for active capacity, and the potential for the market to increase capacity in response to demand, he concludes that the reduction in guest arrivals will be more than minor and a long-term effect.

235. Based on my analysis, including of more current and comprehensive data, I disagree. I consider that retaining the 13 CEH motels (if consented) will have a less than minor effect on the existing environment of tourism capacity, and while some capacity constraints may (if the market does not fully respond in time) be experienced periodically over the next five years, those periods may be short in duration and infrequent, especially in the short term. The potential loss (opportunity cost) of guest arrivals over the next five years associated with any shortfalls in capacity is likely to be minor relative to the annual volume of guest arrivals that can and will be accommodated.

[68] Subject to further information to be provided by MHUD.

236. Importantly, those periods of constrained capacity (lost guest arrivals) are not fully attributable to the 13 CEH sites. There is one establishment that has ceased to operate as tourist accommodation (permanently closed). A very small amount of future capacity shortfalls can be attributed to that closure. There are 456 stay units currently being used for non-contracted EH. While this number may reduce over time, some of the future capacity shortfall can be attributed to those establishments. There are 209 stay units currently within mixed EH establishments. While this number may reduce over time, some of the future capacity shortfall can be attributed to those establishments. 13 CEH sites take out 295 stay units for the duration of their consent. Currently, this accounts for only 7% of the original stay unit capacity in tourist accommodation. It is therefore only appropriate to attribute a modest share of any future capacity constraints (guest arrival losses) to CEH. Proportionally, a moderate share of a minor effect is less than minor effect attributable to CEH if consented.

237. **CEH effect on tourist accommodation capacity relative to the permitted baseline**: Mr Counsel does not consider the effects of CEH on capacity and guest arrivals in the context of the permitted baseline (only a static view of the existing environment). As discussed above, in the absence of EH unlawfully established in tourist accommodation, the counterfactual scenario of tourist accommodation was unlikely to be continuation of the status quo due to the significant effects of Covid-19. Nonetheless, if we assume that the closed establishments remain closed and the EH and Mixed EH establishments are retained as operating tourist accommodation, and we take out only the consented TH, then operational stay unit capacity could be 3,749. Capacity would, in theory be at 92% of the previous maximum capacity. Taking out the 295 stay units in CEH would represent a minor loss of 8% of capacity.

238. Given projected demand, and occupancy rates for the next five years that would be even lower under this scenario (given the greater number of establishments theoretically operating), I consider it highly likely that the market would be able to accommodate 100% of future demand

(including the event market) despite the loss of the CEH motels. There would no material loss in guest arrivals and therefore no material opportunity cost on tourism spending.

239. **Effects on the tourism economy (businesses reliant on tourism spend)**:

240. Mr Counsell provides evidence on the flow-on economic effects of a reduction in tourism expenditure. His summary on the way that tourist expenditure supports a range of businesses in the economy directly and indirectly is correct. His summary of the potential economic effects on businesses from a decrease in tourism expenditure is also correct.

241. I am unsure of the merit of excluding accommodation spend from his analysis, given that there is a supply chain that supports tourist accommodation. Further, if used to show a loss of tourism spend associated with a loss of guest arrivals, then there is an opportunity cost for the accommodation spend also.

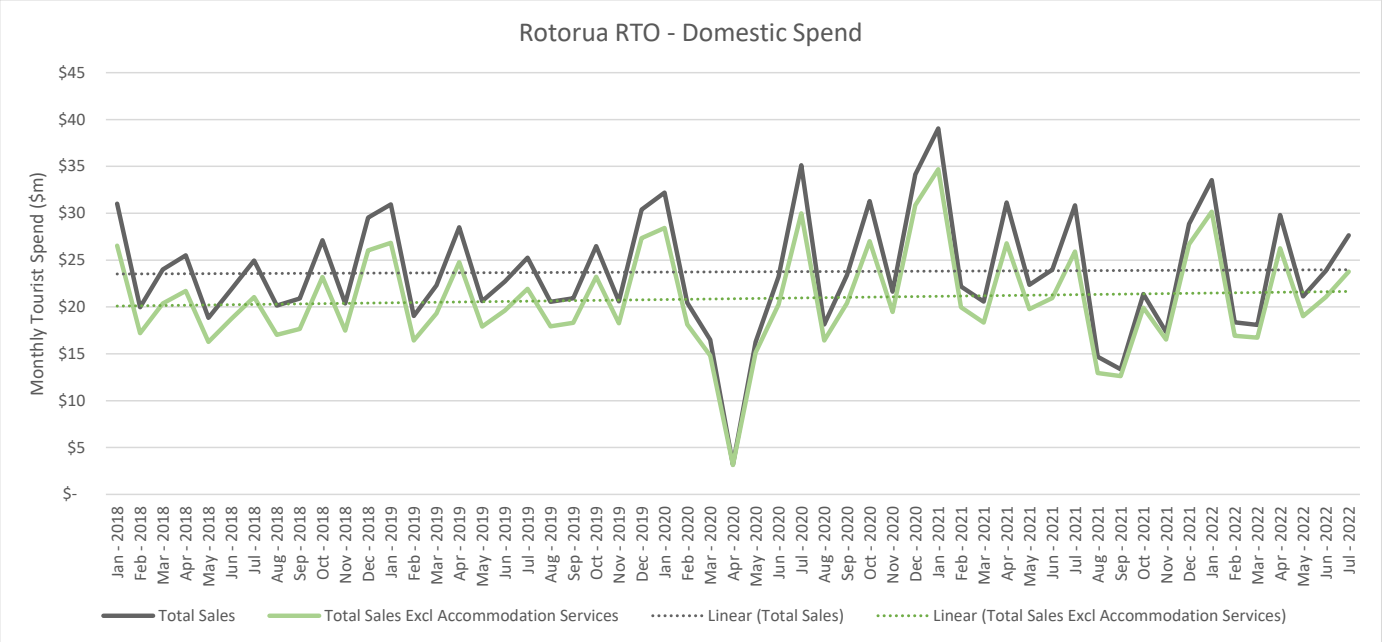
242. In paragraph 4.13 of his evidence, Mr Counsell states that "*there is some evidence to suggest that a reduction in tourism expenditure is already occurring, presumably as a result of a fall in active accommodation establishments throughout 2021 as previously illustrated*". Firstly, tourism expenditure is driven by tourism arrivals. If there has been no constraint on capacity in the last two years, as RotoruaNZ and occupancy data confirm, then any change in demand is not attributable to a fall in active establishments. There may be other contributors to a fall in visitor spend, including the effects of Covid Lockdowns (especially for the Auckland market[69]), the change in Rotorua's reputation (discussed further below), rising inflation/cost of living and more.

243. Second, I do not consider that there is evidence of a decrease in domestic spending when looking at the latest data. Again, Mr Counsell focusses on the relative spend compared to Taupo and not the actual spend – which is the relevant determinant of changes in economic conditions for businesses. At the time of his evidence, the Tourism Electronic Card Transaction (TECT) data that Mr Counsell used was showing the effect of

[69] Mr Counsell acknowledges this later in paragraph 4.19.

the Auckland Lockdown. Figure 34 below shows data up to July 2022 for domestic tourism spend (with and without spend on Accommodation services). The data trend lines show a very slight increase in domestic tourism spend since January 2018, particularly for non-Accommodation spend. Total non-accommodation domestic tourist spending in 2021 was up 5% on spend back in 2018.

Figure 34 – Tourism Electronic Spend data (TECT) – Domestic Spend in Rotorua RTO January 2018 to July 2022



244. International visitor spending is significantly reduced (but starting to return), so total tourism spend is still down on pre-Covid spending. Businesses that serve tourists are therefore not in as good a position as they once were, but I disagree that this has been caused by EH or CEH occupying tourism accommodation capacity per se.

245. Looking to future tourism spending, based on my estimates of projected guest arrivals, this will increase slowly with the return of international tourists and with it, net spend will increase.[70] Business conditions in the tourism sector will continue to improve.

[70] Even if domestic tourism decreases slightly, and domestic spending with it, because international visitors spend much more than domestic visitors, the net increase in spending will occur at a faster rate than the rate of guest arrivals.

246. **Loss of spend associated with CEH motels**: In section 5 of his evidence, Mr Counsell provides estimates of the annual loss of non-accommodation spend in 6 CEH motels. He calculates that not using the motels for tourist accommodation will result in an opportunity cost of $13.7m. Using Mr Counsell's estimate of $90,000/annum per stay unit, I estimate that all 13 CEH would equate to a cost of $27.0m/annum under his approach. To put this in context, this is 11% of total non-accommodation domestic tourism spend in 2021 in Rotorua District according to the TECT data.

247. I consider this aspect of Mr Counsell's evidence to be of limited relevance. This lost spending that he estimates would only apply if there will be demand to fill the motels (at the same occupancy of active motels in 2021) and if that demand cannot be accommodated in other establishments. Based on my evidence, I think neither situation applies to the extent that Mr Counsell portrays. When considering potential future demand for guest arrivals, the aggregate capacity of operating stay units to accommodate that demand and only very short and infrequent periods of potential capacity constraints and lost guest arrivals over the short term on an annual basis, then it is only the spend of those lost guests that can be counted. As discussed above, the CEH sites can only be apportioned a modest share of that minor annual loss.

248. **Conclusions of tourism capacity effects**: EH has grown in Rotorua during a period of supressed demand (namely due to the loss of international guest arrivals). The data indicates that guest arrivals are unlikely to have been materially constrained by available capacity over the last two years. Minor and short term periods of constraint are likely to start appearing as international tourists return (and before the end of 2022), but the opportunity cost for tourist arrivals will be minor in my view. Over the course of the next five years (and beyond) there are multiple ways that the market could respond to meet tourist demand and increase available capacity. This will mitigate the probability and scale of potential shortfalls going forward. Relative to the permitted baseline, I consider that the

effect of consenting up to 13 motels as CEH is expected to have a minor effect on tourist accommodation capacity.

249. **Tourism reputation effects**: The Summary of Submissions identified adverse effects on the tourism sector and adverse effects on the amenity/reputation of Rotorua as the 4th and 5th most common submission theme respectively. Some of these submissions were focussed on the reputation of Rotorua as a place to live, but my evidence focusses on reputation of Rotorua as a place to visit. Adverse effects on Rotorua's economy was the 10th most common theme.

250. The Beca SIA report addresses effects on tourism character in section 6.2.1. The community identify the effect of Covid on the character of tourist accommodation areas (loss of vibrancy with the decreased presence of tourism, but also some closed premises) which needs to be distinguished from the effect of alternative uses of tourist accommodation for EH/CEH (a downward shift in the desirability of the area – both physical appearance of some establishments and increased crime). The Beca SIA concludes that CEH motels are likely to have negligible to low negative impact on the tourism experience and reputation of Rotorua as a place to visit when considered against the existing environment.

251. Section 6.8 of the Beca SIA discusses effects on the fears and aspirations of the community to retain and develop its reputation as a desirable tourist destination. "*The use of motels as emergency accommodation was viewed by many as a deterrent to tourists. Reasons cited included tourists experiencing sharing accommodation with people who were using it for emergency housing, witnessing environmental degradation (vandalism and rubbish) in highly visible spaces (i.e. Fenton Street) and anti-social behaviour and/or reading about Rotorua's social issues in the media*" (Beca SIA, page 49). It was noted that community awareness of the CEH service model was limited, and the community did not effectively distinguish CEH from other forms of EH.

252. The Rotorua Business Chamber said back in December 2020 (before CEH but after EH had become firmly established in Rotorua) that "*Rotorua has become known as a place of homelessness, unemployment, gangs, drugs and crime*". The Beca SIA concludes that CEH motels are likely to have negligible impact on the aspirations of the community to attract visitors back to Rotorua when considered against the existing environment.

253. The Beca SIA referenced a media article that said that there were mixed opinions on the causal factors of the damage to Rotorua's reputation as a tourist destination. Causal factors include:

(a) Poor guest experiences in mixed EH establishments (with online reviews having a compounding effect);

(b) increased crime and antisocial behaviour which presents a poor image of the city to visitors; and

(c) media coverage of EH which is presenting a poor image of Rotorua to the whole country and potentially overseas.

254. Another cause identified in the Beca SIA interviews was a deterioration of the quality of accommodation stock, which has been occurring over many years. This effect can also be found in RLC's 2021 Destination Management Plan which stated that "*much of the motel accommodation along Fenton Street is now considered to be tired and run down and these motels can create the perception that the destination is tired and dated*" (page 20, Beca SIA). I note that Submission 169 (James Warbrick) for 'Whakarewarewa – This Living Māori Village' spoke of Fenton Street being filled with "*shiny looking motels and hotels, with well-manicured lawns and pristine gardens*". I wonder if that was a reflection of the visual amenity many years ago.

255. I spoke with RotoruaNZ when preparing this evidence. They provide a consistent view that Rotorua is experiencing growing reputational damage and this is causing a loss of bed-nights. They were aware of bad customer experiences in mixed EH establishments. Thanks to social media and online review platforms, these complaints get lots of exposure. They also cited the constant media coverage of EH (and related

effects) as directly damaging Rotorua's reputation in the domestic tourism market. After the airing of the recent episode on the Sunday programme (4 September 2022), they were aware that one accommodation provider had 4 cancellations the next day.

256. RotoruaNZ also attributed too many poor-quality motels to Rotorua's declining image. These are the motels that are mostly being used as EH and Mixed EH establishments. Of all '3 star' rated motels, hotels and lodges in Rotorua, 32% are being used for EH, 23% are being used for mixed EH, 7% are being used for CEH, 6% for TH and 32% are still operating as tourist accommodation. While EH (in any form) has removed many of these low-quality motels from the pool of accommodation available to tourists (albeit not entirely for mixed EH) – helping improve the reputation of the quality of Rotorua's tourist accommodation – the use of them by EH is likely having a greater off-setting negative effect.

257. RotoruaNZ felt that Rotorua's international reputation is not yet damaged, but the risk is that it could be soon.

258. There is limited data to directly demonstrate the effects of EH generally, and CEH specifically on Rotorua's 'reputation'. However, the Data Ventures Data discussed in Figure 32A and paragraph 225 above confirms that Rotorua is experiencing a decline in its market share of national domestic tourists. In the first 8 months of 2022, domestic tourists were down -11% or 314,000 on the first 8 months of 2021.

259. As discussed, some of this decline is attributable to the increased marketing of less traditional tourist destinations post-Covid, but I consider that damage to the reputation of Rotorua (which has been occurring incrementally over time but accelerated in recent times due to escalating media coverage of EH and crime), is also having an effect on reducing demand. However, I cannot measure the adverse effect of EH (under all models) on Rotorua's reputation with any certainty.

260. My estimate is that EH collectively has had a more than minor impact on Rotorua's tourism reputation in the last 12 months and if this continues over several more years, the economic effects could be significant.

Experiences in mixed EH is likely to be relatively more damaging on tourism reputation than the effects of dedicated EH establishments on the amenity of accommodation areas like Fenton Street. My sense is that media coverage of EH issues in Rotorua is now doing the greatest damage as it has elevated it to a national issue, and not just an issue for those thinking of visiting Rotorua.

261. I agree with the Beca SIA report that consenting CEH is likely to have a limited effect on the existing environment. However, relative to the permitted baseline, I consider that 13 CEH sites are likely to have had only a minor effect on Rotorua's tourism reputation to date, and that effect will remain only minor if consented.

262. If consented, I would recommend that CEH sites remove all signage that identifies them as tourist accommodation for the duration of their contract. This will help mitigate the effect of tourists associating any adverse 'on the ground' effects of those sites with Rotorua's tourism industry. I would also recommend that the sites remove their online presence (websites and inclusion on online booking platforms) for the same reason.

POSITIVE ECONOMIC EFFECTS

263. This section of my evidence sets out two positive economic effects likely to arise from CEH (if consented). These are employment effects and household spending effects. Both are considered minor effects at the district level.

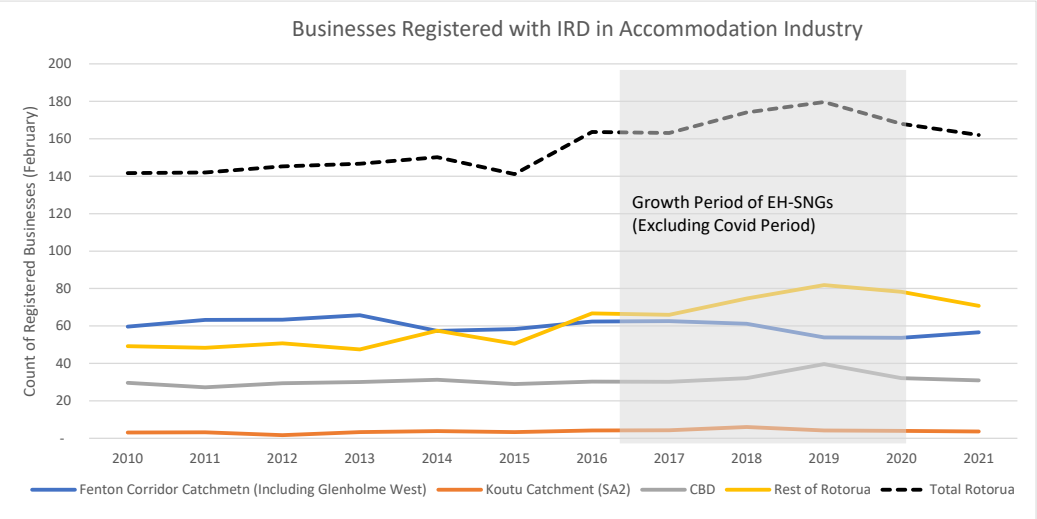
264. **Employment effects:** Tourist accommodation businesses, including those that are owner-operators[71], directly support job opportunities in a range of roles including (but not limited to) reception staff, cleaners, and in the case of hotels, restaurant staff. In total, the tourist accommodation sector directly accounted for around 5% of total Rotorua employment (including working proprietors) in 2021.[72]

[71] Motels, lodges, bed & breakfast and holiday parks are often run by owner-operators. They provide owners with both employment and financial returns.
[72] Source: StatisticsNZ Business Frame – Subdivision Level – 2020.

265. Tourist accommodation businesses indirectly support upstream suppliers including businesses that provide laundry services, food and drink products, furniture and other homewares retail/wholesale, consumables, construction and building maintenance services, and professional business services such as accountants, lawyers, marketing, web-design and more. They (via their guests) also indirectly support downstream businesses, like tours, transport, cultural and recreational services, retail and hospitality. Both the Beca SIA and Mr Counsell's evidence reference figures on the role of the 'tourism economy' in Rotorua. Such figures factor in the direct, upstream and downstream employment sustained by tourist spend.

266. Data from the StatisticsNZ Business Frame indicates that the number of businesses registered as tourist accommodation between 2016 and 2020 increased by 4 across the Rotorua District (+3%). In the Fenton Corridor, tourist accommodation businesses decreased by 9 (-14%) in that period. There was no net change in the Koutu catchment, the CBD increased by 2 accommodation businesses (+6%) and the Rest of Rotorua saw an increase of 12 accommodation businesses (+17%) (Figure 35).

Figure 35 – Count of Accommodation Registered Businesses in Rotorua by Catchment 2010-2021



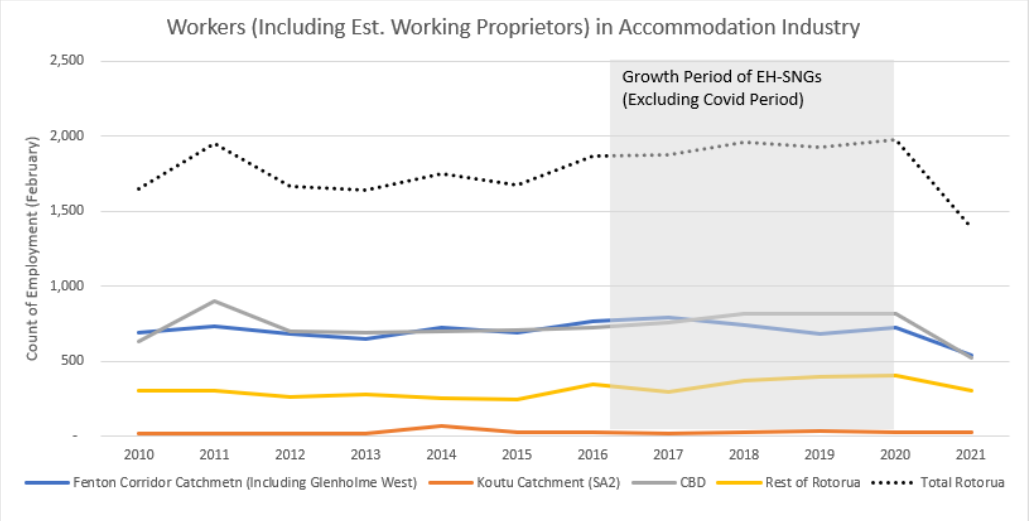
267. The reduction of only 9 businesses registered as tourist accommodation in the Fenton Corridor between 2016-2020 is much less than the number

of tourist accommodation establishments that switched to mixed EH and wholly EH (to cater for EH-SNG demand growth) during that 2016-2020 period.[73] This shows that those businesses that were no-longer operating as tourist accommodation were still identified as tourist accommodation enterprises as far as StatisticsNZ are concerned. This is helpful in that it means we can monitor what effect the change in use of some tourist accommodation establishments to provide for EH (of all models) has had on direct employment in the accommodation industry. This is because staff directly employed by those establishments will continue to be assigned to the tourist accommodation industry because they are linked (in the data) to the registered business, which has not changed industry.

268. Figure 36 shows employment (including estimated working proprietors) in the tourist accommodation industry by catchment in Rotorua. The data is captured annually in February. Between 2016 and 2020, employment overall in Rotorua in the tourist accommodation industry grew by 109 workers (+6%). In the Fenton Corridor, there was a reduction of 42 workers (-6%). In the Koutu catchment the decrease was just one worker (-5%). Accommodation industry employment grew in the CBD and Rest of Rotorua in line with business growth in those catchments.

[73] As discussed above on tourist effects, in September 2022 the Accommodation Dashboard data shows 26 EH establishments excluding CEH in the Fenton Corridor catchment. Figure 1 of my evidence also showed that 9 of the 12 CEH sites in the Fenton Corridor were providing for EH in 2020.

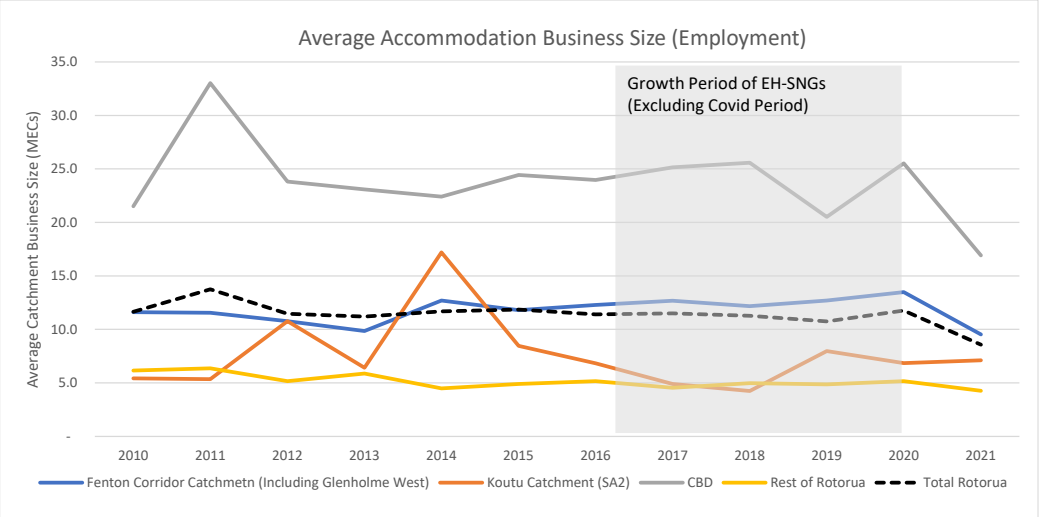
Figure 36 – Count of Workers in Registered Accommodation Businesses in Rotorua by Catchment 2010-2021



269. The reduction in tourist accommodation employment in the Fenton Corridor between 2016 and 2020 (-6%) is moderately less than the loss of businesses (-14%) in that period. As a general rule, employment would be expected to change relative to the changing number of businesses (although the relationship is not always neatly linear). However, the data shows that employment in the accommodation industry has performed slightly better than might have been expected in the Fenton Corridor catchment, albeit that it was still a minor reduction in employment in absolute terms.

270. Figure 37 confirms this effect. It shows the average number or workers per accommodation business. Between 2016 and 2020, accommodation businesses in the Fenton Corridor grew slightly in size, increasing from 12.3 workers per accommodation business in 2016 to 13.5 workers per business in 2020.

Figure 37 – Average Count of Jobs per Accommodation Business by Catchment 2010-2021 in Rotorua District



271. Given the significant number of EH establishments (mixed EH and wholly EH) operating in the Fenton Corridor at that time, this analysis suggests that providing for EH-SNGs is likely to have had a minor positive effect on <u>total</u> employment within businesses registered as tourist accommodation at the catchment level. It has potentially sustained slightly more jobs per business than tourist accommodation would have.

272. It is possible, that the averaging of the data within the Fenton Corridor catchment is masking trends whereby relatively more jobs are being sustained by those businesses still providing tourist accommodation and relatively less jobs are being sustained by those businesses operating as EH. We know that there has been some transfer of guest arrivals to remaining operating tourist accommodation (i.e. submitter feedback that they have benefited from an increase in occupancy[74]), but I consider it more likely that increased occupancy has helped increase staff productivity as opposed to sustaining new jobs. On balance, I consider it is more likely than not that the switch of tourist accommodation businesses to EH has allowed them to employ the same number of staff, or slightly more.

[74] Submitter: Sliver Fern Rotorua Accommodation and Spa.

273. The roles required to support EH establishments may be different from the roles sustained in tourist accommodation establishments. For example, it might have relaced some cleaning roles with security roles employed directly by the operators. However, in net employment terms the effect is still positive, but minor.

274. The graphs above also show the significant effect of Covid on registered businesses and employment in the accommodation industry to February 2021.[75] Employment in the accommodation industry decreased by -30% across the total district in that year. The decrease in the Fenton Corridor and Koutu Catchment was -26% and -5% respectively (below average). The CBD had the biggest drop in employment (-36%), but also had the greatest share of business closures.

275. These effects will have been borne by tourist accommodation that was still operating at the time, with establishments already providing for EH at the start of 2020 benefiting from Covid, rather than suffering from it (i.e. demand for EH increased at that time). Based on the data over the 2016-2020 period, I consider it likely (but not certain) that the use of a large number of tourist accommodation establishments as EH may have softened the total loss of employment in the Fenton Corridor catchment between 2020 and 2021. In other words, the employment loss could have been even greater had all establishments still been operating as tourist accommodation just prior to Covid.

276. Unfortunately, the data does not show the time when CEH first started (June 2021). However, like EH establishments that existed before the CEH model was introduced, I consider that CEH is an activity that supports direct employment in Rotorua District (including working proprietors of the motels) and may support a similar or slightly greater number of total direct jobs than those businesses would have sustained as tourist accommodation in the current market, i.e. a minor positive employment effect.

[75] 2022 data from the StatisticsNZ Business Frame is not yet available.

277. The nature of the jobs are likely to be slightly different, but with some overlap retained. CEH is still a commercial operation and therefore indirectly supports upstream employment just as a motel would, albeit in a slightly different mix of sectors (less marketing and laundry services perhaps and more waste management, maintenance services and electricity for example). CEH is also likely to be sustaining new downstream jobs in the social services industry in Rotorua.

278. As MHUD funds the direct operation of CEH sites (and some downstream support services I understand), these minor positive employment effects are attributable to the net additional Central Government funding being spent in Rotorua (and assuming it would not have been spent here under the permitted baseline scenario).

279. **Increased household spend from non-local EH occupants**: The data supplied by MSD shows that around 30% of occupants in EH in Rotorua were not residing in Rotorua one month prior to receiving an EH-SNG.[76] The disproportionate EH 'burden' that Rotorua has been forced to take on by Central Government, is a key issue raised by many submitters.

280. Households spend money in the local economy across a range of sectors, supporting jobs and businesses. A minor positive effect of EH-SNGs being used in Rotorua by non-local households is that it brings net additional household spend (commensurate with low-income households) to Rotorua that would not otherwise have been expected (or projected). This provides a boost in household final demand that may help offset the loss of international visitor spend in some sectors of the economy.

281. To the extent that occupants of CEH sites will also include some households that were not previously residing in Rotorua, a minor positive economic effect on spending in the local economy can be expected.

CONCLUSIONS

282. I have considered 4 key areas of likely or potential adverse economic effects of consenting CEH by looking at recent trends and projected

[76] Contained in Rebecca Foy's evidence.

changes over the term of the consents. I have also considered positive effects of consenting CEH. I have provided conclusions at the end of each section of my evidence, and for brevity, summarise just my key conclusions on the effects of consenting CEH relative to the permitted baseline:

(a) Crime and other antisocial behaviour: No adverse effects at the district level. At the local community level, a minor adverse effect on crime, incidents and Police activity in both the Koutu and Fenton Corridor catchments. Insufficient data to inform adverse effects specifically on properties neighbouring CEH.

(b) Property values: No adverse effects at the district level. At the local community level, a more than minor but not significant adverse effect on private property values in both catchments. Research indicates that effects on neighbouring properties are no greater that average adverse effects across the local community.

(c) Tourist accommodation capacity: a minor adverse effect at the district level and no adverse effect (opportunity cost) on tourist arrivals and spending.

(d) Tourism reputation: a minor adverse effect at the district level.

(e) Total direct employment in the tourist accommodation industry: a minor positive effect on employment at the local community level.

(f) Household spend in the local economy: a minor positive effect attributable to CEH occupants that are not Rotorua residents.

283. The above effects are considered temporary and limited to the duration of the consents (or contracts, whichever is the lesser). The exception is reputational effects on the basis that perceptions can be slow to change. Those minor effects may take some additional time to disappear.

284. My conclusions are based on the effects of consenting all 13 CEH sites. From an economic perspective, I therefore support all sites being approved on the basis that the cumulative effects do not result in more than minor effects. If it is decided to consent fewer CEH sites, then actual

or likely adverse economic effects (and positive effects) will be further reduced.

285. As discussed early in my evidence on the potential future demand for EH/CEH in the coming years, I currently support a five year consent term for each site, but it is hoped that further detail can be given on MHUD's view of demand and the solution to the temporary use of visitor accommodation for CEH, so that my conclusion on consent period can be confirmed (or amended).

286. My other recommendations to the Hearings Panel on potential consent conditions that would help mitigate economic effects are set out in my Summary of Evidence (paragraph 29), and I do not repeat them here.

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Natalie Hampson

22 September 2022

Attachment 1

Sequeira, V. and Filippova, O., 2021. Does concentration of social housing influence house prices? Evidence from New Zealand.

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Does concentration of social housing influence house prices? Evidence from New Zealand

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Abstract

Purpose – Housing affordability in New Zealand is placing significant pressure on the country's social housing sector with increased demand for public sector accommodation. A common belief suggests that social housing has a negative effect on nearby residential property values. This study aims to develop proximity and concentration measures of social housing to determine if their spatial distribution affects property values.

Design/methodology/approach – Using over 32,000 residential sales transactions from Auckland (New Zealand) during a three-year period (2014–2016), this study applies standard hedonic OLS framework with the addition of spatial autoregressive model and spatiotemporal autoregressive model to test if proximity and concentration of social housing influence residential property values.

Findings – The research found that private houses that share boundaries with public housing are discounted by 1.7%–3.3% depending on the socio-economic status of the submarket. The authors find that wealthier submarkets are better equipped to absorbing negative externalities attached to social housing. Proximity measures tend to peak at 250 m, with houses discounted up to 5% within that distance. Concentration levels of social housing had a greater influence on the private residential market. At low levels of concentration, houses in areas of high and low socio-economic levels were discounted by approximately 6.5%. The discount does not remain uniform and the gap between the two areas is apparent at medium and high concentration levels. The negative effect was the highest – 23% – in the neighbourhoods that were socially and economically deprived.

Originality/value – The study's findings can assist policymakers in informing strategies on the future social housing initiatives. The findings suggest that a dispersed development strategy that incorporates a balanced mix of tenure and socio-economic groups should be preferred over a high-density social housing concentrated in already deprived neighbourhoods.

Keywords Social housing, Housing affordability, Social housing concentration, Hedonic model, New Zealand, Sociotemporal, Concentration of social housing

Paper type Research paper

Introduction

New Zealand has joined a growing number of countries in the world where housing has become increasingly unaffordable. As of 2018, house prices in New Zealand have been around 60% overvalued compared to incomes and around 120% overvalued compared to fair rents (The Economist, 2018). There is a growing number of households who find themselves experiencing a severe and immediate need for housing, putting additional pressure on the social housing sector (MSD, 2017). While the central government is responsive to this need, it is also in a constant battle with private property owners to deliver the right mix of social and market housing where required (Niall, 2018). Property owners fear that stigma associated with social housing (Dear, 1992) would diminish the values of their homes. In New Zealand, Housing NZ Corporation (HNZC) [1] is the largest social housing provider and the largest residential landlord. Smaller providers supplement the stock of state-provided housing, known as community housing providers (CHPs).

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Historically, governments have grappled with balancing their responsibility to provide adequate shelter for all its constituents and satisfying the concerns of private homeowners. As nations around the world experience rapid urbanisation, policymakers will come under significant pressure to deliver more houses in this environment. In markets with upward pressure on house prices, social housing is undergoing transformation from traditional detached dwellings to high-density housing often incorporated in mixed-income housing developments. In this research, we investigate if proximity and concentration of social housing impact values of private dwellings. There is a risk that projects placed in areas that are already deprived or already have a high concentration of social housing may create a cyclical poverty issue within those marginalised communities (Table 1).

NIMBY (not-in-my-backyard) attitudes often emerge as a basis for opposing social housing motivated by protecting their own interests, namely, the value of their private homes. Studies on the consequences of residential segregation (commonly by race or socioeconomic status) have found links to the creation of spatial concentrations of poverty and presence of social housing is viewed as negative externality (Kain, 1968). Sandler (2017) evaluated the potential for negative externalities from public housing by examining crime rates before and after demolition of public housing projects in Chicago between 1995 and 2010, finding that in neighbourhoods where poorly maintained stock was demolished saw the largest drop in crime rates. In addressing the question if higher concentrations of social housing decrease values of nearby houses, this will provide evidence to policymakers and urban planners in determining the optimal mix of social housing in established neighbourhoods.

Literature review

Authors who have studied the effects of subsidised housing on property values fall on either side of a core ideology: NIMBY-ism. This term refers to the protectionist attitudes and tactics used by residents towards unwanted development in their neighbourhood (Dear, 1992). An independent report by the Australian Housing and Urban Research Institute (AHURI) explored community opposition to affordable housing development and found evidence that redevelopments and relocation of social housing into other areas can create a NIMBY effect which can reinforce rather than resolve stigmatisation for individuals (Davison *et al.*, 2013).

Santiago *et al.* (1999), through focus groups, found that many residents in subsidised housing areas held stereotypical attitudes that government housing programs were

Demographic profile	Auckland City	Manukau City
Population	467,604	457,848
Median household income	$96,609	$86,101
Median age	34.7	31.4
Ethnicity: *European*	53.48%	32.79%
Maori	8.19%	16.29%
Pacific	12.54%	30.20%
Asian	32.13%	32.37%
Other	4.06%	2.64%
Total social housing units	10,024	8,670
Community housing provider titles	2,423	132
HNZC titles	7,601	8,538
Total land titles	194,982	115,777

Table 1. Demographic profile and land ownership details of the study area

synonymous with "bad landlords of bad properties housing bad tenants", a clear generalisation that diminishes support for social housing projects. Dear (1992) found, within the social housing context, there is one universal factor in all NIMBY conflicts, geographic proximity. The closer people are to social housing, the more they will oppose it.

Social housing research methods are broken into two distinct streams. Nguyen (2005) referred to these as first- and second-wave researchers. First-wave researchers, dating back to the 1960s, used simple test and control areas to isolate the effects of social housing on property values. Property is fundamentally heterogeneous and authors found comparable neighbourhoods were difficult to locate (Nourse, 1963; Schafer, 1972; DeSalvo, 1974). Nourse (1963) is one of the earliest referenced studies that used test and control areas. Researchers found it impossible to find test and control neighbourhoods that were similar apart from the fact that the test neighbourhood had a presence of social housing. The study suffered from a weak methodology that relied on anecdotal evidence, personal knowledge and informal discussions with appraisers. Such studies only analysed the impacts of social housing presence lacking a more comprehensive approach with regard to proximity and concentration of social housing within a neighbourhood.

Post-1990 studies, the advent of second-wave researchers, used significantly superior analytical techniques, larger datasets and incorporated the use of GIS. Researchers used hedonic regression methods to isolate the impacts of social housing while controlling for demographics, structural quality, neighbourhood characteristics, macro-locational amenities, distance from affordable housing, housing market cycles and type of social housing program (Lyons and Loveridge, 1993; Galster *et al.*, 1999; Santiago *et al.*, 2001). Research has been mostly originating within the USA. The three main areas authors focus their discussion are with regard to the presence of social housing, proximity to social housing and the less discussed topic of social housing concentration.

The social housing sector in Europe has been developed over decades and is at a mature stage of its development. The region faces different tensions and forces from New Zealand. The majority of countries have accepted social housing as a structural part of their housing sector. Unlike New Zealand (Ali, 2019), the community opposition to the projects is not as prevalent and the focus of the discussion has shifted towards location and social mix of social housing projects (Scanlon *et al.*, 2014). However, similar to New Zealand, the current debates include supply, segregation, funding, rents and tenure mix/use.

A meta-study of social housing in Europe analysed several key European countries in relation to the provision, supply constraints, political frictions and funding requirements of the social housing sector. In the countries studied (Austria, Denmark, England, France, Germany, Hungary, Ireland, The Netherlands and Sweden), social housing as a percentage of the housing stock ranges from as high of 35% in The Netherlands to a low of 4% (following mass privatisation) in Hungary. Ethnic minorities live disproportionately in social housing, often on large estates – mainly because of poverty, household composition and restricted access to other tenures. The residential pattern of minorities is becoming a political issue in some countries, with concentrations of particular groups being seen as problematic (Scanlon *et al.*, 2014). This issue is discussed further later on in the study.

The main frustration within the European context is based on social contract – entitlement versus need. In countries where social housing caters for employed households on reasonable incomes is running into problems with the EU for subsidising the undeserving – only housing for the poor is considered to be "a service of general economic interest". The emphasis is very much on partnership and mixed communities with particular concerns about segregation and the position of vulnerable households.

Presence of social housing

The presence of social housing within a neighbourhood has had varying impacts on property values. In studies where property values are negatively affected, author's point to the design, management and integration of social housing projects as causal factors for such an impact (Galster *et al.*, 1999). However, the studies by Dear (1992) and Hogan (1996) find that the acquisition of vacant low-density properties by the state combined with revitalisation, good management and maintenance were viewed by the community as replacing a negative externality (under-utilisation) with a positive one (redevelopment). The same studies concurrently show the introduction of state houses to already-vulnerable areas results in a negative effect for the area beyond a certain concentration. Lyons and Loveridge (1993) placed the devaluation of property into perspective by stating, "Adding one subsidised unit within a quarter mile radius of a house has the same dollar impact on that house's value as removing half a square footage in their houses (p. 59)". This suggests that when effects on property value are found, they tend to be quite small relative to other influences. Woo *et al.* (2016) found, through a time series "difference-in-differences" model, that LIHTC (low-income housing tax credit) developments have negative property value impacts in Charlotte, USA but have positive impacts in Cleveland, USA. This reflects the different market conditions of each state at the time of analysis as a critical factor of the impact of social housing on neighbouring property values. A key theme that emerges from the literature is that the mere presence of social housing does not tend to have an effect on neighbouring property values and, when it does, the effects tend to be relatively small. However, when proximity to social housing and social housing concentration issues are considered, the effects become more pronounced.

Proximity to social housing

Davison *et al.* (2013) analysed property sales in Brisbane and Melbourne, Australia. The report identified the impacts of public housing on property values, taking into account proximity to public housing and size of affordable housing projects. They found statistically significant positive relationships for sales located closer to affordable housing units. The result accounted for less than 6% of a property's value. Guy *et al.* (1985) and Rabiega *et al.* (1984) used distance to subsidised housing as a key variable. They found that effects vary with distance but stated that it is unclear that actual distance is necessarily a good estimate of peoples' subjective perceptions of distance. Their study used a unit of analysis which recognises scale and concentration of social housing projects. Their study indicated that the further a unit is from subsidised housing, the higher the sale price, *ceteris paribus*.

Nourse (1963) argued that urban renewal, in the form of public housing construction, would increase proximate property values if renewal projects generated positive externalities. Increased amenities and neighbourhood attractiveness found in the projects were thought to spill over to the broader neighbourhood. Dear (1992) stated that a new, renovated or well-maintained facility would be a positive asset to the community and boost neighbourhood property values. He stressed the importance of a well-integrated development as vital to the impacts on nearby property values. The counter-argument is that the public housing site, particularly in a single-family residential area, would increase congestion and noise. This would cause a disamenity and eventually negatively impact property value. Either effect diminishes with distance. Given certain flaws in early first-wave researchers' methodology, Nourse (1963) and Schafer (1972) both found there to be no difference in property value trends between test and control neighbourhoods.

Sale and du Preez (2012) took a novel approach by applying a conditional logit model to analyse the impact of social housing developments on property values. They found a

premium of 30,000–195,000 rand (4,500 and 30,000 NZD) for houses located at least 85 m away from existing social housing. Lyons and Loveridge (1993) also found that the number of subsidised units near a residential property has a small, statistically significant negative effect on its value, which diminishes with greater distance. It is important to stress, where the effects were most pronounced, people value marginal reductions in the number of subsidised housing units around them at about half of what they value marginal increases in finished living areas in their houses.

Concentration of social housing

Lee *et al.* (1999) hypothesised that the poverty concentration associated with public housing developments would lead to a consistently negative impact on property values, that the effects would be magnified by scale of the public housing development and diminish with distance. Their results show that public housing developments, aggregated around a quarter mile radius, exert a modest negative impact on property values. However the study also found that scattered-site public housing rented with a subsidy had only a slight negative impact.

Morris *et al.* (2012) discuss how homogeneity of tenure (social housing ghettos) compounds the negative effects of poverty. The study highlighted that social housing projects experience higher than average levels of unemployment and welfare dependency. Concentrations of such poverty can cause spillover effects to neighbouring property values. Graham *et al.* (2009) found that areas with a certain level of tenure mix, between 10% and 19% social renting, demonstrated a significant positive benefit in the four social well-being outcomes (unemployment, long-term illness, mortality ratio and premature death), while not pointing directly to price impacts the spill-over social effects will impact neighbourhood property values indirectly.

Galster *et al.* (1999) analysed the effect on sale prices of Section 8 sites (sites that the federal government will underwrite occupancy) located within 2,000 feet. They evaluated housing prices before and after introduction of Section 8 developments. Galster *et al.* (1999) found that proximity to a Section 8 site was associated with greater housing values. Upon closer examination, when the data were stratified, they found that this was true only under specific conditions. Specifically, their findings imply that any clustering should ideally take place in the form of a single-site, multiple-unit dwelling (up to eight units), rather than a comparable number of individual dwellings. A positive impact existed when there were few numbers of Section 8 households in the neighbourhood. However, if the number of Section 8 households in any neighbourhood reached a certain threshold (six or more within 500 ft), there was a downward shift in housing values. This illustrates the concept of a critical mass of development that reaps significant benefits of revitalisation of an area. In a New Zealand context, there is little to no research that explores increasing the density of existing low-density public housing, a feature of New Zealand's current state-owned housing stock (Saville-Smith *et al.*, 2015). Skuzinski (2007) states that while large-scale developments do not seem to have a negative impact, clustering of social housing units seems to reach a threshold, after which the concentration of poverty produces negative impacts. The study goes on to state that stronger neighbourhoods are better equipped to absorb negative externalities from social housing and continue to exhibit house price growth.

Several studies have estimated impacts based on a comparison of price changes of properties close to subsidised housing and citywide trends (de Souza Briggs *et al.*, 1999; Galster and Tatian, 2001). Their findings showed that scattered site public housing has negligible or even positive effects on surrounding communities. Graham *et al.* (2009) is one of the few studies that attempts to establish the optimal mix of tenure. The study suggests

that negative effects on social well-being are only seen in areas with very heavy concentrations of rental and social housing rentals – in excess of 30% – 60%.

Is social housing the contributing cause for potential negative effects observed in a neighbourhood? Or is social housing being placed in already deprived neighbourhoods? This is an area that researchers have found hard to delineate. Ellen *et al.* (2007) drive this point that the majority of studies fail to examine the prices in subsidised housing areas prior to development. It gives credence to the idea that new social housing projects are increasingly located in already declining areas. The literature is mainly inconclusive regarding the magnitude or direction of impacts associated with social housing. Given the complexity of urban housing markets, even when some associations are found, statements as to causality come with many reservations. Still the literature indicates some consensus, however weak, that no real negative effects appear to exist. Almost all of the studies look at the presence of social housing nearby but often overlook the patterns of dispersion of social housing located near residential housing. This study aims to contribute to this debate by looking at the level of social housing concentration and its impact on market value of private properties.

Data and methodology

Study area and data

The Auckland region is the largest region in New Zealand with 1,571,718 people representing over one-third of the nation's population (Statistics NZ, 2018). Until 2010, the region incorporated seven local councils. In this research, our focus is on two urban areas, formerly known as Auckland City and Manukau City. While both are similar in size, these areas have been chosen for their contrasting socio-economic profiles. Auckland City hosts a population of over 467,000 within the region. Manukau City lies to the south and accounts for over 457,000 people. Auckland City is dominated by people of European ethnicity (53.5%) whereas Manukau is dominated by people of Maori and Pacific Island ethnic groups (46.5%). Manukau City has a lower average socioeconomic score (more deprived) than its counterpart, illustrated by the darker regions in Figure 2. This is reflected by a lower median household income of $86,100 compared to a median household income of $96,600 of Auckland City. These statistics point to the higher socioeconomic status of Auckland City compared to Manukau (Figure 1).

Wide disparity exists between the two areas, with many Auckland City boards ranking as the most prosperous compared to local boards in Manukau City. Figures 2 and 3 highlight the spatial patterns of household prosperity. It is evident that local boards in southern Auckland rank in the lower quartile of household prosperity as measured by the report (ATEED, 2018). Within the context of the Auckland and Manukau markets, Figure 5 highlights the structural difference between house prices over time. Figure 4 highlights that both sub-market price changes move together, which shows that both markets have experienced similar property cycles and the impacts of social housing can be analysed together.

There is a risk that projects placed in areas that are already deprived or already have a high concentration of social housing (see Figures 2 and 3) may create a cyclical poverty issue within those marginalised communities (Figures 2–5).

Defining proximity and concentration measures

There is little empirical evidence to suggest an appropriate measure for neighbourhood size. While buffer distances vary across research and are somewhat arbitrary, previous studies have used distances of 300 or 600 m (Ellen *et al.*, 2007; Galster *et al.*, 1999; Santiago *et al.*, 2001).

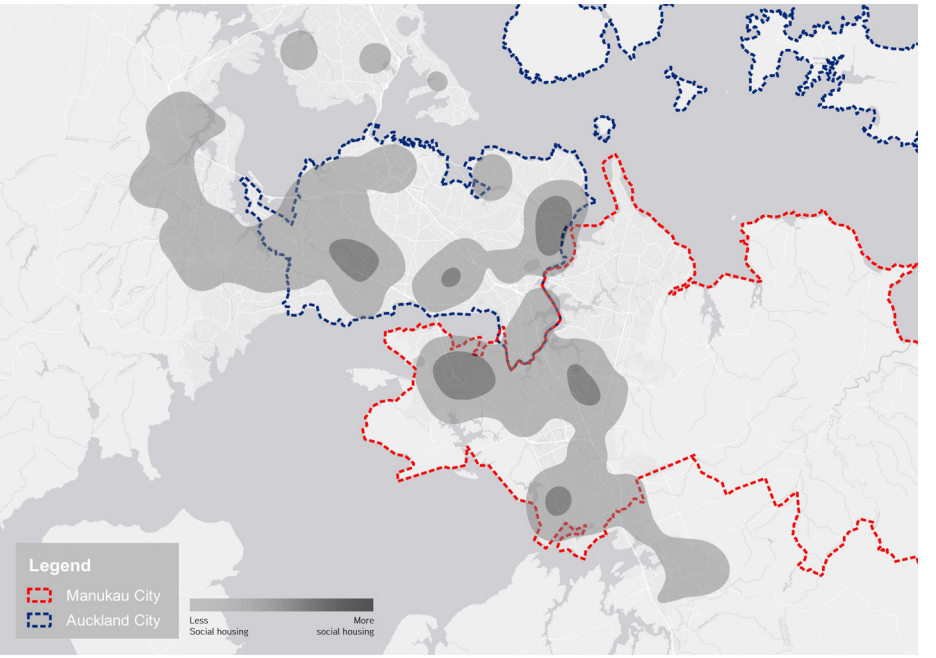

Figure 1.
Study area

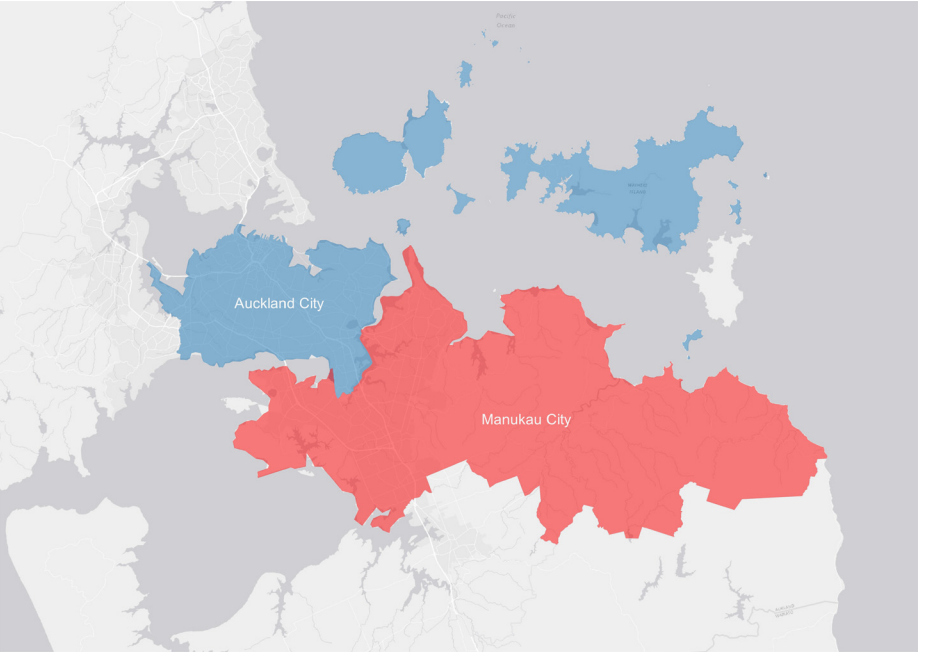

Figure 2.
Concentration of deprivation categories within the study area

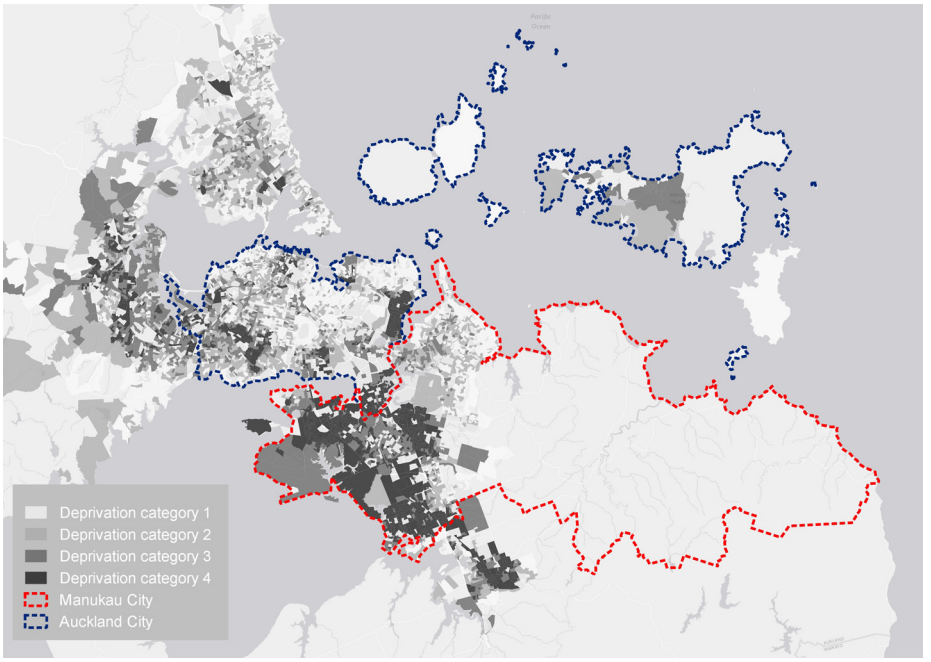

Figure 3.
Social housing heat map

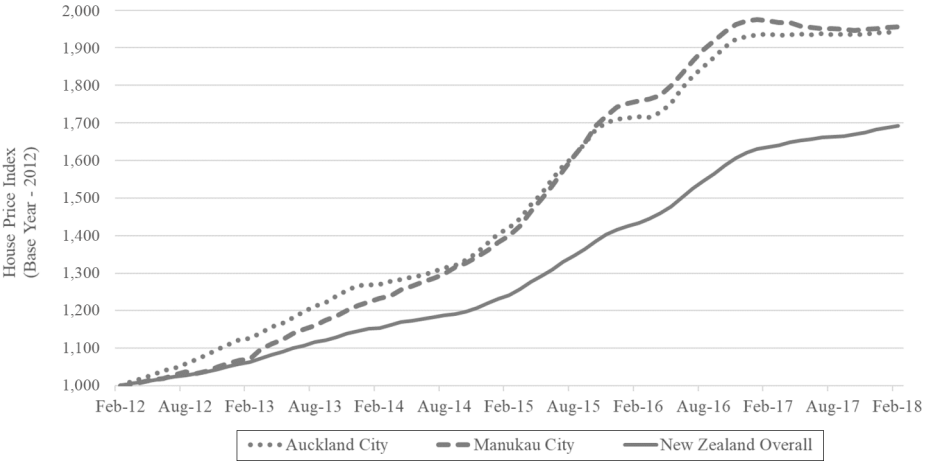

Figure 4.
House price index

Davison *et al.* (2013) use a 500-m buffer as the radius of influence. Likewise, this study analyses property sales within 500 m of a social housing project to measure the property value impacts. The study's methodology was adapted with reference to prior research but experimented with smaller ranges within 500 m. The data was then analysed in a geographical information system to determine whether a private property sale was adjacent to a social housing unit, the straight-line distance to nearest social housing unit and buffers around each house sale

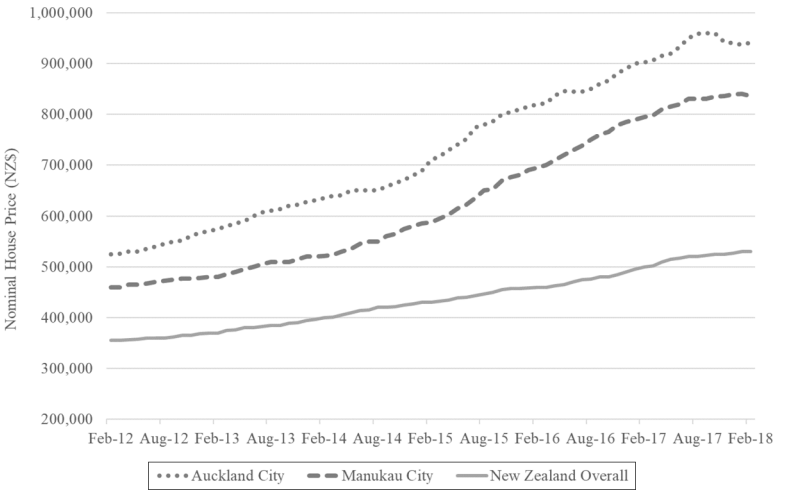

Figure 5.
Nominal house prices

(100, 250 and 500 m). The 500-m buffer used in the study proved to be the best estimator of influence on property values. Furthermore, it was also chosen to allow for comparisons with existing research. It was assumed that social housing further than 500 m would have little to no impact on sales values because of being outside the immediate neighbourhood. The two measures captured by the analysis are proximity and concentration.

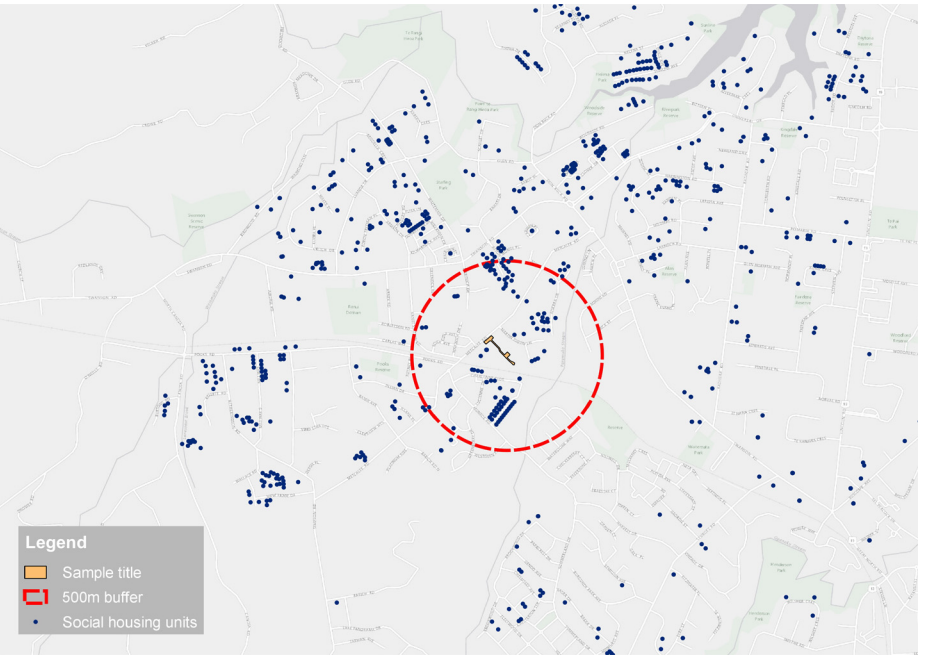

Figure 6.
Example of 500 metre buffer analysis

A count of social housing land titles and private residential titles within a concentric 500-m buffer was carried out on each individual sale entry (see Figure 6). Using this information, social housing concentrations were identified for each sale buffer within Auckland City and Manukau City, and was expressed as a ratio. To isolate the effects of social housing on property values, dummy variables for distance and concentration were created within the data set.

Data sources and variables used in the study

This study investigates the economic implications of social housing on residential property values using a hedonic pricing model (Lancaster, 1966; Rosen, 1974). Definitions and summary statistics of the variables used in the empirical modelling are listed in Table 2. This study used residential sales and property valuation data on 33,077 arm's length transactions for Auckland City and Manukau City within the greater Auckland region from 2014 to 2016. The data indicates that houses within Auckland City, on average, are more expensive than that in Manukau. A typical property size is around 160 m^2 with site area of just over 600 m^2. There are fewer properties with water views and earlier (1900s) vintages in Manukau. In line with the census information presented in Table 1, there were more transactions in Manukau in lower socio-economic areas with deprivation index over 5. The main employment centre is located within the CBD of Auckland City with around 118,000 jobs, which is approximately 15% of the regional workforce. Therefore, houses sold in Manukau City are more distant from the CBD.

Regarding the variables of interest that capture the proximity and concentration of social housing, private properties sold within Auckland City generally were further away from social housing units than properties in Manukau. The number of sales in areas with low concentration of social housing is similar within the two study areas, whereas there were notably more sales in Manukau in medium- and high-concentration areas. This provides an early indicator into the residential spatial mobility and sorting in lower socio-economic neighbourhoods, with earlier research demonstrating that residents in more deprived areas are less likely to upgrade their neighbourhood (Clark and Morrison, 2012).

The Auckland region is the most populous area in New Zealand, with this comes the greatest demand for social housing. HNZC is the largest residential landlord in New Zealand and manages over 15,000 residential dwellings across Auckland Region. There are other smaller providers that offer a range of accommodation options along the housing continuum called CHPs. Within our property valuation data set, we have flagged housing owned by HNZC and community providers as "social housing" property titles.

The main source of data was Auckland Council's District Valuation Roll (DVR) property and sales transaction files. Each data set collects structural-, locational- and neighbourhood-specific information. The DVR and sales data sets contain the title number of each rating unit. Supplementary data was provided through NZ Deprivation Index by meshblock for 2013. The NZ Deprivation Index is constructed using income, home ownership, employment, qualifications, family structure, housing, access to transport and communications (Atkinson *et al.*, 2014). The output score is a decile rating from 1 to 10 and measures relative socioeconomic poverty by meshblock. Sales from Auckland City and Manukau City were included to restrict the analysis to two cities within metropolitan Auckland (see Figure 1).

The variables of interest which are used to determine the effects of social housing on property values are divided into proximity and concentration. Proximity variables were derived using distance bands, including adjacent (sharing property boundaries between private market and social housing), 50–100, 100–150, 150–200, 200–250 and 250–500 m. The

Table 2.
Definition of variables and summary statistics

Variable	Description	Auckland City Mean	Auckland City Std	Manukau City Mean	Manukau City Std
Dependent variable					
sale_price	Sales price of the property, in NZ dollars	1,277,296	794,488	742,492	325,028
log_SP	Natural log of sales price	13.9296	0.4841	13.4356	0.3987
Independent variable					
eff_site_area	The total land area of the property, in m^2	611	581	634	295
ln_eff_site_area	Natural log of land area	6.2929	0.4678	6.3584	0.4662
build_floor_area	Building floor area of the property, in m^2	169	79	154	67
ln_bfa	Natural log of floor area	5.0344	0.4364	4.9485	0.4090
ex_con_good	1 if the exterior of the property is rated good, 0 otherwise	0.2567	0.4368	0.1878	0.3905
ex_con_poor	1 if the exterior of the property is rated poor, 0 otherwise	0.0278	0.1645	0.0824	0.2750
pre_1920	1 if the property was built before 1920, 0 otherwise	0.1011	0.3014	0.0024	0.0490
V_1920	1 if the property was built in 1920 decade, 0 otherwise	0.1018	0.3024	0.0101	0.1002
V_1930	1 if the property was built in 1930 decade, 0 otherwise	0.0568	0.2314	0.0057	0.0756
V_1940	1 if the property was built in 1940 decade, 0 otherwise	0.0748	0.2631	0.0172	0.1302
V_1950	1 if the property was built in 1950 decade, 0 otherwise	0.1099	0.3128	0.0869	0.2816
V_1960	1 if the property was built in 1960 decade, 0 otherwise	0.0804	0.2719	0.1577	0.3644
V_1970	1 if the property was built in 1970 decade, 0 otherwise	0.0495	0.2169	0.1447	0.3518
V_1980	1 if the property was built in 1980 decade, 0 otherwise	0.0895	0.2854	0.1352	0.3419
V_1990	1 if the property was built in 1990 decade, 0 otherwise	0.1297	0.3359	0.1579	0.3647
V_2000	1 if the property was built in 2000 decade, 0 otherwise	0.1247	0.3304	0.1265	0.3324
V_Mixed	1 if the property age cannot be established because of modifications, 0 otherwise	0.0048	0.0691	0.0312	0.1739
slight_water_view	1 if the property has slight water view, 0 otherwise	0.0859	0.2802	0.0243	0.1541
mod_water_view	1 if the property has moderate water view, 0 otherwise	0.0084	0.0913	0.0248	0.1556
wide_water_view	1 if the property has wide water view, 0 otherwise	0.0371	0.1889	0.0222	0.1475
deck	1 if the property features a deck	0.5171	0.4997	0.4443	0.4969
pool	1 if an outdoor, in-ground pool is present	0.0588	0.2352	0.0344	0.1821
steep_contour	1 if the land is sloping up or down	0.0810	0.2728	0.0232	0.1504
x_lease*	1 if the title of the property is a cross lease, 0 otherwise	0.2469	0.4312	0.1641	0.3704
distance_to_CBD	The distance to Auckland CBD, measured in km	8.528	6.010	18.364	4.376
Q1_2014	1 if the sale was in quarter *i*, Year *t*; 0 otherwise	0.0783	0.2687	0.0741	0.2620
Q2_2014		0.0823	0.2748	0.0802	0.2716
Q3_2014		0.0761	0.2652	0.0841	0.2776

(*continued*)

Table 2.

Variable	Description	Auckland City Mean	Auckland City Std	Manukau City Mean	Manukau City Std
Q4_2014		0.1022	0.3029	0.0959	0.2944
Q1_2015		0.0875	0.2826	0.0899	0.2860
Q2_2015		0.0994	0.2992	0.1050	0.3065
Q3_2015		0.0925	0.2898	0.1020	0.3027
Q4_2015		0.0777	0.2677	0.0732	0.2605
Q1_2016		0.0748	0.2630	0.0676	0.2510
Q2_2016		0.0866	0.2812	0.0920	0.2890
Q3_2016		0.0700	0.2552	0.0745	0.2626
Q4_2016		0.0726	0.2595	0.0615	0.2402
NZ_Dep_1	The New Zealand index of socioeconomic deprivation: 1 represents the areas with	0.1616	0.3681	0.0736	0.2612
NZ_Dep_2	the least deprived scores, 10 shows the areas with the most deprived scores and 5 is	0.1536	0.3605	0.1012	0.3016
NZ_Dep_3	the default category	0.1336	0.3402	0.1049	0.3064
NZ_Dep_4		0.1226	0.3280	0.0702	0.2555
NZ_Dep_6		0.0976	0.2967	0.0580	0.2338
NZ_Dep_7		0.0812	0.2731	0.0809	0.2727
NZ_Dep_8		0.0601	0.2377	0.0821	0.2745
NZ_Dep_9		0.0462	0.2100	0.1616	0.3681
NZ_Dep_10		0.0439	0.2049	0.2093	0.4068
adj_SH	1 if the property is adjacent to social housing, 0 otherwise	0.0976	0.2968	0.1808	0.3848
Dist_51to100	1 if the property is 50–100 m to social housing, 0 otherwise	0.1553	0.3622	0.1514	0.3584
Dist_101to150	1 if the property is 100–150 m to social housing, 0 otherwise	0.1175	0.3220	0.0707	0.2564
Dist_151to200	1 if the property is 150–200 m to social housing, 0 otherwise	0.0701	0.2553	0.0398	0.1956
Dist_201to250	1 if the property is 200–250 m to social housing, 0 otherwise	0.0583	0.2343	0.0334	0.1797
Dist_251to500	1 if the property is 250–500 m to social housing, 0 otherwise	0.1732	0.3785	0.1085	0.3110
B500m_Con_Low	1 if the concentration of social housing within a 500-m buffer is between 3% and 10%	0.2461	0.4308	0.2125	0.4091
B500m_Con_Med	1 if the concentration of social housing within a 500-m buffer is between 11% and 30%	0.1266	0.3325	0.2734	0.4457
B500m_Con_High	1 if the concentration of social housing within a 500-m buffer is >30%	0.0241	0.1534	0.0332	0.1793
Observations		16,891		16,186	

Notes: *A cross-lease property is one where multiple people own an undivided share in a piece of land in contrast to freehold/fee simple estate; Std: standard deviation

concentration measure was calculated for areas within 500 m of each sale. A ratio of social housing titles to all residential property titles within each buffer was calculated to ascertain the concentration of social housing within a 500-m buffer of the subject private residential transaction. This was then transformed into three categories: low (3%–10% of social housing units within 500-m buffer), medium (11%–30%) and high (above 30%).

Proximity

Cummings and Landis (1993) and Goetz *et al.* (1996) both refer to proximity to social housing units as a key variable. Any positive or negative effects of social housing units should be magnified by the distance to such projects. Guy *et al.* (1985) show that the disamenity associated with social housing is localised and any spillover effects diminish with distance. This becomes a key variable in the study and is predicted, in line with literature, that any observed effects will diminish with distance. Lyons and Loveridge (1993) make a clever adjustment to "perceived distance" by weighting the average distance between social and private housing by the number of units at each social housing location. The literature shows that distance variables are useful for scaling the effects within tested models.

Concentration

Concentration of social housing units remains the primary focus of this study. It is expected that higher concentrations of social housing will lead to higher concentrations of poverty in certain areas. This would lead to negative spillover effects, particularly reductions in the surrounding neighbourhood property values. Galster *et al.* (1999) and Lee *et al.* (1999) state that concentration of social housing units is a better predictor of house prices than proximity alone. A key area of interest within research is to determine how the concentration of social housing affects property values across different socioeconomic groups.

Other variables

In addition to the variables of interest, the remaining variables can be broken down into three broad types: structural, locational and market characteristics. The controls for the structural characteristics include exterior condition of the house, site area, building floor area, vintage (decade of building construction), presence of a pool and a deck. The controls for the locational characteristics include steepness of the land, tenure type (freehold and cross lease), poverty level of the meshblock area and distance to the CBD. The deprivation index is used as a proxy for poverty level and socioeconomic conditions at the meshblock level. A score of 10 represented the most deprived meshblocks relative to other meshblocks. A point in the centre of the Auckland Central Business District (Britomart – the main public transport hub) was selected and linear distances of each sale to this point were calculated to help control for job accessibility. Finally, to allow for variations in the property market cycle during the study period, time of sale is represented by the quarter and year of sale.

Model specifications

We start with the hedonic pricing model (Lancaster, 1996; Rosen, 1974) to understand how proximity to social housing affects property values. Model 1 tests if presence of social housing within a 500-m radius affects house prices. Proximity measures are modelled with dummy variables from housing transactions adjacent to social housing to 50–500 distance increments. Concentration variables are split into three levels – low, medium and high (as described in "Data sources and descriptions" section above). Using log-linear specification, the model takes the following form:

$$ln(SalesPrice) = \beta_0 + \beta_1 ln\_floor\_area + \beta_2 ln\_site\_area + \beta_{3-4} exterior\_cond + \beta_{5-7} water\_view + \beta_8 deck + \beta_9 pool + \beta_{10} steep\_countour + \beta_{11} cross\_lease + \beta_{12-22} const\_decade + \beta_{23-33} sale\_qtr + \beta_{50-53} NZ\_dep + \beta_{54} Adj\_SocialHousing + \beta_{55-57} Dist\_SocialHousing + \beta_{58-60} B500m\_Con[Low/Med/High] + \varepsilon \quad (1)$$

It has been acknowledged in previous research that a standard OLS hedonic method is prone to producing inconsistent and biased parameter estimates because of spatial dependence of the observations (Montero *et al.*, 2018). To effectively control for spatial dependence, we use a general, unconstrained spatial model – spatial autoregressive model (SARAR) – which includes both a spatially lagged dependent variable and spatially correlated errors (Anselin, 1988). The general model can be expressed as follows:

$$\begin{aligned} \mathrm{P} &= \rho \mathrm{W}_1 \mathrm{P} + \mathrm{X}\beta + \varepsilon \\ \varepsilon &= \lambda \mathrm{W}_2 \varepsilon + \mu \end{aligned} \quad (2)$$

where P is a vector of house prices, W_1 and W_2 represent the spatial weights matrices, X is a vector of explanatory variables in equation (1), β is a coefficient vector of X, ρ captures the spatial dependence in the dependent variable, λ is the spatial autoregressive coefficient of ε and μ is of i.i.d. random error term.

While many housing studies consider spatial dependency, house prices are also time dependent (Smith and Wu, 2009; Devaux and Dubé, 2016) and this dimension may not be adequately captured within the standard hedonic model (Nappi-Choulet and Maury, 2011; Thanos *et al.*, 2016). Several housing market studies have adopted spatiotemporal analysis (Filippova and Sheng, 2020; Liu, 2013) by implementing a weighted filtering matrix that specifies spatial effects of observations that are close-in-distance and temporal relationships of close-in-time transactions [2]. In other words, the spatiotemporal autoregressive (STAR) model adopts an autoregressive process as in (2) but uses a single spatiotemporal matrix (instead of separating the space and time matrices) that simultaneously allows for the temporal effect to be spatially adjusted (close-in-distance) and for the spatial dependence to be temporally adjusted (close-in-time). The final equation takes the following general form:

$$\begin{aligned} P &= \rho P_{t-1} + X\beta + \varepsilon \\ P_{t-1} &= W_1 P \end{aligned} \quad (3)$$

where P_{t-1} is a time dynamic spatially lagged value of the dependent variable P estimated with the spatiotemporal matrix W_1 which is based on the Hadamard matrix product – M T – where M represents the spatial relations between housing transactions given time constraints and T is the temporal matrix that limits the spatial relations based on time elapsed between transactions (Dubé and Legros, 2011).

Results

The total number of transactions analysed in the study was 16,891 and 16,186 for Auckland and Manukau Cities, respectively. The standard OLS, spatial (SARAR) and spatiotemporal (STAR) models performed to a high standard with an adjusted R-square percentage over 80%. The explanatory power of the Manukau models was moderately higher. The estimated coefficients under these three models are reported in Table 3 for Auckland City and Table 4 for Manukau City. Majority of the explanatory variables are significant and in the expected

Table 3.
Estimation results for Auckland City

Variable	OLS			SARAR			STAR		
	Coef	Std	*t*-stat	Coef	Std	*t*-stat	Coef	Std	*t*-stat
Constant	10.4800	0.034	306.31***	6.6020	0.135	49.08***	4.4405	0.132	33.57***
ln_eff_site_area	0.2707	0.005	59.01***	0.2867	0.006	44.82***	0.2856	0.004	65.09***
ln_bfa	0.3617	0.005	66.63***	0.3167	0.006	54.61***	0.3401	0.005	65.48***
ex_con_good	0.1772	0.004	40.25***	0.1294	0.004	32.13***	0.1475	0.004	34.59***
ex_con_poor	−0.0379	0.010	−3.90***	−0.0646	0.010	−6.66***	−0.0485	0.009	−5.25***
pre_1920	0.1264	0.008	15.11***	0.0788	0.031	2.58**	0.0823	0.008	10.24***
V_1920	0.0728	0.008	8.69***	0.0367	0.030	1.21	0.0407	0.008	5.08***
V_1930	0.0504	0.010	5.27***	0.0118	0.031	0.39	0.0102	0.009	1.11
V_1940	−0.0043	0.009	−0.47	−0.0302	0.030	−0.99	−0.0400	0.009	−4.56***
V_1950	−0.0649	0.009	−7.63***	−0.0573	0.030	−1.89	−0.0790	0.008	−9.71***
V_1960	−0.1538	0.009	−17.40***	−0.1152	0.030	−3.80***	−0.1485	0.008	−17.61***
V_1970	−0.1139	0.010	−11.64***	−0.1102	0.031	−3.60***	−0.1319	0.009	−14.16***
V_1980	−0.1038	0.009	−11.94***	−0.1108	0.030	−3.65***	−0.1306	0.008	−15.70***
V_1990	−0.1202	0.008	−15.29***	−0.1189	0.030	−3.95***	−0.1466	0.008	−19.52***
V_2000	−0.0832	0.007	−11.26***	−0.0553	0.030	−1.84	−0.0967	0.007	−13.67***
V_Mixed	−0.0664	0.024	−2.82**	−0.0060	0.035	−0.17	−0.0332	0.023	−1.46
slight_water_view	0.0789	0.006	13.42***	0.0579	0.007	8.74***	0.0698	0.006	12.43***
mod_water_view	0.0733	0.017	4.20***	0.0833	0.019	4.47***	0.0826	0.016	5.01***
wide_water_view	0.3474	0.009	38.32***	0.2713	0.012	22.19***	0.3227	0.009	37.20***
deck	0.0328	0.003	9.67***	0.0142	0.003	4.73***	0.0174	0.003	5.33***
pool	0.1701	0.007	23.01***	0.1189	0.008	14.94***	0.1482	0.007	20.95***
steep_contour	−0.0765	0.006	−12.52***	−0.0847	0.006	−13.55***	−0.0930	0.006	−15.89***
x_lease	−0.0699	0.004	−15.78***	−0.0732	0.004	−18.62***	−0.0666	0.004	−15.74***
distance_to_CBD	−0.0310	0.000	−83.01***	−0.0247	0.001	−30.10***	−0.0204	0.000	−48.14***
Q2_2014	−0.0017	0.008	−0.21	0.0045	0.007	0.68	−0.0011	0.009	−0.12
Q3_2014	0.0401	0.008	5.01***	0.0478	0.007	7.13***	0.0354	0.009	4.01***
Q4_2014	0.0886	0.007	11.84***	0.0949	0.006	14.93***	0.0575	0.008	6.83***
Q1_2015	0.1625	0.008	20.98***	0.1687	0.007	25.72***	0.1064	0.009	12.24***
Q2_2015	0.2143	0.008	28.49***	0.2207	0.006	35.15***	0.1289	0.009	14.93***
Q3_2015	0.2584	0.008	33.79***	0.2755	0.007	42.10***	0.1579	0.009	17.98***
Q4_2015	0.2394	0.008	30.03***	0.2415	0.007	35.94***	0.1376	0.009	15.20***
Q1_2016	0.2886	0.008	35.85***	0.2957	0.007	43.32***	0.1678	0.009	18.18***

(*continued*)

Table 3.

Variable	OLS Coef	OLS Std	OLS *t*-stat	SARAR Coef	SARAR Std	SARAR *t*-stat	STAR Coef	STAR Std	STAR *t*-stat
Q2_2016	0.3446	0.008	44.36***	0.3566	0.006	55.75***	0.2062	0.009	22.61***
Q3_2016	0.3736	0.008	45.60***	0.3852	0.007	56.95***	0.2277	0.010	23.89***
Q4_2016	0.3699	0.008	45.59***	0.3768	0.007	55.83***	0.2014	0.010	20.95***
NZ_Dep_1	0.1216	0.007	18.11***	0.0593	0.008	7.66***	0.0802	0.006	12.39***
NZ_Dep_2	0.0922	0.007	13.98***	0.0516	0.007	6.96***	0.0619	0.006	9.77***
NZ_Dep_3	0.0356	0.007	5.35***	0.0275	0.007	3.83***	0.0190	0.006	3.00***
NZ_Dep_4	0.0279	0.007	4.14***	0.0238	0.007	3.32***	0.0197	0.006	3.07***
NZ_Dep_6	−0.0303	0.007	−4.18***	−0.0117	0.008	−1.53	−0.0198	0.007	−2.85***
NZ_Dep_7	−0.0526	0.008	−6.88***	−0.0198	0.008	−2.41*	−0.0299	0.007	−4.07***
NZ_Dep_8	−0.0784	0.008	−9.28***	−0.0414	0.009	−4.74***	−0.0519	0.008	−6.45***
NZ_Dep_9	−0.1120	0.010	−11.56***	−0.0548	0.011	−5.16***	−0.0597	0.009	−6.38***
NZ_Dep_10	−0.1812	0.011	−17.07***	−0.0843	0.011	−7.77***	−0.1103	0.010	−10.79***
adj_SH	−0.0101	0.006	−1.62	−0.0021	0.006	−0.36	−0.0102	0.006	−1.70*
Dist_51to100	−0.0326	0.005	−6.41***	−0.0124	0.005	−2.70**	−0.0187	0.005	−3.83***
Dist_101to150	−0.0424	0.006	−7.62***	−0.0238	0.005	−4.38***	−0.0241	0.005	−4.53***
Dist_151to200	−0.0424	0.007	−6.30***	−0.0244	0.007	−3.73***	−0.0187	0.006	−2.91***
Dist_201to250	−0.0431	0.007	−5.93***	−0.0261	0.007	−3.58***	−0.0318	0.007	−4.57***
Dist_251to500	−0.0348	0.005	−6.88***	−0.0245	0.006	−4.18***	−0.0244	0.005	−5.04***
B500m_Con_Low	−0.0789	0.004	−17.54***	−0.0540	0.006	−9.74***	−0.0412	0.004	−9.45***
B500m_Con_Med	−0.1013	0.006	−16.26***	−0.0757	0.007	−10.14***	−0.0628	0.006	−10.47***
B500m_Con_High	−0.0666	0.013	−5.18***	−0.0690	0.014	−5.05***	−0.0786	0.012	−6.41***
λ				0.2847	0.009	31.03***			
ρ				0.4287	0.012	35.10***	0.1759	0.008	23.21***
ϑ							0.2598	0.010	26.89***
R^2	0.8224								
$\overline{R}^2$	0.8218			0.8228			0.8231		

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 4.
Estimation results for Manukau City

Variable	OLS			SARAR			STAR		
	Coef	Std	*t*-stat	Coef	Std	*t*-stat	Coef	Std	*t*-stat
Constant	11.4400	0.032	363.29***	8.6170	0.156	55.22***	7.1993	0.121	59.33***
ln_eff_site_area	0.1004	0.003	30.92***	0.1059	0.005	19.82***	0.0986	0.003	31.73***
ln_bfa	0.3512	0.005	72.59***	0.3016	0.005	55.57***	0.3482	0.005	75.30***
ex_con_good	0.0374	0.004	9.78***	0.0293	0.004	7.93***	0.0352	0.004	9.63***
ex_con_poor	0.0152	0.005	3.30***	0.0023	0.005	0.48	0.0050	0.004	1.13
pre_1920	−0.0330	0.024	−1.35	−0.0037	0.028	−0.13	−0.0079	0.023	−0.34
V_1920	−0.0595	0.013	−4.68***	−0.0364	0.015	−2.40**	−0.0337	0.012	−2.77***
V_1930	−0.0471	0.016	−2.88*	−0.0382	0.021	−1.86*	−0.0204	0.016	−1.30
V_1940	−0.0734	0.010	−7.11***	−0.0696	0.011	−6.13***	−0.0515	0.010	−5.19***
V_1950	−0.0597	0.007	−9.16***	−0.0583	0.007	−7.84***	−0.0383	0.006	−6.13***
V_1960	−0.1207	0.006	−20.61***	−0.0998	0.007	−14.99***	−0.1051	0.006	−18.74***
V_1970	−0.0931	0.006	−15.88***	−0.0953	0.007	−14.33***	−0.0855	0.006	−15.25***
V_1980	−0.1037	0.006	−17.30***	−0.0954	0.007	−14.25***	−0.0883	0.006	−15.35***
V_1990	−0.0919	0.005	−16.98***	−0.0846	0.006	−14.18***	−0.0790	0.005	−15.24***
V_2000	−0.1099	0.005	−21.69***	−0.0949	0.005	−18.50***	−0.0950	0.005	−19.56***
V_Mixed	−0.0666	0.008	−8.21***	−0.0627	0.009	−6.78***	−0.0574	0.008	−7.40***
slight_water_view	0.0547	0.008	6.99***	0.0251	0.009	2.89**	0.0491	0.007	6.56***
mod_water_view	0.0982	0.008	12.59***	0.0764	0.010	8.03***	0.0853	0.007	11.44***
wide_water_view	0.2459	0.008	29.48***	0.1964	0.013	14.77***	0.2236	0.008	28.02***
deck	0.0053	0.003	1.93**	0.0045	0.003	1.73*	0.0025	0.003	0.96
pool	0.0757	0.007	11.26***	0.0618	0.008	8.15***	0.0787	0.006	12.22***
steep_contour	−0.0453	0.008	−5.70***	−0.0345	0.008	−4.12***	−0.0521	0.008	−6.85***
x_lease	−0.0778	0.004	−18.89***	−0.0896	0.004	−21.02***	−0.0826	0.004	−20.92***
distance_to_CBD	0.0208	0.000	−68.91***	0.0164	0.000	−32.92***	0.0137	0.000	−39.17***
Q2_2014	0.0224	0.006	3.74***	0.0186	0.005	3.53***	0.0151	0.006	2.52**
Q3_2014	0.0499	0.006	8.44***	0.0462	0.005	8.89***	0.0349	0.006	5.88***
Q4_2014	0.0866	0.006	15.07***	0.0903	0.005	18.05***	0.0598	0.006	10.28***
Q1_2015	0.1523	0.006	26.14***	0.1501	0.005	28.89***	0.1037	0.006	17.35***
Q2_2015	0.2180	0.006	38.67***	0.2219	0.005	43.93***	0.1523	0.006	25.65***
Q3_2015	0.3045	0.006	53.71***	0.3091	0.005	61.42***	0.2134	0.006	34.36***
Q4_2015	0.2854	0.006	46.65***	0.2921	0.005	53.82***	0.1954	0.007	29.78***
Q1_2016	0.3315	0.006	53.08***	0.3383	0.006	60.99***	0.2317	0.007	34.10***

(*continued*)

Table 4.

Variable	OLS Coef	Std	*t*-stat	SARAR Coef	Std	*t*-stat	STAR Coef	Std	*t*-stat
Q2_2016	0.3904	0.006	67.34***	0.3936	0.005	75.72***	0.2707	0.007	40.66***
Q3_2016	0.4239	0.006	69.57***	0.4312	0.005	79.03***	0.2932	0.007	41.66***
Q4_2016	0.4200	0.006	65.55***	0.4258	0.006	76.19***	0.2880	0.007	39.47***
NZ_Dep_1	0.0752	0.007	10.92***	0.0511	0.009	5.89***	0.0536	0.007	8.10***
NZ_Dep_2	0.0620	0.006	9.77***	0.0463	0.008	6.07***	0.0455	0.006	7.47***
NZ_Dep_3	0.0435	0.006	6.90***	0.0274	0.007	3.72***	0.0254	0.006	4.20***
NZ_Dep_4	0.0241	0.007	3.63***	0.0238	0.008	3.09**	0.0134	0.006	2.10**
NZ_Dep_6	−0.0300	0.007	−4.34***	−0.0197	0.008	−2.46*	−0.0110	0.007	−1.66*
NZ_Dep_7	−0.0409	0.007	−6.25***	−0.0305	0.008	−3.90***	−0.0150	0.006	−2.37**
NZ_Dep_8	−0.1086	0.007	−15.70***	−0.0711	0.008	−8.45***	−0.0592	0.007	−8.77***
NZ_Dep_9	−0.1228	0.007	−18.51***	−0.0841	0.008	−10.49***	−0.0666	0.007	−10.20***
NZ_Dep_10	−0.1493	0.007	−21.38***	−0.1003	0.009	−11.62***	−0.0956	0.007	−13.96***
adj_SH	−0.0341	0.004	−8.94***	−0.0173	0.004	−4.73***	−0.0242	0.004	−6.61***
Dist_51to100	−0.0426	0.004	−11.23***	−0.0204	0.004	−5.35***	−0.0265	0.004	−7.24***
Dist_101to150	−0.0504	0.005	−10.14***	−0.0284	0.005	−5.52***	−0.0276	0.005	−5.75***
Dist_151to200	−0.0536	0.006	−8.53***	−0.0261	0.007	−3.90***	−0.0244	0.006	−4.04***
Dist_201to250	−0.0590	0.007	−8.66***	−0.0322	0.007	−4.59***	−0.0301	0.007	−4.60***
Dist_251to500	−0.0408	0.004	−9.63***	−0.0237	0.005	−4.53***	−0.0193	0.004	−4.72***
B500m_Con_Low	−0.0891	0.004	−20.37***	−0.0771	0.006	−13.51***	−0.0464	0.004	−10.66***
B500m_Con_Med	−0.1668	0.005	−32.07***	−0.1304	0.007	−18.64***	−0.1037	0.005	−19.66***
B500m_Con_High	−0.2534	0.008	−30.13***	−0.2096	0.011	−19.23***	−0.1808	0.008	−21.81***
λ				0.2166	0.011	19.46***			
P				0.4053	0.013	31.77***	0.1369	0.008	17.26***
Θ							0.1714	0.010	17.40***
R^2	0.8605								
$\bar{R}^2$	0.86			0.8612			0.8653		

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

direction. Several interesting observations emerge from the analysis. There is a stark contrast in the value of land between the two cities, whereas the contribution of the size of the house is quite similar in magnitude. There is also evident absence of vintage effect in Manukau City with Auckland City houses built in the early 1990s commanding a significant premium over newly built houses (Rehm *et al.*, 2006). Rehm *et al.* (2006) found non-linear effects across socioeconomic levels, with wealthier markets exhibiting a greater vintage effect, with turn-of-the-century homes realising 15% price premiums over new homes. In contrast, less wealthy markets tend to apply discounts of 20%–40% to houses of the same vintage. Social housing stock has historically not seen continual refurbishment and reinvestment because of budgetary constraints and this is an argument that NIMBY proponents make, which leads to the negative property value impacts of poorly maintained housing stock. Previous literature has found that negative impacts observed are greatly influenced by the design, construction and management of social housing units (Santiago *et al.*, 2001). Availability of an inground swimming pool also adds a significant premium to houses sold in Auckland City. Properties belonging to a cross-lease arrangement suffered a discount of approximately 7%. For every kilometre away from the CBD a property was located, sale prices displayed a 2%–3% reduction in price. As predicted, more affluent neighbourhoods (deprivation index less than 5) exhibit higher prices, whereas house prices in less wealthy areas (above 5) are discounted. During the study period, the housing market experienced significant house price inflation upwards of 40% in the OLS models.

It is evident that there is spatial dependence among houses transacted within the study area, as suggested by highly significant and positive λ and ρ in the SARAR and STAR models. Moreover, it has been previously reported that OLS models tend to overestimate coefficients when spatial effects are not controlled. Inclusion of spatial and spatiotemporal matrices dampens the impact of socio-economic (deprivation index) and market cycle (quarter of sale) variables. Although parameter estimates are generally the same between the spatial and spatiotemporal models, STAR models are generally more powerful because they control for spatial dependence as well as effects of market cycles by limiting large spurious spatial relationships among transactions (Filippova and Sheng, 2020). Therefore, the following discussion of the variables of interest will focus on the estimations in the STAR models. The estimated percentage changes under the semi-log functional form is $\exp(\beta) - 1$ (Halvosen and Palmquist, 1980). Furthermore, interpretation of the marginal contribution requires inclusion of the spatial multiplier $1/(1 - \rho)$ (Kim *et al.*, 2003). In addition, long-term dynamic marginal effect is obtained with the spatiotemporal multiplier $1/[(1 - \rho)(1 - \vartheta)]$ (Dubé *et al.*, 2017) (Table 5).

Table 5.
Marginal impact of social housing variables estimated in the STAR model

Variable	Spatial spillover effect (%)		Long−term dynamic spatial effect (%)	
	Auckland City	Manukau City	Auckland City	Manukau City
adj_SH	−1.23	−2.77	−1.66	−3.34
Dist_51to100	−2.24	−3.03	−3.03	−3.66
Dist_101to150	−2.89	−3.15	−3.91	−3.80
Dist_151to200	−2.25	−2.80	−3.04	−3.38
Dist_201to250	−3.80	−3.44	−5.13	−4.15
Dist_251to500	−2.92	−2.21	−3.95	−2.67
B500m_Con_Low	−4.90	−5.25	−6.62	−6.33
B500m_Con_Med	−7.39	−11.41	−9.98	−13.77
B500m_Con_High	−9.17	−19.17	−12.39	−23.13

The results of the STAR models for both cities produce statistically significant and negative coefficients for all of the proximity and concentration variables. Table 10 presents the marginal effects on prices. Surprisingly, among proximity variables, houses adjacent to social housing were less impacted than houses located further away. Generally, discount peaks at the 200–250 m distance and then begins to dissipate. While Auckland boasts more expensive houses, proximity to social housing has similar effects on house prices in the two submarkets. It is the addition of the concentration variables when social inequities become apparent. As expected, increased concentration leads to steeper discounts in prices of houses within a 500-m buffer. Yet, there is a significant gap in the observed marginal effect of the median and high concentration levels between Auckland and Manukau, with the discount nearly double at the high levels of social housing from 12.39% to 23.13%, respectively. The results are consistent with the literature that wealthier neighbourhoods are better positioned to absorb the negative effects of social housing concentrations than severely deprived neighbourhoods. It is worth noting that properties in high social housing concentration areas in Auckland were dispersed away from inner city suburbs and more prevalent in light industrial-dominated areas (see Figure 3). One can infer that there is a propensity for social housing to be located in the poorer neighbourhoods of Auckland City. In contrast, the sales analysed in low-concentration areas were mainly located in wealthier inner city suburbs within 5-km radius of the CBD.

Spatial pattern of effects

An analysis of the distribution of social housing concentration zones (see Table 6) shows that around 40% of the Auckland City sales analysed were located within either low-, medium- or high-concentration areas, i.e. all levels of concentration greater than 3%. In comparison, just over 50% of sales in Manukau City were located in social housing concentrated areas. A cross-tabulation of the distribution of sales observations across deprivation categories and concentration levels shows that, for both Auckland City and Manukau City, sales in Deprivation Category 4 (most deprived, includes deprivation index areas 8–10) are more likely to be in a social housing concentrated zones (low, medium and high). In Auckland City, only about 5% of analysed sales are located outside a social housing concentrated zone. This compares with only 3% of analysed sales in Manukau City (see Table 7). In both Auckland City and Manukau City, one can observe that Deprivation Category 4 areas are also home to the largest percentage of high-concentration social

Concentration level	None (%)	Low (%)	Medium (%)	High (%)
Auckland City				
Deprivation Cat 1	84.40	13.50	2.10	0.00
Deprivation Cat 2	67.50	24.60	7.80	0.10
Deprivation Cat 3	38.10	40.00	21.00	0.90
Deprivation Cat 4	4.80	25.90	46.50	22.80
Manukau City				
Deprivation Cat 1	96.50	3.00	0.50	0.00
Deprivation Cat 2	86.50	10.40	3.10	0.00
Deprivation Cat 3	44.40	38.30	16.80	0.50
Deprivation Cat 4	3.20	26.80	61.40	8.60

Notes: Deprivation Cat 1 = NZ Dep Index 1–2; Cat 2 = NZ Dep Index 3–5; Cat 3 = NZ Dep Index 6–8; Cat 4 = NZ Dep Index 9–10

Table 6. Distribution of sales by concentration level and deprivation category

housing areas (30% and above dominated by social housing areas). Concentration of social housing is negligible in Deprivation Categories 1–3. This illustrates the spatial dispersion of social housing within the two cities and how the most concentrated social housing areas are situated in the most deprived areas of Auckland City and Manukau City. This shows that the negative effects of social housing concentration greatly affect those in the most deprived areas as opposed to wealthier areas of the cities.

A deeper analysis into the spatial distribution of sales in high-concentration areas showed a dispersion at significant distance from inner city suburbs. High-concentration areas in Auckland City tended to be located in suburbs dominated by industrial use, approximately 10 km away from the CBD. For Manukau City, the high-concentration areas were located close to the Auckland City border in suburbs such as Mangere and Papatoetoe, which indicates that policymakers adopted a strategy of clustering social housing instead of spreading social housing more evenly across the study area. This strategy is limiting the location choices of households requiring assistance of social housing. The effect of this distribution highlights that social housing units are increasingly being placed in areas away from the job centres.

Conclusions

A standard hedonic pricing model alongside spatial (SARAR) and spatiotemporal (STAR) models were tested to isolate the effect of proximity and concentration of social housing on house prices. It emerged from the findings of the study that social housing concentrations at any level have a significant negative impact on the prices of houses within a 500-m buffer. A point to highlight is that social housing on its own, when measured in the form of proximity/distance, has a lesser negative effect on property values than concentration. NIMBY proponents argue that social housing regardless of placement strategy will have a negative impact on their property values. The research found empirical evidence of these claims and that presence of social housing in the neighbourhood has a detrimental impact on house prices. Moreover, there is evidence that socio-economically deprived areas are targeted for high concentration of social housing and this promotes depressed house values. This is in line with earlier research that demonstrates a tendency for low-income households to move into already deprived areas, subsequently intensifying the processes of deteriorating house prices (Clark and Morrison, 2012). A concerning result was a confirmation of the -spatial mismatch theory shown by the distribution of high concentrated areas skewed towards more deprived areas with low levels of services (Kain, 1968). This places the people of society who are most in need of access to jobs, transport and wrap-around services away from such amenities. This in turn creates pockets of concentrated poverty, which are reflected in the significant discounts on property values in those areas.

This research provides policymakers with the information needed when formulating strategies for social housing development. The design of the study lent itself to isolating

Table 7. Comparison of residential transaction characteristics

	Auckland City	Manukau City
Number of sales analysed	34,869	30,810
Median sale price	$942,000	$625,000
% of sales in low social housing concentrated areas	24.9%	20.9%
% of sales in medium social housing concentrated areas	12.7%	26.4%
% of sales in high social housing concentrated areas	2.3%	3.2%
Total % of sales in social housing concentrated areas	*39.9%*	*50.5%*

areas within the wider Auckland region to determine how existing social housing affects neighbouring property values across various socioeconomic groups. The idea here is that increasing levels of concentrations of social housing have a statistically significant negative economic impact on property values. This points to an optimal strategy of dispersed social housing and integration into the community. A rapid review report published by Saville-Smith *et al.* (2015) highlights the outcomes for communities and social housing tenants of maintaining social mix within a community.

Dear (1992) explains that second-stage NIMBY attitudes manifest in their concerns that any unwanted developments will threaten property values, personal security and neighbourhood amenity. Santiago *et al.* (1999) conducted focus group interviews that highlighted these attitudes towards having social housing in one's backyard. While the present study found these claims to be valid, social housing stock is notorious for inadequate maintenance, with much of the stock approaching the end of its lifecycle (over 50 years). Therefore, reduced maintenance is capitalised into neighbouring property values. Because there is a greater focus on improving the quality of social housing projects, future research may test if dwellings built to modern standards reduce the negative externalities of social housing. In a local context, HNZC is tackling the issues with a wide-scale asset renewal program which eventually would result in an upgrade for majority of public housing. This involves the redevelopment of low-density state housing units in areas where land values have rapidly expanded. There is a focus towards higher density, multi-family and townhouse units. A big emphasis of the recent HNZC developments has been to create social and tenure mix. The direct effect of this will be to reduce the segregation of social housing units to particular areas of the city and move towards projects which are indistinguishable from market or affordable housing units.

This research establishes relationship between concentration of social housing, levels of deprivation and residential property values. It is evident that placement of social housing is not random, and it tends to be present in socially and economically deprived areas as a result of residential sorting (Hedman *et al.*, 2011) which manifests in depressed residential values. Even in countries where there is a centralised policy push towards a greater mix of socio-economic groups, neighbourhoods regress back towards spatial sorting (van Ham and Feijten, 2008). Ingrained negative externalities of social housing cannot be ignored and long-term government policies are needed to regenerate deprived neighbourhoods.

Notes

1. Since 2020, Housing New Zealand Corporation has been renamed to Kāinga Ora – Homes and Communities.
2. For a detailed discussion of building spatiotemporal weights matrices, consult Dubé and Legros (2013).

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