

PROPERTY **E**ECONOMICS



WHAREROA NORTH PPC36

ECONOMIC COST BENEFIT

ASSESSMENT

Client: Taupō District Council

Project No: 51836

Date: November 2019



SCHEDULE

Code	Date	Information / Comments	Project Leader
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1. INTRODUCTION

Property Economics has been engaged by Taupō District Council (TDC) to undertake a high-level economic assessment of the proposed Whareroa North Private Plan Change No.36 (PPC36 or the Plan Change)¹. PPC36 seeks the rezoning of 14.63ha of land adjoining the existing Whareroa village settlement from a Rural to Residential environment (zone). The Plan Change would provide for up to 160 additional residential lots and expand the size of the existing Whareroa settlement from around 200 homes currently to circa 360 were Whareroa North to be fully developed.

In assessing the economic suitability and overall impact of PPC36, Property Economics has projected the potential residential demand (with specific reference to holiday homes) and specially the demand requirements for additional residential land in Whareroa in light of the proposed rezoning. Of particular focus is how this development would affect the residential demand and relative infrastructure costs in the District's residential zones, including specific consideration of the western and southern bays proximate to Whareroa.

Additionally, Property Economics has identified and evaluated the potential economic costs and benefits to the wider Taupō District community, including specifically tangata whenua landowners. This is to further assess the economic merits of PPC36 in the context of whether it is likely to realise a net economic benefit to the stakeholders and community as a whole.

Property Economics Ltd acknowledge that the economic merits of a Plan Change are one of a number of matters in terms of evaluating the appropriateness or otherwise of the Plan Change in terms of the requirements of the Resource Management Act 1991.

¹ The proponents of PPC36 being the Proprietors of Hauhungaroa No. 6.



1.1. OBJECTIVES

The key objectives of this economic analysis include:

District and Local Residential Context for PPC36

- Outlining the expected demand for residential dwellings distributed geospatially (that is throughout the Taupō District) over the medium (10 year) and long term (30 year) periods², distinguishing between demand from permanent residents (household growth) and unoccupied dwellings (vacant/holiday homes).
- Outline the existing zoned and serviced residential capacity within the District through the medium and long-term timeframes.
- Identify the current identified supply of residential sections in terms of vacant, consented and zoned sections for both Whareroa and the wider District, with a specific focus on the holiday home market where practical.

Economic Costs and Benefits:

- Discuss the potential for residential lots facilitated through PPC36 to provide economic benefits, including whether the development provides a unique product or whether PPC36 would provide additional capacity of similar product, currently or potentially, available within the market (or sub-market) that is likely to result in economic benefits / costs for the community.
- Quantify (based on referenced data sources) the potential economic and financial costs associated with the additional infrastructure required necessary to service development enabled by PPC36 including the Net Present Value (**NPV**) cost for each of the types of infrastructure over both the medium and long-term time frames. The specific aspects of infrastructure include:
 - Bridge and road network;
 - Wastewater and potable water supply;
 - Stormwater management; and
 - Utility and reserve maintenance.
- Identify where there is duplication of existing inefficiently zoned residential land and supporting services, and the potential economic cost of the diversion of (residential) demand away from zoned, serviced and feasible capacity within the District resulting in underutilisation of developed infrastructure and a commensurate increase in marginal costs.

² Property Economics has utilised the latest TDC projections and data for this component of the study, being NZ Stats Medium and High Projections (2018 base, and 2013 projections).



1.2. INFORMATION & DATA SOURCES

Information has been obtained from a variety of sources as below. Property Economics consider these information sources to provide an orthodox approach to obtaining information required.

- Infrastructure Costs and Maintenance - Taupō District Council
- Population Projections – Statistics NZ
- Vacant Residential Supply – Taupō District Council
- Geo-spatial mapping – Openrouteservice
- Residential Zones - Taupō District Council
- Residential Consent Activity- Statistics NZ
- Maori Owned Land- Taupō District Council
- Whareroa North Access Route Options- Key Solutions Limited
- Whareroa North Access Route Costings - Cheal
- Whareroa Residential Sales Estate Agent Interview – Stephen Sanderson

2. WHAREROA NORTH PROPOSED PLAN CHANGE

The proponents of PPC36 are seeking to rezone approximately 14.63 hectares of land from Rural Environment (zone) to Residential Environment (zone) on the northern side of the Whareroa Stream. Whareroa North, as enabled by PPC36 would adjoin the existing Whareroa Village.

Figure 1 contains an aerial map of Whareroa and the land subject to PPC36 to provide context and illustrate the close proximity between the existing Whareroa Village settlement and the land subject to PPC36.

PPC36 would facilitate development of up to 160 residential lots of sizes ranging between 500m² and 1,100m². The number of homes is limited with the included provision in PPC36 that restricts subdivision by way of consent notice.

In order to access the land proposed to be rezoned, a new access road will need to be developed including a small bridge across the Whareroa stream. The estimated cost of these works is circa \$1.3 million including building the bridge over the stream and the corresponding earthworks and roading required. The full outline of proposed costs is provided in Appendix 1 as provided by Key Solutions Limited.

FIGURE 1: WHAREROA NORTH PROPOSED PLAN CHANGE AREA.

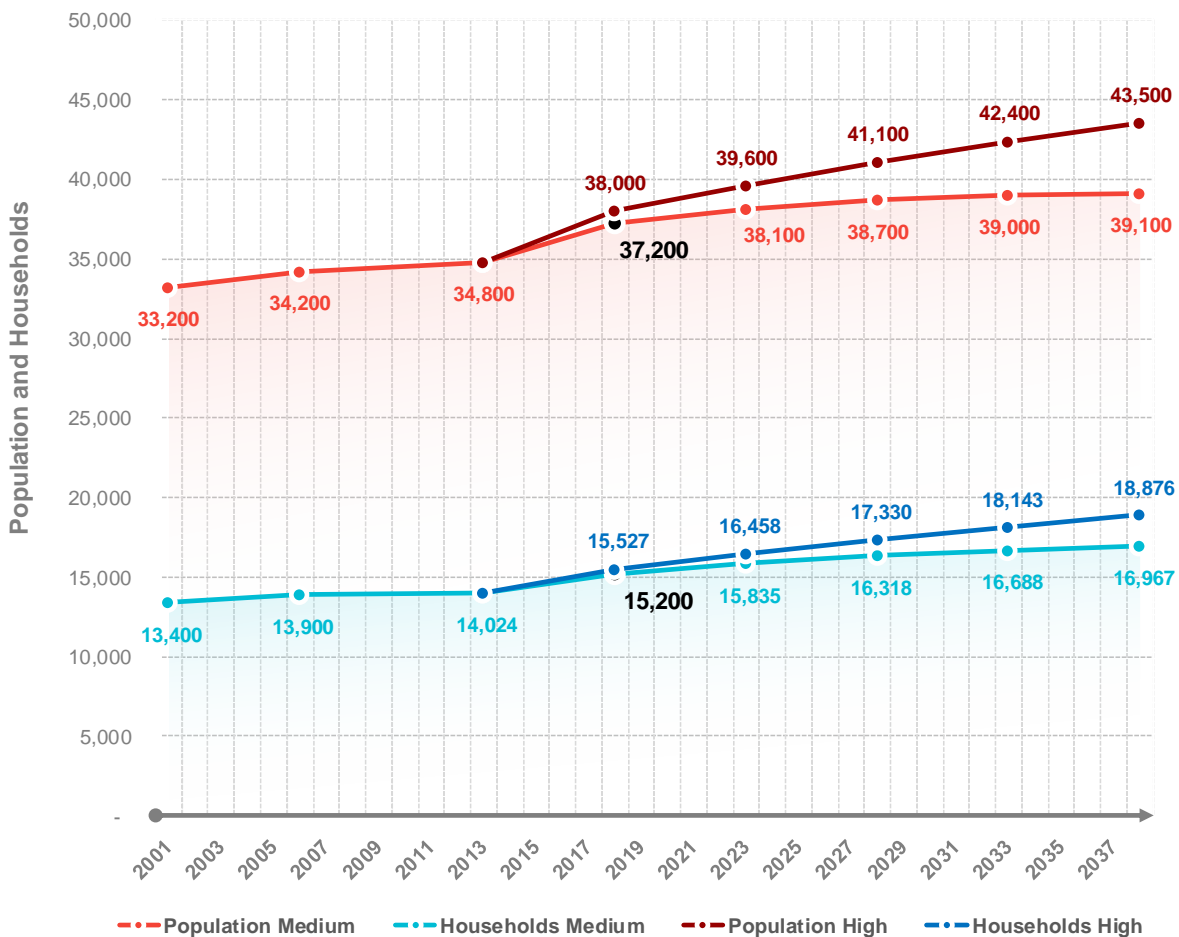


Source: Taupō District Council

3. GROWTH PROJECTIONS

The Taupō District Council has recently released an updated Taupō District 2050 (TD2050) strategy document. The growth projections identified in the updated TD 2050 are more subdued than the original document (2006) resulting in some of the identified growth nodes being re-evaluated. The Statistics NZ medium projection series in Figure 2 are from December 2017 a more recent release than the TD2050 medium series. However, both these last two medium series projections are similar and therefore any variance has no meaningful impact on this analysis. Property Economics are also comfortable utilising the medium series projections for Taupō given a historic track record of relatively low growth rates and a demographic profile that indicates a plateauing of growth as the baby boomer generation works through its life cycle.

FIGURE 2: TAUPŌ DISTRICT POPULATION PROJECTIONS TO 2038



Source: Property Economics, Statistics NZ

Figure 2 contains the Taupō District population projections to 2038 with the Medium growth projection series (NZ Statistics) being the primary data source utilised in the TD2050 document.



Under the medium projections, population growth is expected to grow by around 2,000 people to 2033 and then essentially flatline to 2038. By 2038, 39,100 people are projected to be residing in the Taupō District. This is the result of lower household unit sizes and the higher proportion of ageing baby boomer generation in Taupō District, which will be decreasing significantly as a proportion of overall population base by 2038. The propensity for these changes, and hence the declining population to household expectations is higher in smaller provisional areas around NZ.

Taupō District's housing market is projected to require an additional 1,800 homes to accommodate its projected growth over the next 20 years. Including the demand for unoccupied dwellings this is expected to be closer to 2,600 total dwellings.

Under the High growth scenario, the District's population base (+5,500 net) and the household base (+3,400 net, a total of 4,900 with vacant/holiday homes included) are projected to increase to 43,500 and 18,900 respectively by 2038. This helps provide some context to the District's projected growth profile over the next 20 years and ground truth the potential dwelling requirement in the District under a higher alternative growth scenario.

3.1. PAST GROWTH

Whareroa North was identified as a potential growth node in the 2008 Taupō District Plan. However, the observed low nominal population growth in subsequent years indicated that the District growth projections for which the growth nodes were developed under were optimistic and unlikely to be realised.

The growth between the two more recent census (2013 and 2018) showed annual growth of 2.5% on average; realised growth was only 0.2% between the 2006-2013 census period (with the Global Financial Crisis in 2008 likely having a major bearing on this growth rate over the period).

The growth within the District over the more recent few years has been primarily localised in areas / settlements closer to the Taupō Urban Area. Appendix 2 shows a map derived from Statistics NZ growth data that geospatially identifies the percentage change in population between the 2013 and 2018 census. This map clearly illustrates the focus of population growth in the District has been in the Taupō Urban Area and the eastern side of the lake.

In contrast, the western and southern sections of Lake Taupō experienced a slight decline in population. The Lake Taupō Bays Statistical Area 2 region (which includes Whareroa) observed negative population growth, with a net decline of 12 people to 1,570 over the 5-year period.

It is always inappropriate to use wider district growth projections at a more localised level. This is clearly illustrated in this analysis, as whilst there has been modest growth in the district at an aggregate level, the southern and western components of the district have recorded a decrease in population from 2013 to 2018.

4. DISTRICT RESIDENTIAL LAND SUPPLY

In comparison to potential growth (demand) for the entire district, there is a total of 5,632 zoned vacant or developable lots in the Taupō District as identified by the TDC.

Of the 5,632 developable vacant lots, there is 815 lots on sites that are currently being developed and 3,090 lots which have water and wastewater services available at the adjacent road frontages. A full breakdown of vacant developable sites in the district is provided in Table 1.

TABLE 1: VACANT DEVELOPABLE SITES IN TAUPŌ DISTRICT

Site	Lots	Stage	Maori/non-Maori	Notes
EUL	1,900	Zoned	Non-Maori	No services within block, but water and Wastewater available at the adjacent road frontages.
WEL	700	Zoned	Non-Maori	Underway and being serviced by the developer.
Brentwood	115	Zoned and consented	Non-Maori	Underway and being serviced by the developer.
Lakeside Brentwood	250	Zoned	Non-Maori	No services within block, but water and Wastewater available at the adjacent road frontages
Vineyard on Huka falls	20	Zoned	Non-Maori	No services within block, but water and Wastewater available at the adjacent road frontages
Acacia Bay	100	Zoned	Non-Maori	No services currently
Kinloch	334	Zoned and mostly consented	Non-Maori	Partially Serviced
7 Oaks-Kinloch	190	Zoned, some consented	Non-Maori	No services within block, but water and Wastewater available at the adjacent road frontages
Undeveloped half charges (North end of lake)	947	Zoned and consented	Mostly non-Maori	
Kuratau (D2D3)	82	Zoned	D2D3 Maori owned	No services within block, but water and Wastewater available at the adjacent road frontages
Turangi	400	Zoned	Mostly Turangitukua	No services within block, but water and Wastewater available at the adjacent road frontages
Undeveloped half charges Southern end of Lake	594	Zoned and consented	Both Maori and non-Maori land	
Total District Supply	5,632			

Source: TDC

This high-level data suggests the current supply of vacant residential zoned lots within the District will be sufficient to supply the 2,600 expected demand / growth utilising the growth projections above based on the medium growth projection series.

Under the high growth projection series (approximately 4,900 homes), it would appear there is also sufficient capacity.

These zoned capacity numbers do not include the potential future residential zones that are included in the current TD2050 document that while not directly relevant to this assessment are included for completeness. These are shown in Table 2.

TABLE 2: POTENTIAL FUTURE RESIDENTIAL ZONES

Five Mile Bay Site A and C	440	Needs Structure Plan and rezoning. Identified in TD2050	Maori land freehold	No services within block, but water and Wastewater available at the adjacent road frontages.
Nukuhau Private Plan Change	770	Needs Structure Plan and rezoning	15ha Maroi Trust land	No services currently.
Omori (Mohi block)	50	Needs rezoning	Non-Maori	No services within block, but water and Wastewater available at the adjacent road frontages
Kuratau Omori future growth area	To be determined	Needs rezoning	Non-Maori	

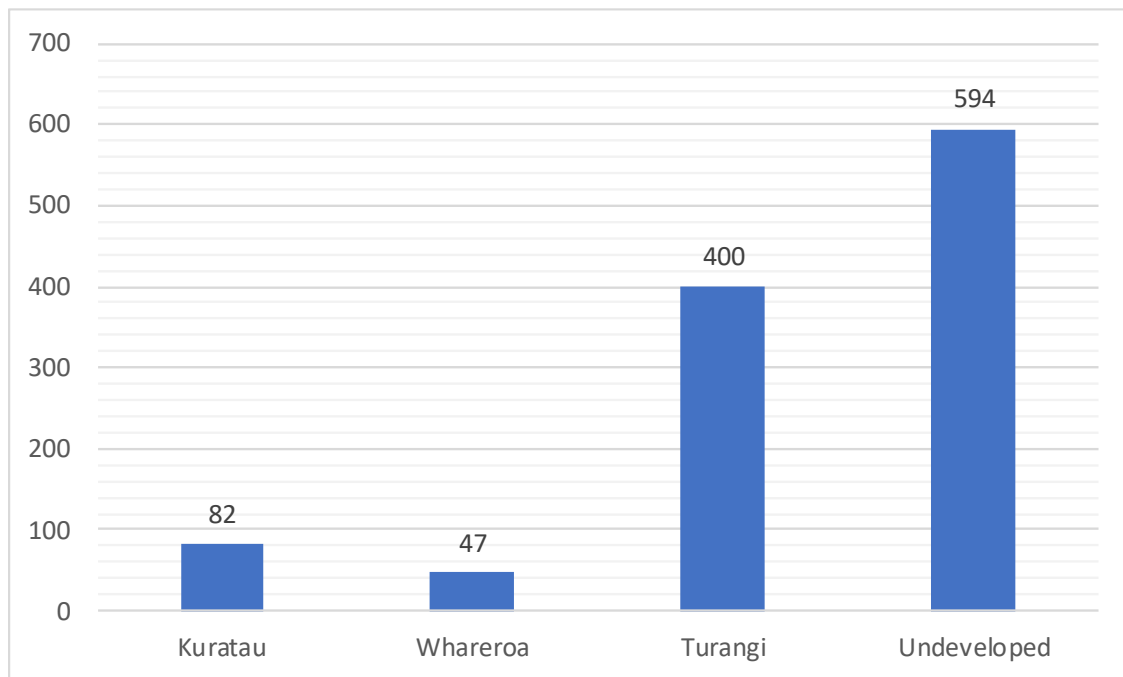
Source TDC

Localised Catchment

Of the potential residential lots in the Taupō District, the majority of vacant lots are located at the northern end of the lake with 1,123 vacant lots in the southern end. Figure 3 shows the potential supply of new dwellings in the currently zoned areas of Southern Taupō which includes almost 600 total undeveloped vacant sections, 400 lots in Turangi, 47 in Whareroa, and 82 in a recently zoned village of Kuratau.

The proponents of PPC36 have indicated there are only 9 vacant lots in Whareroa, not 47 as indicated by TDC, as some lots despite being vacant are sold to landowners who utilise their sites as holiday sections for camping. However, these sites being vacant still represent vacant capacity to accommodate dwelling demand in the future. Therefore the 47 vacant site figure is considered the most appropriate to adopt for the purposes of this assessment.

FIGURE 3: RESIDENTIAL SUPPLY IN SOUTHERN TAUPŌ DISTRICT AREAS



Source: Property Economics, Taupō District Council

In order to better understand the geospatial distribution of the undeveloped lots in southern Taupō, each lot was geocoded based on the list of addresses provided by TDC. Of the 1,540 vacant lots, nearly 330 were unable to be geospatially located. This was used to locate the number and location of vacant homes in the southern Taupō areas.

Specifically, regarding the western Taupō lakeshore more closely linked to Whareroa, there were 116 vacant lots, 47 of which are in Whareroa itself. These vacant lots included in the 594 undeveloped total are in addition to the 82 lot provision in Kuratau shown in Figure 3. This would suggest that in total there is currently the potential for 198 new homes to be built between these towns alone on the Western Taupō lakefront area, or 598 lots including Turangi.

With the slight decrease in the local population base between 2013 and 2018 as outlined earlier, and 198 vacant lots locally (or 598 including Turangi), the analysis identifies material existing residential capacity within the southern areas of Taupō.

5. PROPOSED DEVELOPMENT

As discussed earlier in the report, the Taupō District is projected to grow at a slower rate over the next 30-year period than envisaged in the original TD2050 document.

The preceding chapter identified that the Taupō District has sufficient residential land available to accommodate the expected dwelling growth/demand at a district wide level, both under the Medium and High growth scenarios (with some potential additional infrastructure required to support a High growth scenario).

In Section 7 of the Taupō District Plan, the Western Lake Taupō Bays region (for which Whareroa is included) is described as:

- One of the most scenic and undeveloped parts of Lake Taupō. Very high level of uniqueness and natural character.
- Very high level of amenity and scenic qualities, characterised by sheer cliffs, native vegetation and small secluded bays.
- Very high sense of place for Taupō communities as forming an 'untouched' wilderness experience only accessible by boat.
- The southern coastal margin of the south western bays is noted in tourist brochures as a less busy and rural scenic drive along the western side of Lake Taupō. The lake margins include some highly valued rock-climbing areas, such as Whanganui Bay.
- Highly picturesque with pockets of native vegetation, shelter trees, and distinctive white pumice rocky outcrops.

One purpose of economic analysis in the context of strategic planning and zoning is to ensure that the land is used for its most efficient and sustainable use of which the landscape and high levels of scenic qualities supports the value of this wider area. Furthermore, it is Property Economics understanding that this land is not currently used for intensive productive economic uses which would otherwise incur material opportunity costs if this were the case.

The attributes discussed above relate to the entirety of the Western Lake Taupō Bays area and are not unique to Whareroa. While residential development may be a plausible use of the subject land in Whareroa, the uniqueness attributes of the area by themselves do not appear to justify a requirement for additional residential land when sufficient capacity is already available at a localised Western Lake context. That is these choices and attributes are available in other proximate locations to the area that is subject to PPC36.

Given the land supply of lots in zoned and developed areas exceeds projected demand levels, the appropriateness of development in Whareroa North from an economic standpoint depends on the extent to which the market for homes in Whareroa is independent of the market demand in the wider Taupō District.

To this point, the proponents of the PPC36 suggests that Whareroa is a unique holiday home location in that it is remote and has an absence of commercial activities, providing relative isolation and a village style atmosphere (this aspect is not disputed). In addition, they point out



that demand for holiday homes is not linked to growth in Taupō District as the owners of these homes are typically from the Auckland and Waikato Regions.

It is for these reasons that the proponents view positively the viability of Whareroa North as a growth node despite the relatively lower growth projections for the Taupō District and particularly southern Taupō areas. In essence, the development of Whareroa North appears to be based on holiday home demand for this specific location rather than usually resident demand of the District.

While the market for the proposal may not include a substantial proportion of permanent residents it would, by nature, fall into the assessment of vacant/holiday home demand estimated at 30% of total demand. The adoption of a 30% margin for vacant/holiday home demand is considered aspirational as the District continues to mature and provide greater impetus for permanent residents (as a proportion of total demand). As such the utilisation of the historically high levels of unoccupied dwellings is considered to be more than sufficient.

Regardless of the origin of demand, the excess supply of residential lots, that currently exists in the Taupō market, would still be sufficient to supply this additional 30% demand buffer. The substantive question in this instance is whether Whareroa North can be distinguished or justified as a unique location in comparison to alternative locations on Taupō's lakefront for holiday homes.

The significance of the proposed site, from an economic perspective, originates from its uniqueness as a location. As identified above the demand for this general location has been relatively small over the past decade, additionally the proposed site would need to provide distinguishing characteristics that would attract demand to the District that would not otherwise locate in Taupō. Given the low level of demand in this general location and the additional threshold of no valid alternatives in the District the potential for this site to add unique economic benefits to the District are considered to be very low. Given the potential for additional economic benefits resulting from this development are low the risk to the community is the cost of duplicating resources and infrastructure.

There is a substantial supply of land that acts as a substitute located in other areas and serviced locations within Taupō.

As an example of a comparative alternative location, Omori and Kuratau is a larger interconnected holiday home destination located a short distance south of Whareroa. While the entirety of the Taupō District could be considered competition for holiday home demand, these destinations are the closest and therefore likely represent areas of highest competition to Whareroa. In Kuratau there has been a recently zoned area that will support an additional 82 lots in Kuratau that would compete with Whareroa.

The key selling point of Whareroa according to a local real estate agent is the village style atmosphere that is almost exclusively used as a holiday home settlement. It has been labelled as being rich in culture with a strong connection of the landowners to the area which has ensured strong conservational efforts and a natural scenic environment. When discussing Kuratau, specifically, the local agent mentioned that people have come to him to move away from Kuratau where he indicated the village style atmosphere has been lost.



Property Economics are not experts to evaluate the comparative merits and value of landscape amenities, however the slow growth rates and current large supply of vacant lots in the area does not suggest high demand for housing product in this particular area, or material transfer of demand from Kuratau to Whareroa.

If the landscape amenity and locational attributes were to be used as a basis for elevating Whareroa North's 'unique qualities' valued by buyers and surpasses other areas in Taupō, the data would illustrate this, but at this point the data indicates the locational attributes of Whareroa North are not driving Whareroa demand for holiday homes to any material degree.

The large vacancy of lots (noting that a vacant lot, even if on-sold is still counted as a vacant lot) in Whareroa and lots around southern and western areas of Lake Taupō suggest that the market is not currently demanding an additional supply of homes / lots in these areas, and the market is not elevating landscape and locational attributes of Whareroa above alternative locations.

This does not by itself eliminate the case where development in Whareroa would generate unique demand, however the resulting conclusion is a lack of evidence to support the notion of unique demand in Whareroa.

If the Whareroa North development is unable to generate any additional house (either permanently occupied or holiday home) demand for the district then there is sufficient supply of vacant lots in south and western areas and wider Taupō District for holiday homes demanded in the District given identified supply.

Given there is sufficient supply, any development facilitated by PPC36 would duplicate and undermine the current zoned and serviced land, increasing the expense of additional infrastructure maintenance costs for the wider community, and resulting in less intensively used and inefficient community infrastructure.

Furthermore, it is Property Economics' understanding that many of the lots that would be developed in the Whareroa North PPC area may not have a vista of Lake Taupō given the land is elevated, on a relatively flat plateau and has an extensive notated and protected native vegetation between the subject land and Lake Taupō. This may negatively impact the demand for this new area in comparison to the existing Whareroa settlement which is benefited by being on a hill sloped towards the lake and thereby maximising the number of homes with lake views, attributes of alternative locations.

5.1. HOLIDAY HOME SUPPLY

Using supply for the entire district as a measure of all available homes / lots as ready substitutes in comparison to overall demand may not be a suitable measure to project forward demand for holiday homes, particularly in the western Taupō Area.

As identified earlier the population growth has been focused primarily on the northern and eastern side of the lake, proximate to the Taupō urban area. In comparison the population in the

Lake Taupō Bays SA2³ area declined between each census period (2013 – 2018) and yet the number of households grew by 2.6%.

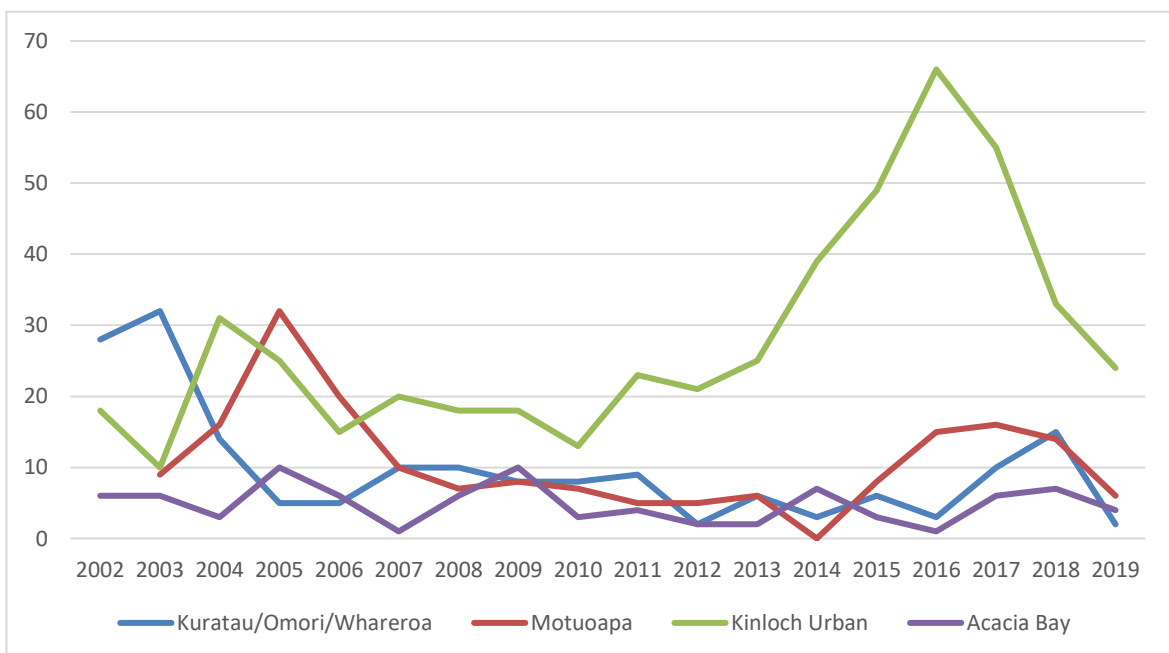
To test any suggestions that population growth in Taupō District may of itself be an inadequate measure for predicting holiday home growth, the history of new dwellings (sourced from TDC) built in the district and southern Taupō areas has also been analysed

Figure 4 shows the dwelling growth recorded in some of the key holiday home areas in Taupō. Aside from a noteworthy increase in the early 2000's, the net new dwellings in Kuratau / Omori / Whareroa combined remained reasonably steady at around 10 homes or less annually for the 2007-2011 period and falling to around 5 homes annually for the 4 years following that.

While there does appear to be a small peak of interest in the last couple years, there is no certainty that the trend will continue long term given past growth levels with 2019 data to date falling noticeably again. Even if this peak reflected a longer-term trend this would not significantly impact the overall levels of demand in this location.

Unless the additional supply of residential lots provides something considerably different or the large tracts of residential land in the Taupō District were to become no longer available / developable, the data indicates there is no logical reason to consider the Whareroa North PPC would generate unique demand and growth levels for Whareroa. As such dwelling growth / demand in Whareroa is unlikely to be significantly different to current levels on a with or without Whareroa North PCC basis.

FIGURE 4: NET NEW DWELLINGS IN KURATAU, OMORI AND WHAREROA



Source: Property Economics

³ Geospatial unit as measured by Statistics NZ



The average net new dwellings developed in Kuratau / Omori / Whareroa (combined) over the past 16 years is around 10 annually. This reduces to 7 new dwellings as an annual average when considering the last 10 years. Assuming this trend will continue into the foreseeable future with between 7-10 new dwellings built annually, this would equate to between 210-300 new dwellings over the next 30 years across these three settlements combined.

Of the last 6 years Whareroa represented just over 25% of these new dwellings. Assuming this 25% ratio will continue for the foreseeable future, this results in demand of between 53-75 new dwellings in Whareroa over the next 30 years at average rate of around 2 dwellings per annum.

A demand of 53 – 75 new dwellings by 2048 exceeds the current 47 vacant lots in Whareroa. This level of growth needs to be contextualised with the long term (30 year) demand / supply differential being between a potential 6-28 lot shortfall by 2048. Therefore, at the higher average rate of two dwellings built per annum, it would take around two decades before Whareroa's current vacant lots are built upon.

In considering the current market for household construction it is important to recognise that the prices over the past 10 years have grown by almost 40%. As the equilibrium price of household construction has risen significantly, this may be an underlying reason for the lower average rate of building consents observed in these holiday home townships.



6. MAORI LAND

Under the requirements of Sections 7 and 8 in the RMA in relation to the Treaty of Waitangi, Maori must be treated fairly in relation to development opportunities. It is difficult to ascertain exactly how much Maori land has been developed over the past 10 years in Taupō given some of the relevant land is no longer under Maori ownership.

However, information from the TDC indicates that there has been lower rates of Maori owned land subdivided in the last 10 years. Anecdotally, this has been primarily due to issues with partitioning, low take-up of leasehold land, difficulties with agreements between multiple owners and planning mechanisms potentially not suiting Maori development aspirations.

As it currently stands, around 9% of the current 5,632 vacant lots in the District are on Maori owned land. This includes half of the recently zoned 82 sections in Kuratau, and a number of sites in Turangi.

Excluded are Five Mile Bay sites A and C and the Nukuhau Private Plan Change which are unzoned but would add circa 1,210 to the total.



7. NET PRESENT VALUE ANALYSIS OF COSTS AND RETURN

This section outlines a Present Value analysis of the costs and potential return for the Taupō District as a whole, of PPC36.

The Net Present Value (**NPV**) is a calculation typically used to evaluate the return of an investment opportunity. Effectively, the NPV value of an investment is the effective income a party would earn today if they were to undertake the investment opportunity, albeit the cost and benefits are realised in the future.

In effect, if an investment party were given the full NPV amount in the bank today at the specified discount interest rate the investment party would be at the same financial position at the end of the specified time period. In this case it is applied to evaluate the effective return and the present value of costs to the Taupō District Council, and by proxy the Proponent of the Plan Change – who would be responsible for initial capital expenditure.

In regard to the present value of the return, this is somewhat more complex to evaluate. If the demand for homes in Whareroa is unique, the additional rates received by TDC would (in theory) offset many of the costs associated with maintaining the required infrastructure investment. That is the rezoning would offer a unique proposition for demand generated outside the District that would not be met in other locations, or it would simply transfer demand within the district.

Where it is not unique, the infrastructure maintenance costs associated with this development are additional to any other maintenance costs that the Council would have to pay to support residential developments in other areas that still need to be supplied and serviced. This is because the maintenance costs are not entirely based on the relative extent of usage over a year, but the existence of the asset in and of itself would attract costs.

In simple terms, the rezoning would duplicate existing serviced zoned land without any demonstrable increase in district demand and growth, decreasing the efficient use and development of sunk infrastructure costs as spread over the same rate payer base.

7.1. INFRASTRUCTURE REQUIREMENTS

Given the location of PPC36, development of residential homes on the subject land would require substantial infrastructure and civil works. For Whareroa North the infrastructure requirements include:

- A bridge and extension of the road network;
- Wastewater and potable water supply;
- Stormwater management; and
- Utility and reserve maintenance.

FIGURE 5: WHAREROA NORTH ACCESS OPTION D



Source: Key Solutions Limited

Figure 5 contains a sketch indicating the proposed access road to reach the plateau of Whareroa North. While the supplied documents from the proponents listed two potential access options, it is Property Economics understanding that Option D indicated in Figure 5 is the current preferred option. No consents have been sought or issued to further these works.

The total infrastructure costs for this option is circa \$1.3 million including:

- \$84,500 on operational costs;
- \$250,000 on earthworks;
- \$224,000 on roading; and
- \$685,000 on other infrastructure⁴.

Key Solutions indicated that once the infrastructure is developed, the ongoing maintenance costs of these assets would be similar to other developments. This information was given to TDC who have provided Property Economics with estimated high-level maintenance and depreciation costs for the infrastructure assets for the purpose of this economic analysis.

⁴ It is unclear if any additional costs for water, wastewater and stormwater are included in this infrastructure figure.

The estimated costs provided by TDC include roading costs of \$31,500 and water related infrastructure costs of \$20,400 totalling \$51,900 per annum over the various asset lifespans. These are broken down into specific items within Table 3.

TABLE 3: ASSET ITEMS AND TOTAL COSTS PROVIDED BY TDC

Item	Annual Depreciation/Cost	Life Span/Freque
Bridge	\$ 6,623.43	80
Top Surface	\$ 7,727.11	23
Pavement	\$ 4,025.78	62
Kerb and Channel	\$ 765.87	38
Signs	\$ 239.18	11
Sign posts	\$ 70.37	33
Streetlights	\$ 1,109.63	13
Streetlight poles	\$ 1,263.86	60
Culverts	\$ 6,047.16	78
Swales	\$ 3,606.47	-
Water Main pipes	\$ 4,631.24	100
Water Service and intersections	\$ 226.35	90
Water Toby, Fire Hydrants, Valves	\$ 527.74	60
Wastewater	\$ 4,176.71	80
CCTV'd wastewater	\$ 2,473	10
SL-Rat sewer pipe	\$ 247	5
District Costs	\$ 7,000.00	1

Source: TDC, Property Economics

In addition to the depreciation items identified there are a number of maintenance costs and costs associated with the stormwater. The contribution to the districtwide pool of roading costs is approximately \$7,000 annually. This is derived from the total District budget in place for various contracts regarding road maintenance, road marking, streetlight maintenance, structural bridge maintenance, and general maintenance and inspections.

Inflation and rising construction prices mean that many of these assets will be considerably more expensive in the period when the infrastructure's economic life might end. This is accounted for by Council (in theory) putting money aside now so that the effective interest rates would account for this rise in price.

In total therefore the Taupō community will need to pay approximately \$52,000 per annum towards maintaining the community assets at the proposed site regardless of potential demand, or uptake. That is the costs to the community would be \$52,000 regardless of whether there was only one dwelling established in the first year (and contributing rates), or the full 160 dwellings.

7.2. PRESENT VALUE OF COSTS

In evaluating the costs, it is important to consider that the assets being depreciated have been paid for originally by the proponents. The depreciation is based on expectations on the future liability of Council having to replace infrastructure assets at the end of their useful economic life.



While the above depreciation and maintenance costs would not be incurred on Whareroa North directly in its formative years, they are funds that are put into a collective pool of maintenance costs for the district.

These depreciation values are calculated based on assumptions surrounding a settlement of 160 homes. Each year the community incurs a cost of \$52,000, however when considering the current total cost of these future payments (regardless of the potential for costs to increase), must be discounted so that future deferred payments are treated differently (e.g. the corresponding 30-year annual cost is less than \$5,000 in current terms).

Totalling these discounted costs indicates that the total current cost for these deferred payments over a 30-year period is approximately \$660,000 to the Taupō community. In simple terms while the annual costs summed through 30 years would total over \$1.56m, annual these costs are deferred (as outlined above the last payment of \$52,000 in 30 years is worth \$5,000 now), therefore the present cost to the community of the development is in the order of \$660,000. This allows the comparison of all potential costs and benefits in terms of their current value.



8. ECONOMIC COST BENEFIT OVERVIEW

The proposed Whareroa North PPC land use has the potential to result in a variety of economic costs and benefits on the local and wider community. Establishing the degree of these costs and benefits and the extent of their effects on the surrounding community is important in determining the overall impact of a potential development.

This section addresses the economic costs and benefits associated with the proposed development at a high level and establishes whether a net economic benefit or cost is likely to be borne out on the local and wider Taupō community.

8.1. ECONOMIC BENEFITS

Some of the generalised potential economic benefits associated with additional residential product include:

1. Provide supply, where there is capacity and choice deficiencies.
2. May generate unique demand and thereby bring net additional holiday home sales to the district that may not have otherwise occurred without PPC36.
3. Increased residential choice / typologies and price points.
4. Job generation for the District (on the basis the Whareroa North PPC results in unique and net additional demand).

While the above points highlight general economic benefits of residential development, not all of them may relate to the case for the Whareroa North PPC.

Considered in isolation, the additional rates from the Whareroa North PPC (as fully developed) has a calculated Present value of \$800,000. However, this assumes that the demand is entirely unique, and that the development occurs faster than the current market would suggest which is unlikely considering the economic analysis outlined earlier in this report. Effectively the data indicates that the extent of additional unique demand that would be generated by further development in Whareroa North is very limited at best.

Increased choice and price points is a natural benefit of any additional supply in any market that is not identical to the current product offering. An increase in the options available in the market provides additional residential choice. This increases the flexibility in price points and increases competition in the market to the benefit of consumers as is, but this benefit is not solely attributable to Whareroa North PPC with all new residential development, where demand is exceeded, in the District generating this benefit.

The provision of additional lots / supply in Whareroa North has the potential to simply redistribute demand from other holiday home locations around the lake. Given the level of serviced supply that currently exists in these competing locations the resulting economic position is likely to simply be a duplication of resources that leads to an inefficient use of these resources and additional costs to the community without any substantive associated economic benefits.



Another potential benefit of the infrastructure development and associated costs attributable to Whareroa North is the injection of additional funds into the Taupō economy on the basis the supply is unique. This has the potential to generate work and income for construction workers within Taupō District. This would however need to be a result of new dwelling growth otherwise it simply represents a transfer of jobs and investment from demand in other areas.

8.2. ECONOMIC COSTS

It is important to note that these economic costs represent gross impacts and may be offset to varying degrees by the preceding benefits. Economic costs associated with the Whareroa North PPC include:

- **Diversion of growth away from alternative locations in the District**

Allowing additional growth areas in Whareroa North that are in excess of what is required has the potential to simply redistribute growth and residents away from other areas. While Whareroa is an identified growth node for this explicit purpose, the level of expected growth would suggest that it provides excess supply at a cost to the community.

This is related to the discussion above around whether Whareroa North can generate unique demand over and above demand that would otherwise occur in alternative locations in the district.

Current supply of residential land, in the southern and western bays is in excess of even the High growth projections, the economic data suggests no new residential land provision is required in the district and Whareroa North PPC does not represent a 'unique' development.

- **Additional Infrastructure Costs**

The majority of areas that are zoned and vacant either have infrastructure construction underway or have ready access to services at adjacent road sites. The infrastructure that would need to go into construction of Whareroa North is therefore unnecessary given sufficient supply of residential product available elsewhere. In the analysis earlier, the present value of costs to the community is estimated at \$660,000 for a 30-year period (\$1.56m in total).

Whareroa Infrastructure Capacity

The proponents of PPC36 have indicated there is significant capacity within the existing infrastructure of Whareroa. While there exists capacity within infrastructure at Whareroa, this has not been assessed for the purposes of this report relating to the potential net impacts of the proposal. In terms of a nominal benefit, avoiding additional costs of accessing the site from Whareroa Road, which could accommodate this additional demand, seemingly, without additional costs would result in a benefit in terms of efficiency (i.e. reduced marginal cost).



However, this benefit (as with already serviced capacity in other areas of the district) must be weighed against the potential increased efficiencies that exist in other existing infrastructure that accesses existing and serviced residential capacity, i.e. roads that already access the borders of existing capacity. Unless access to such existing capacity would require (solely because of the new capacity) surrounding infrastructure upgrades then these aforementioned efficiencies exist elsewhere as well and are therefore 'netted out'.

In terms of the existing capacity within the wastewater that can be utilised by the proposed Whareroa North site, it is expected that this absence of cost is reflected in the engineering costs provided for the proposed development and as such has been excluded from the potential net costs when comparing to potential sites that are serviced.



9. SUMMARY

The economic analysis in this report paints a clear picture in relation to residential and holiday home demand and supply in the District. With circa 5,700 zoned vacant lots, there is more than sufficient capacity to accommodate projected growth over the foreseeable future of 2,600 lots under the medium growth scenario and around 4,900 lots under the high growth scenario.

Community costs over a 30-year period are estimated at a current cost to the community of \$660,000 without additional unique growth for this development as opposed to the existing capacity in this area. Then this represents an additional cost without any additional benefit to the community.

Essentially, there are two economic outcomes in considering the net economic position represented by residential development. There are inevitability costs incurred by the community that result from residential activity and the need to maintain and replace community assets. These costs are generally offset through the provision of residential rates.

The efficiency and therefore appropriateness (lowest marginal cost per resident) of these assets is achieved where growth is met with the least cost associated with this maintenance and replacement without unnecessarily duplicating assets (and costs) without achieving additional growth.

In terms of the community's economic wellbeing it is important that the servicing of residential sites is not out of line with expected growth otherwise the costs (i.e. rates) increase for each residential unit. Thus, while providing for future growth facilitates future rates and other economic benefits (such as employment and retail spend), it is important that the costs of servicing additional residential land are not simply met without showing a corresponding requirement. Otherwise, the costs of servicing represent a duplication of resources without generating the necessary growth to support the additional community costs.

APPENDIX 1. PRICING OF OPTION 2 INFRASTRUCTURE REQUIREMENTS

ITEM	DESCRIPTION	QTY	UNIT	RATE	VALUE excl GST
1.0	PRELIMINARY AND GENERAL				
1.1	Establish to site	1	LS	\$50,000.00	\$50,000.00
1.2	Insurances	1	LS	\$2,000.00	\$2,000.00
1.3	Contractor to ensure all staff have appropriate general and site specific health and safety inductions and access clearances	1	LS	\$5,000.00	\$5,000.00
1.4	Contractor to establish and maintain Traffic Management for the duration of the Contract Works	1	LS	\$2,000.00	\$2,000.00
1.5	Contractor to maintain Health & Safety Register and Hazards Board	1		\$500.00	\$500.00
1.6	Survey setout	1	LS	\$10,000.00	\$10,000.00
1.7	Erosion & Sediment Control	1	LS	\$15,000.00	\$15,000.00
1.8	Asbuilts	1	LS	\$5,000.00	\$5,000.00
ITEM 1: SUBTOTAL					\$84,500.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	VALUE excl GST
2.0	EARTHWORKS				
2.1	Clearing scrub etc up to 200mm Ø trees	1	LS	\$20,000.00	\$20,000.00
2.2	Clearing trees over 200mm Ø trees if required	1	LS	\$20,000.00	\$20,000.00
2.3	Strip and stockpile topsoil - 200mm depth, including screening	15,000	m³	\$5.00	\$75,000.00
2.4	Cut to fill - compaction 95% MDD 0.6 Compaction Ratio Assumed	20,570	m³	\$5.00	\$102,850.00
2.5	Respread topsoil to berms, reserves and lots	10,000	m²	\$2.50	\$25,000.00
2.6	Grass seeding	10,000	m²	\$0.75	\$7,500.00
ITEM 2: SUBTOTAL					\$250,350.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	VALUE excl GST
3.0	ROADING				
3.1	Saw cut existing road	1	LS	\$500.00	\$500.00
3.2	Subgrade road - undercut to a depth of 450mm, replace and recompact	3,900	m²	\$2.50	\$9,750.00
3.3	Trim and roll subgrade - Road	3,900	m²		\$0.00
3.4	Kerb and Channel (KC)	1,000	m	\$35.00	\$35,000.00
3.5	Basecourse road - 150mm NZTA M4	650	m³	\$75.00	\$48,750.00
3.6	2 Coat chip seal grade 3/5	3,900	m²	\$25.00	\$97,500.00
3.7	Footpath (concrete) - all works including subgrade preparation and formwork	1,300	m²	\$25.00	\$32,500.00
ITEM 3: SUBTOTAL					\$224,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	VALUE excl GST
4.0	CIVIL WORKS				
4.1	Common services trench	650	m	\$15.00	\$9,750.00
4.2	Stormwater	1	LS	\$25,000.00	\$25,000.00
4.3	Bridge, including abutments	1	LS	\$650,000.00	\$650,000.00
ITEM 4: SUBTOTAL					\$684,750.00

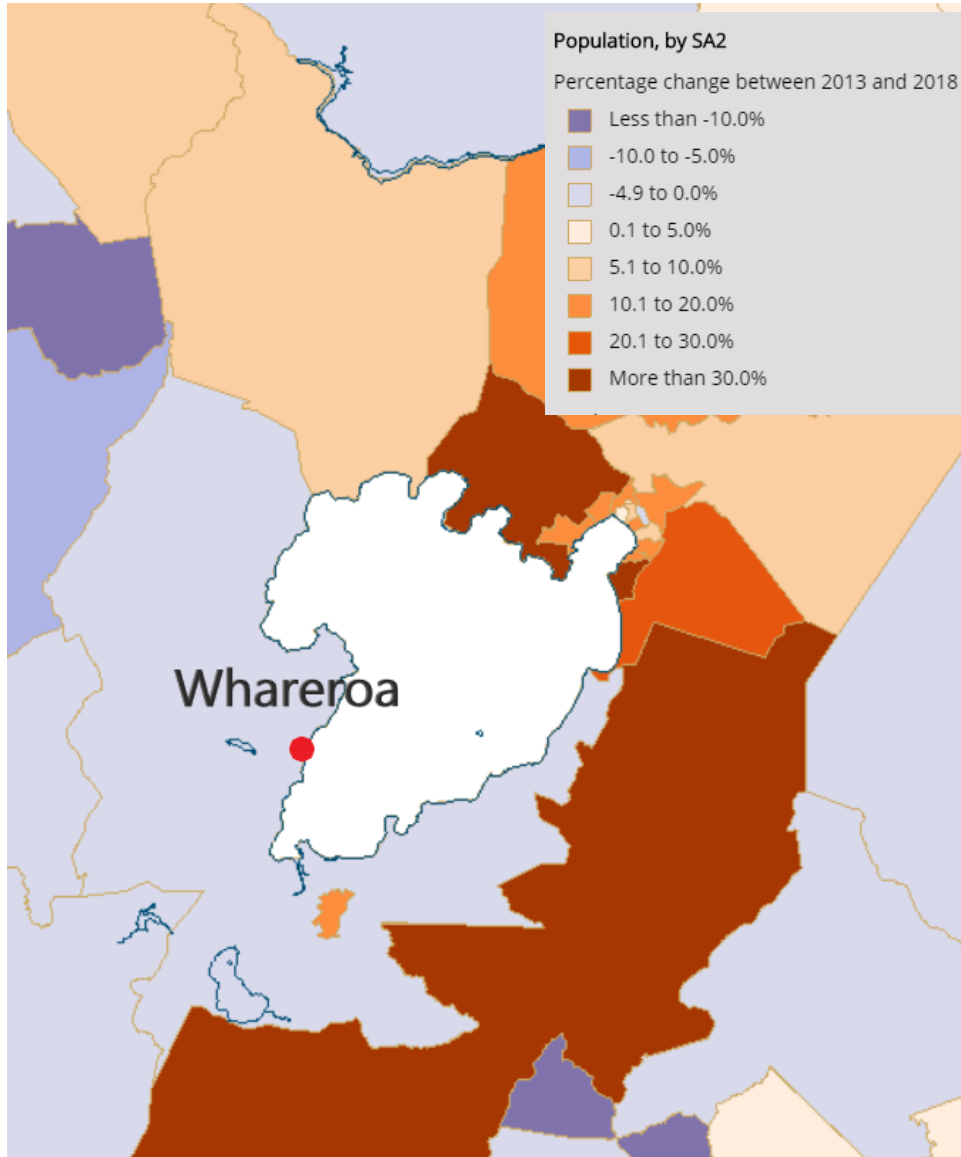
ITEMS 1 to 4 - TOTAL:				\$1,243,600.00
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ITEM	DESCRIPTION	QTY	UNIT	RATE	VALUE excl GST
5.0	CONTINGENCY				
5.1	Contingency (not to be expended without approval of Engineer)	\$1,243,600.00	1	\$0.15	\$186,540.00
ITEM 5: SUBTOTAL					\$186,540.00

TOTAL :				\$1,243,600.00
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APPENDIX 2: CHANGE IN POPULATION 2013 AND 2018



Source: Statistics NZ