

SmartGrowth Infill Assessment, Tauranga City

1. Introduction

This review assesses the potential estimated additional dwelling potential within the infill areas of Tauranga City which have a Suburban Residential zoning in the Proposed Tauranga City Plan (formerly Residential A zoning in the Operative Tauranga District Plan). It does not include Suburban Residential zoned land within the Greenfield areas of Tauranga City (see Figure 1 – Infill Study Area).

Infill sites are defined as those that are able to comply with the 325m² minimum site density control in accommodating additional dwelling(s) without removing or resiting any existing dwelling on site.

2. Background

A 'Land Capacity' report¹ was prepared in 2002 as part of the background research for SmartGrowth. For the infill component for Tauranga City it estimated that capacity for a further 5,000 households remained in Tauranga City at 2001. The infill component was comprised of Suburban Residential and High Density Residential (formerly Residential H zone under the Operative Tauranga District Plan) zoned land in the City.

In 2008 a review of potential dwelling yield within land zoned Residential A in the infill areas of Tauranga City was completed². The 2008 Review excluded the High Density Residential zone from the assessment but included large tracts of undeveloped Suburban Residential zoned land along Kaitemako Road and to the east of the established area within Welcome Bay not included in the 2002 Land Capacity report. The 2008 Review estimated that a potential developable dwelling yield of 8,000 dwellings remained within the infill area as at 2008.

From 2001 to 2006 an increase of 1,180 dwellings occurred within the Suburban Residential zone of the Tauranga Infill area, followed by a further increase of 900 dwellings in the 2006 to June 2012 period (see Appendix 7). The capacity identified in the 2002 and 2008 reports would have reduced as the result of this development.

3. Methodology

Sites were categorised by size based on the current minimum site area threshold of 325m² in the Suburban Residential zone by Tauranga City Council's Geographic Information System (GIS). This information was supplied in an electronic mapping application where changes could be made based on an assessment of the mapped data. As per the 2008 Infill Review the assessment was divided into sites which could theoretically accommodate from one additional dwelling up to nine additional dwellings ("1-9"), and sites which could provide for ten or more ("10+") additional dwellings.

Parcel size was mapped and colour coded based on the following categories:

Parcel Size (m ²)	650-975	975-1300	1300-1625	1625-1950	1950-2275	2275-2600	2600-2925	2925-3250	3250-3575	3575+
Additional Dwellings	1	2	3	4	5	6	7	8	9	10+

All vacant sites above 325m² within the infill area were also identified and included in the assessment.

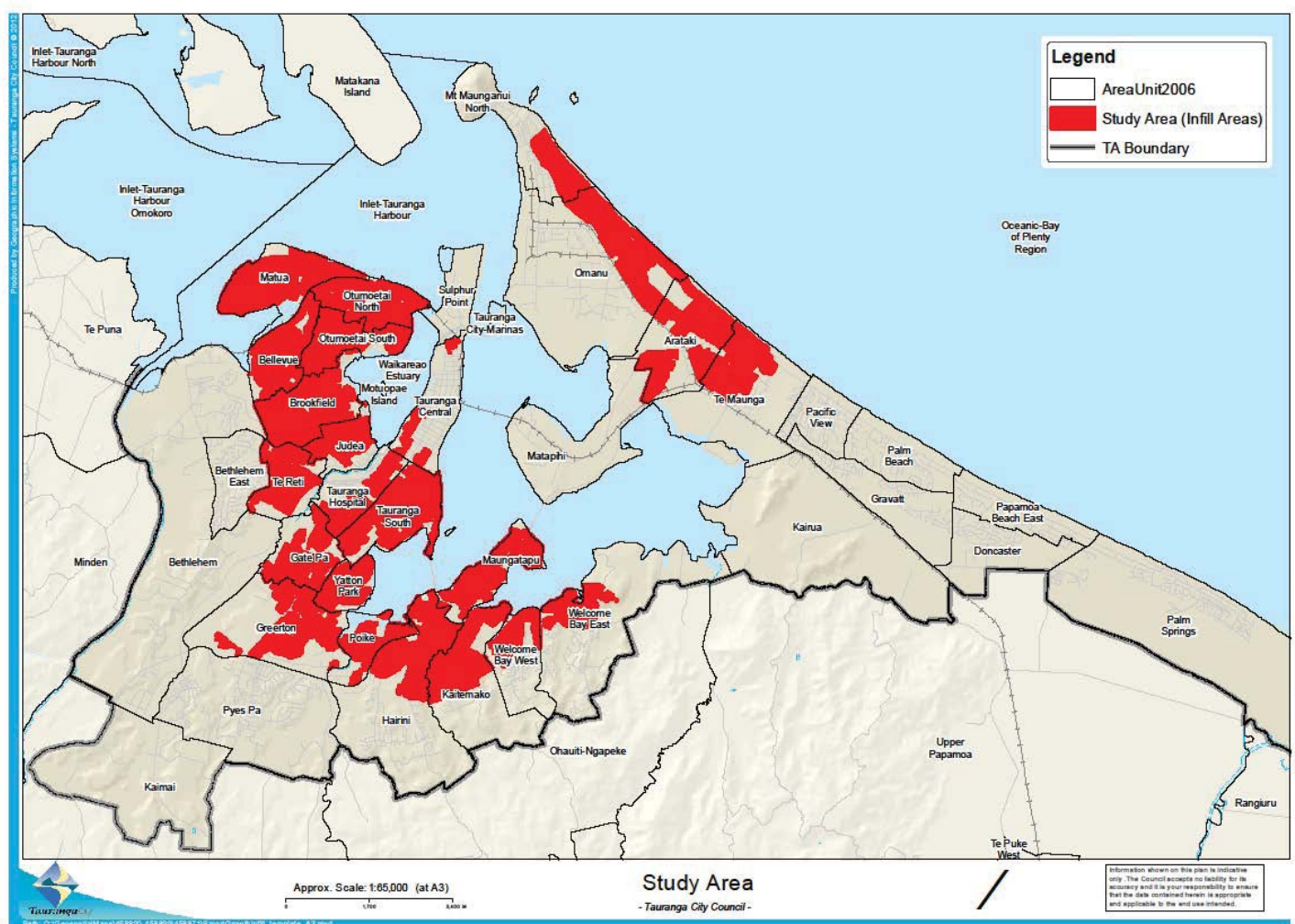
¹ Land Capacity, Phase 2 SmartGrowth Report, Tauranga and Western Bay of Plenty district councils, August 2002.

² Residential A Zone Infill Capacity Review, May 2008, Environmental Division, Tauranga City Council.

Only Suburban Residential zoned land was assessed for infill potential. The High Density and City Living zones were excluded because development within these zones is largely intensification through redevelopment rather than infill; as the provisions of these zones allow for greater density.

It is noted that there is potential for infill within the Suburban Residential zone via the “secondary independent dwelling” provisions recently introduced through the City Plan review. Potential has not been quantified as it is too early to determine whether they will be substantially attractive to deliver a substantial number of additional dwellings.

Figure 1: Tauranga City – SmartGrowth Infill Study Area



3.1 1-9 Additional Dwellings Assessment

Due to the extensive work that would be involved in assessing all of the Tauranga City infill area, four representative Census Area Units were selected and a detailed analysis undertaken (see Figure 2). There are a total of twenty three CAU's in the infill areas containing land zoned Suburban Residential. The Census Area Units (CAU's) assessed were Mount Maunganui North, Omanu, Otumoetai North and Greerton. These are the same CAU's selected for the 2008 Infill Review which enable comparisons to be made between 2008 and 2012 results.

These four CAU's were selected in 2008 as they were considered to generally characterise the established infill area. Mount Maunganui North and Omanu CAU's

have a flatter topography and a more traditional grid street layout. Otumoetai North CAU is a mixture of flatter and steeper areas with gully systems and escarpments. Greerton CAU provides an intermediary example as it is generally flatter than Otumoetai North CAU but with steep land on its fringes and gully systems in parts.

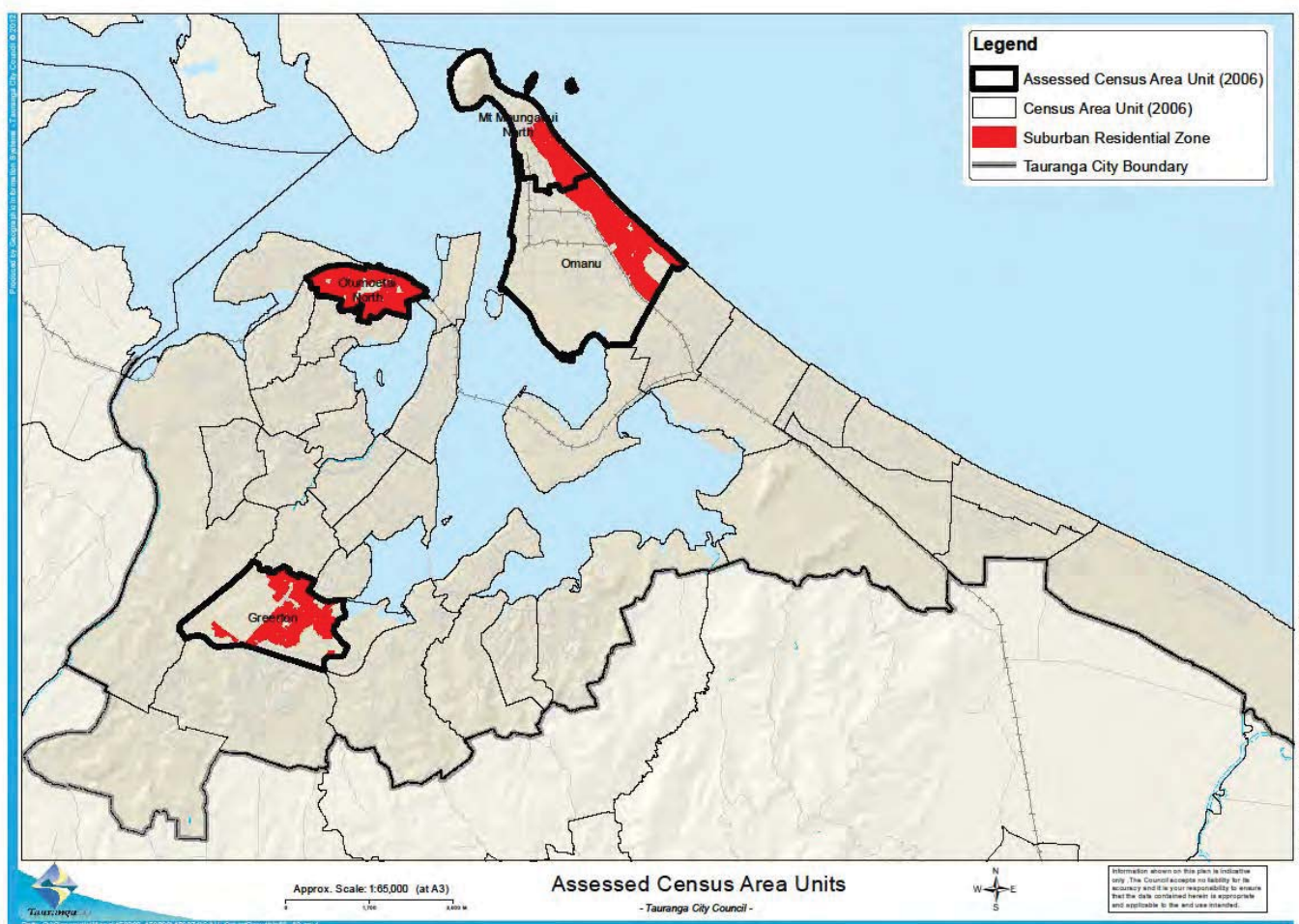
Step 1: The parcel size categories were colour coded and a theoretical additional dwelling figure noted on each Suburban Residential zoned site. Further GIS layers were applied to the maps including 2011 aerial photographs, contour lines, relic slips, flood risk areas, Government owned land, and cross-lease parcels. All vacant sites above 325m² within the infill area were identified and assessed for infill potential.

Step 2: Each site was examined to see whether the additional dwelling(s) capacity suggested by the theoretical yield was achievable. Where potential for additional dwellings on site was identified a “potentially developable yield” was recorded for each site, and results calculated by CAU and by parcel size category.

Step 3: Once the potentially developable yield was calculated for the four sample CAU's, two approaches were employed to apply those results across the remaining CAU's within the infill area as follows:

- **CAU %** - applying an overall 'potentially developable' percentage to each CAU based on similarities to the four CAU's assessed.
- **Category %** - applying a 'potentially developable' percentage to each parcel size category over the City based on the results from the four CAU's assessed.

Figure 2: Tauranga City – 1-9 Assessment - Four Census Area Units Assessed.



3.2 10+ Additional Dwellings Assessment

Each site capable of theoretically accommodating 10 or more additional dwellings identified via the electronic mapping application with underlying Suburban Residential zoning in the study area was examined in detail via GIS looking at potential site constraints such as land ownership, current land-use, site access, topography, improvements on the land, placement of existing dwelling(s), and flood risk. From this assessment an estimate was made of the realistic yield for each site. This exercise picks up any large undeveloped land holdings in the infill areas.

3.3 Infill Potential Rating

As sites were assessed a determination was made as to whether the site was able to accommodate additional dwellings, and where this was confirmed, this potential was then rated as either “High”, “Medium” or “Low”. This rating was applied to potentially developable sites in the infill area in the four CAU’s assessed, and to “10+” sites assessed across the entire Tauranga Infill area.

The “High”, “Medium” or “Low” classification was based on consideration of a number of factors including:

- High Potential – Easy to gain access; Limited existing site development in the developable area; Minimal impact on existing dwelling(s). Site exceeds 325m² multiplier by a large margin (eg: 900m² plus rather than 650m²)
- Medium Potential – Moderately easy to gain access (may require moderate clearance of existing vegetation and/or construction such as fences, carports, sheds); Moderate existing site development in developable area; Moderate impact on existing dwelling(s); Site partially compromised by nearby surroundings (eg: next to railway line, high traffic route); Small portion of developable area subject to identified constraint (eg: steep land, coastal hazard, flood hazard); Site exceeds 325m² multiplier by a moderate margin (eg: 750m² plus rather than 650m²).
- Low Potential – Difficult to gain access (narrow and/or requires demolition of detached carport or garage); Extensive existing development in developable part of site; High impact on existing dwelling(s); Site compromised by adjacent surroundings (e.g.: next to railway line, high traffic route); Steep land; Large portion of developable area subject to identified constraint (eg: steep land, coastal hazard, flood hazard, protected tree etc); Site just exceeds 325m² multiplier by a small margin (e.g.: 655m²).

3.4 Differences between the 2008 and 2012 Review Methodologies.

The key differences in methodology in the 2012 Review compared to the 2008 Review are as follows. In 2012:

- An electronic mapping application was employed to assess sites, which provides greater accuracy in assessment and recording of results. This application allows for easy updating of site information for future reviews or for monitoring purposes.
- Updated dwelling consent results and other data including more recent 2011 aerial photographs were used.
- Nett Site area, instead of Gross site area was used in assessing infill potential (ie: entrance strips were excluded from the area calculation in determining whether the minimum nett site area of 325m² or multiples of it for additional dwellings was feasible on site). This reflects District Plan changes for infill development made between 2008 and 2012.

- Cross leased sites were assessed to determine whether further potential for residential development remained.
- A classification system was introduced to rate the infill potential of identified sites.
- Vacant sites 325m² to 650m² in size were identified and assessed, in addition to vacant sites in the 650m² + size categories assessed in both Reviews.
- The results were mapped to clearly signal the location and the potential additional yield of sites (see Appendices 3 and 5).
- Sites with redevelopment potential were identified and rated (see Appendix 8).

3.5 Redevelopment Sites

A preliminary assessment of potential “redevelopment” sites was undertaken alongside the assessment of potential Infill sites. This preliminary assessment is outlined in Appendix 8, and potential “redevelopment” sites identified for further investigation are mapped alongside the “Infill” results in appendices 3 and 5 and independently in Appendix 9.

4. Infill Assessment Results

4.1 1-9 Additional Dwellings Assessment

The theoretical number of additional dwellings was 3,959 in the four CAU’s assessed (see Table 1). Once cross lease sites were reviewed this theoretical yield fell to 2,458 dwellings. The remaining sites were assessed, with identified site constraints reducing the potentially developable yield to 932 dwellings (a 77% decrease from the theoretical additional dwelling yield). Common development constraints identified in the assessment included:

- Existing dwellings centred on site, or covering most of site.
- Vacant part of sites too steep or too small to develop
- Developable part of site inaccessible
- On-site improvements such as in ground pool and significant outbuildings making further development unlikely.
- Fully developed cross lease sites.
- Non-residential uses such as day care centres, churches, schools and offices.

The assessment of the 1 to 9 additional dwelling category found variance between the CAU’s examined. While numerically Otumoetai North and Greerton CAU’s offer slightly greater developable yield, Mount Maunganui North and Omanu CAU’s have more potential for infill development in percentage terms with more of its theoretical yield able to be potentially developed (see Table 1). This result was largely attributable to the more favourable topography, and the grid layout in the older parts of the coastal strip CAU’s which presented fewer constraints to site (re)development, and easier access to vacant parts of sites because of the on site location of existing houses.

The location of sites with infill potential, including the potential number of dwellings each site may accommodate, is mapped (see Appendix 3).

The rating of potential additional dwellings as outlined in Section 3.3 of this report provided mixed results (see Table 2 and Appendix 2). Overall, for the four CAU’s assessed 379 (or 41%) were rated as having “high” potential for infill development, 241 (or 26%) were rated as “medium”, while 312 (or 34%) were rated as “low”. These percentages varied quite considerably with Omanu and Mount Maunganui North CAU’s recording 59% and 52% respectively in the “high” category while Otumoetai

North and Greerton CAU's both only recorded 26% and 29% respectively. Once again this result can largely be explained by the more favourable topography and the traditional grid layout in Mount Maunganui and Omanu which gives greater potential for infill development.

Table 1: Additional Dwellings

Census Area Units	Additional Dwelling Categories									Totals
	1	2	3	4	5	6	7	8	9	
A - Theoretical Additional Dwelling Yield										
Greerton	633	240	63	28	15	30	28		18	1056
Otumoetai North	745	330	129	28	15	6	0			1252
Omanu	839	230	60	45	5		15			1194
Mount North	339	78	18	8	5		0		9	457
	2556	878	270	109	40	36	43	0	27	3959
B - Theoretical Additional Dwelling Yield Minus Cross Lease Sites										
Greerton	353	176	54	20	14	23	28		13	681
Otumoetai North	495	248	103	19	14	6				885
Omanu	410	137	32	30			10			619
Mount North	211	40	3	5	5				9	273
	1469	601	192	74	33	29	38	0	22	2458
C - Potentially Developable Dwelling Yield										
Greerton	163	50	8	5	7	7	7		3	250
Otumoetai North	188	46	23	4	4	3				268
Omanu	221	37	10	13			7			288
Mount North	109	15		2						126
	681	148	41	24	11	10	14	0	3	932

Table 2: Infill Rating Assessment – Potentially Developable Dwelling Yield

Additional Dwelling Category	Infill Rating	Census Area Units Assessed				Subtotal	Rating %
		Greerton	Otumoetai North	Omanu	Mount North		
Subtotals	H	66	78	170	65	379	40.7%
	M	97	87	36	21	241	25.9%
	L	87	103	82	40	312	33.5%
Total ¹		250	268	288	126	932	

Note: See Appendix 2 for a more detailed results table.

Once the estimation approaches of “CAU%” and “Category%” (as outlined in Section 3.1 above) were applied across all of the Suburban Residential zoning in the Tauranga infill area the theoretical dwelling yield of 20,217 dwellings fell to an estimated 5,600 dwellings (see Table 3). The results of these approaches and the factors applied are detailed in Appendix 1.

Table 3: 1-9 Assessment Results for the entire Tauranga Infill Study Area

	Theoretical		Theoretical Minus Cross Lease		Estimation Approach	
	Number of Sites	Additional Dwellings	Number of Sites	Additional Dwellings	CAU %	Category %
1-9 Assessment	14,143	20,217	10,253	14,682	5,541	5,730

4.2 10+ Additional Dwellings Assessment

All sites in the infill area that had a theoretical additional dwelling yield of ten or more dwellings were assessed. Through this assessment process of the 10+ sites the number of sites fell from 314 theoretical sites to 146 potential sites, and the yield of 20,622 theoretical dwellings fell to 2,126 potential dwellings (see Table 4).

Table 4: 10+ Assessment Results for the Tauranga Infill Study Area

	Theoretical Number of Sites	Theoretical Additional Dwelling Yield	Theoretical Number of Sites minus Cross Lease Sites	Theoretical Additional Dwellings minus Cross Lease Sites	Potential Developable Number of sites	Potential Developable Dwelling Yield
10+ Assessment	314	20,622	265	14,248	146	2,126

On site investigation identified a number of constraints which reduced the theoretical yield significantly. These constraints are detailed in Appendix 6, and the results mapped in Appendix 5. Some key constraints included:

- Retirement Villages which were either at or nearing capacity,
- Topography: relic slips, severe slope.
- Non-residential uses: A number of large Suburban Residential zoned sites were found to accommodate non-residential uses including offices, medical centres, churches, schools and other education facilities.

While the majority of cross lease sites in the one to nine category were fully developed, in the 10+ assessment a number of sites excluded in the 2008 study due to their cross lease status, were assessed and found to have potentially developable dwelling yield remaining.

A further factor which may potentially reduce the potential developable yield is land in Maori ownership. Of the estimated 2,126 dwelling yield for the 10+ category, 790 (or 37%) was for land in Maori ownership (eg: Kaitemako Road). While this identified potential for dwellings on this land is included in the yield it is difficult to predict the timing that this land may be released for urban development, and the level of development that may occur on this land. Due to this uncertainty in most cases Maori owned land has been given a “medium” to “low” infill rating and a “low” redevelopment rating. It is noted that Treaty of Waitangi settlements which are currently being finalised may further increase Maori landholdings in Tauranga City, including vacant Suburban Residential zoned land in the Infill area. This may also provide additional emphasis for housing development on these blocks.

4.3 Total Additional Dwellings Results

The combined assessment (1-9 and 10+ results) provides an estimate of approximately 7,750, additional dwellings in the Suburban Residential zoned ‘infill’ area of Tauranga City (see Table 5). An infill rating has been applied to the 1-9 assessment across the Tauranga infill area based on results from the four CAU’s assessed (see Table 6). The 10+ results in the infill area were all assessed and rated for development potential.

Table 5: Total Additional Dwelling Results

	Theoretical Additional Dwelling Capacity	Theoretical Additional Dwelling Capacity Minus Cross Lease	Potential Additional Dwellings – Estimation Approach	
			CAU%	Category%
1-9 Assessment	20,217	14,682	5,541	5,730
10+ Assessment	20,622	14,248	2,126	2,126
Total	40,839	28,930	7,667	7,856

The yield estimate of 7,750 potential additional dwellings assumes that all of these sites will be developed to the maximum yield in the Suburban Residential zone (as a permitted activity). A range of yields is calculated below based on a percentage uptake (see Table 7). For example if 50% of this opportunity was realised a further 3,881 dwellings would be accommodated in the Suburban Residential zoned 'infill' parts of the Tauranga City.

Table 6: Infill Rating – Potentially Developable Dwelling Results

	Infill rating	Potential Additional Dwellings – Estimation Approach		
		Rating %	CAU%	Category%
1-9 Assessment	H	40.7%	2253	2330
	M	25.9%	1433	1482
	L	33.5%	1855	1918
	Subtotal		5541	5730
10+ Assessment	H	27.9%	592	592
	M	57.8%	1228	1228
	L	14.4%	306	306
	Subtotal		2126	2126
Total			7667	7856

For the 1-9 assessment 41% of the potential additional dwelling yield was rated as of “high” potential, 26% “medium” and 34% “low” (see Table 2 and Table 6), For the 10+ site assessment the results varied with 28% rated “high”, 47% “medium” and 25% rated “low”. These results indicate that a 100% yield is unlikely to be realised, especially within the 2051 SmartGrowth time horizon.

Table 7: Applying Percentage Yields to the Total Additional Dwellings Results.

Estimation Approach	Potential Developable Dwelling Yield									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
CAU %	767	1533	2300	3067	3834	4600	5367	6134	6900	7667
Category %	786	1571	2357	3142	3928	4714	5499	6285	7070	7856
Average	776	1552	2328	3105	3881	4657	5433	6209	6985	7762

4.4 Nett Site Area versus Gross Site Area in the Additional Dwellings Assessment

In the four CAU's reviewed the impact of the Nett Site Area calculation against the Gross Site area was assessed. Nett Site area, recently introduced via the Proposed Tauranga City Plan, requires entrance strips to be excluded from the site area calculation. This policy is to support a reasonable minimum house site for residential amenity. Where a site is proposed to be subdivided this exclusion may restrict a new site from being able to meet the 325m² minimum site area in the Suburban Residential Zone. This is factored into the assessment.

Table 8: Nett Site Area versus Gross Site Area.

	Potential Additional Dwellings (Nett Site Area)		Additional Dwellings Gross Site Area would Allow		Percentage Difference	
	1-9	10 +	1-9	10 +	1-9	10 +
Greerton	250	45	5	1	2.0%	2.5%
Otumoetai North	268	32	8		3.0%	0.0
Mount Maunganui North	126		3		2.4%	
Omanu	288		8		2.8%	
Total	932	77	24	1	2.6%	1.3%

The assessment found that the Nett Site Area requirement reduced the potential infill dwelling yield by 2.6% (or 24 dwellings) in the “1-9” category, and by 1.3% (or 1 dwelling) in the “10+” category in the CAU’s assessed as outlined in Table 8. When this percentage is applied to the total potential developable dwelling yield result of 7,650 dwellings over the Infill study area (see Figure 1), the difference is estimated to be an additional 173 dwellings (146 in the “1-9” category, 28 in the “10+” category) that may have been realised under the previous Gross Site Area calculation.

4.5 Comparison of 2012 Results with 2008 Results

The 2008 and 2012 infill assessments provide consistent information. The relatively small differences in results from the 2008 Review in the 2012 Review are outlined below (see Table 9). The differences are largely attributable to:

- Greater accuracy gained through the electronic mapping package employed, particularly the ability to accurately measure vacant land on site, and apply contours and updated aerial maps.
- New dwellings constructed in the infill areas in the 2008 to 2012 period.
- Inclusion of cross leased sites in the 2012 assessment which provided greater potential yield in the 10+ site assessment particularly.
- The application of nett site area in assessing site potential.

Subtracting the increase in dwellings in the Infill area from 2008 to 2012 decreases the 2008 Review estimate of 8,000 potential dwellings to 7,600, approximately 150 less potential dwellings than the 2012 Infill Review results.

Table 9: Comparison of 2008 Infill Study with 2012 Infill Study Results.

	2008		2012	
	Theoretical (excluding Cross Lease)	Potentially Developable	Theoretical (excluding Cross Lease)	Potentially Developable
Greerton	616	210	681	250
Otumoetai North	769	257	885	268
Omanu	707	467	619	288
Mount North	255	152	273	126
CAU Total	2,347	1,086	2,458	932
1-9 Subtotal	14,841	6,300	14,686	5,635
10+ Subtotal	10,770	1,763	14,248	2,126
Total	25,611	8,063	28,934	7,761

4.6 Comparison of 2012 Infill Results with SmartGrowth Forecasts

The current SmartGrowth 2011 Forecasts predict a further 46,300 dwellings for Tauranga City from 2006 to 2051³. The Urban Growth Areas, including future Greenfield areas, have capacity to accommodate 31,000 dwellings. The remaining 15,300 dwellings are anticipated to be located within the established parts of Tauranga City via a mix of infill development and residential intensification. Residential intensification is forecast to accommodate 11,100 dwellings while 4,200 dwellings are assumed to be located via infill development under this current SmartGrowth 2011 Forecast.

From 2006 to June 2012 building consent data indicates that there has been an increase of 900 dwellings in the Infill area (see Appendix 7). As outlined in Table 10, 108 of these 900 dwellings have been developed via more intensive development than permitted by the 325m² minimum site density control (termed “intensification infill” in Table 10). This reduces the SmartGrowth infill allocation to around 3,350 dwellings. The 3,350 dwelling allocation accounts for 44% of the estimated potential infill yield of 7,750 dwellings, and 66% of the potential infill yield rated of “medium” or “high” potential.

While the current SmartGrowth Infill allocation appears conservative, it recognises a reduction in the infill area as intensification areas are assumed to be released for development. For example additional dwellings within 400 metres of identified intensification areas is recorded as ‘infill’ until the predicted commencement date of an intensification area, from which time it is counted as ‘intensification’ assuming a higher level of development. As such the approximate 66% uptake of sites rated of “medium” to “high” potential is expected to increase nearer to 100% raising the overall percentage from 44% to around 70% within the reduced Infill area. Under these circumstances the SmartGrowth Infill allocation appears realistic and achievable. It is also recognised that some potential for infill development is likely to remain in the infill area beyond 2051.

4.7 Historical Infill Trends

It is clear from historical records that the contribution of infill development is decreasing as opportunity for new dwellings in the infill area is reduced (see Table 10). Taking the estimated potentially developable dwelling yield of 7,750 dwellings and dividing this by the 2006-2011 increase of 749 dwellings theoretically provides over 50 years of further infill development. However this rate of infill uptake is expected to continue to decrease, as indicated from building consent data; with the 2001-2006 dwelling increase of 1,183 dwellings in the infill area being 54% less than the 1996-2001 increase of 2,615 dwellings. The 2006-2011 increase of 749 dwellings was 37% less than the 2001-2006 increase, continuing this trend.

The main reasons for the decrease in uptake in the infill area is largely a result of:

- A lack of large development sites remaining as existed in the past (e.g: Baypark, Bayfair Estate, large tracts of vacant land in Welcome Bay and around Millers Road and Solomon Street in Brookfield).
- A downturn in development generally from 2006 onwards.
- A lot of the “easy” infill sites have already been developed.

³ In this review “Dwellings” refer to Total Dwellings. A factor of 10% “unoccupancy” has been added to the SmartGrowth “occupied dwellings” forecasts for comparative reasons.

As quantified in Table 10, residential growth in the Infill area has been classified into three growth categories as follow:

- “Standard Infill” - Infill sites that are able to comply with the 325m² minimum site density control in accommodating additional dwelling(s) without removing or resiting any existing dwelling on site. Typically one to two additional dwellings are accommodated by this form of infill.
- “Intensification Infill” – new developments which do not comply with the 325m² minimum site density control (e.g: retirement homes such as Matua Lifecare)
- “Greenfield Infill” – large tracts of vacant land mainly on the fringes of the infill area which are being developed as new subdivisions (e.g: Sereno Vista)

Detailed building consent data from 1996 to 2012 by SmartGrowth Infill areas and Greenfield areas is provided in Appendix 7.

Table 10: Dwelling Increase in the Infill Area.

Infill Growth Type	Additional Dwellings			
	1996-2001	2001-2006	2006-2011	2011-Jun 2012
Standard Infill	1,585	784	483	101
Intensification Infill	253	120	99	9
Greenfield Infill	777	279	167	39
Total	2,615	1,183	749	149

The Intensification Infill and Greenfield Infill categories include dwellings in retirement villages and other aged care facilities as follows:

Table 11: Dwelling Increase in Retirement Villages in the Infill Area

Infill Growth Type	Additional Dwellings			
	1996-2001	2001-2006	2006-2011	2011-Jun 2012
Intensification Infill (retirement villages)	100	44	62	2
Greenfield Infill (retirement villages)	280	129	72	0
Total (retirement villages)	380	173	134	2

5. Conclusions on Infill

From the 2012 Infill Review a number of conclusions can be drawn:

- Research undertaken for this Review comes to a similar outcome as the 2008 Infill Review which gives confidence in the research findings and method (consistency).
- Fragmentation of land for infill processes will make aggregation later more difficult, which may act against a full intensification model. If the planning policy for infill and intensification was similar (that is, economic feasibility and planning provisions enabled good potential for both) that might then enable the market to make the choice rather than relying on a strict planning regulatory push.
- Rules are in place to deliver this level of residential infill development in the Proposed Tauranga City Plan.
- A change from gross to nett site area has a minimal impact on the number of sites available for infill, and is not a regulatory constraint.
- Topography and other development constraints do have a significant impact on real potential versus theoretical potential. These constraints are greater in Tauranga than Mount Maunganui. In most instances these constraints will be costly or impractical to overcome.
- Historical trends indicate that the rate of development of additional dwellings in the Infill area will continue to fall, as opportunity decreases for “easy” infill development.
- The current SmartGrowth 2011 Forecast allocation to infill development appears realistic and achievable (around 8-10%). In terms of overall growth accommodation it is not a replacement for a reasonable degree of intensification into the future, and should be seen as complimentary to this.

6. Appendices

- Appendix 1: **Infill Estimation Approaches for 1-9 Additional Dwelling Assessment.**
- Appendix 2: **1-9 Assessment - Infill Rating.**
- Appendix 3: **Map Series of Four Census Area Units Infill Assessment.**
- Appendix 4: **10+ Infill Assessment –Development Potential Classification.**
- Appendix 5: **Map of 10+ Sites Results.**
- Appendix 6: **10+ Additional Dwellings Detailed Infill Site Assessment.**
- Appendix 7: **Dwelling Change – January 1996 to June 2012.**
- Appendix 8: **Redevelopment Sites Assessment.**
- Appendix 9: **Map Series of Four Census Area Units Redevelopment Assessment.**

Estimation Approaches for 1-9 Additional Dwelling Assessment

CAU% Estimation Approach

Census Area Unit	Theoretical Additional Dwellings	CAU % applied	Potential Additional Dwellings
Arataki Infill	658	46.0%	303
Bellevue Infill	813	37.0%	301
Brookfield Infill	1138	40.0%	455
Gate Pa Infill	591	36.0%	213
Greerton Infill	681	36.7%	250
Hairini Infill	721	35.0%	252
Judea Infill	499	35.0%	175
Kaitemako Road Infill	377	38.0%	143
Matua Infill	1512	39.0%	590
Maungatapu Infill	994	39.0%	388
Mount Maunganui North Infill	273	46.2%	126
Omanu Infill	619	46.5%	288
Otumoetai North Infill	885	30.3%	268
Otumoetai South Infill	1114	31.0%	345
Poike Infill	191	40.0%	76
Tauranga Central Infill	140	40.0%	56
Tauranga Hospital Infill	279	37.0%	103
Tauranga South Infill	1039	40.0%	416
Te Maunga Infill	379	46.0%	174
Te Reti Infill	497	33.0%	164
Welcome Bay East Infill	426	35.0%	149
Welcome Bay West Infill	385	35.0%	135
Yatton Park Infill	475	36.0%	171
	14686		5541

Category% Estimation Approach

Infill Census Area Units	Additional Dwellings Category									Total
	1	2	3	4	5	6	7	8	9	
Theoretical Additional Dwellings excluding Cross Lease Properties										
Arataki Infill	549	78	20	4	0	0	7	0	0	658
Bellevue Infill	460	207	61	48	5	6	0	17	9	813
Brookfield Infill	493	276	87	73	66	61	49	24	9	1138
Gate Pa Infill	315	109	45	33	10	18	8	16	37	591
Greerton Infill	353	176	54	20	14	23	28		13	681
Hairini Infill	380	165	52	40	20	25	22	8	9	721
Judea Infill	166	152	54	57	15	18	21	16	0	499
Kaitemako Road Infill	154	79	30	17	30	36	14	8	9	377
Matua Infill	839	367	100	52	20	36	22	48	28	1512
Maungatapu Infill	438	171	143	104	80	13	28	8	9	994
Mount Maunganui North Infill	211	40	3	5	5				9	273
Omanu Infill	410	137	32	30			10			619
Otumoetai North Infill	495	248	103	19	14	6				885
Otumoetai South Infill	508	296	132	57	41	24	21	8	27	1114
Poike Infill	112	48	27	4	0	0	0	0	0	191
Tauranga Central Infill	27	86	6	16	5	0	0	0	0	140
Tauranga Hospital Infill	165	54	21	12	5	6	0	16	0	279
Tauranga South Infill	418	285	117	60	30	60	35	24	10	1039
Te Maunga Infill	311	39	6	4	11	0	0	8	0	379
Te Reti Infill	276	86	38	17	20	6	21	24	9	497
Welcome Bay East Infill	315	62	15	8	0	12	14	0	0	426
Welcome Bay West Infill	271	89	12	0	0	13	0	0	0	385
Yatton Park Infill	281	126	33	12	16	0	7	0	0	475
	7947	3376	1191	692	407	363	307	225	178	14686
Greerton Divisor	46.2%	28.4%	14.8%	25.0%	50.0%	30.4%	25.0%		23.1%	
Mount North Divisor	38.0%	18.5%	22.3%	21.1%	28.6%	50.0%				
Omanu Divisor	53.9%	27.0%	31.3%	43.3%			70.0%			
Otumoetai North Divisor	51.7%	37.5%		40.0%						
Average CAU Divisor	47.4%	27.9%	22.8%	32.3%	39.3%	40.2%	47.5%	35.3%	23.1%	
Potential Additional Dwellings based on Category % Estimation Approach										
Arataki Infill	260	22	5	1	0	0	3	0	0	291
Bellevue Infill	218	58	14	16	2	2	0	6	2	318
Brookfield Infill	234	77	20	24	26	25	23	8	2	438
Gate Pa Infill	149	30	10	11	4	7	4	6	9	230
Greerton Infill	163	50	8	5	7	7	7	0	3	250
Hairini Infill	180	46	12	13	8	10	10	3	2	284
Judea Infill	79	42	12	18	6	7	10	6	0	181
Kaitemako Road Infill	73	22	7	5	12	14	7	3	2	145
Matua Infill	398	102	23	17	8	14	10	17	6	596
Maungatapu Infill	208	48	33	34	31	5	13	3	2	376
Mount Maunganui North Infill	109	15	0	2	0	0	0	0	0	126
Omanu Infill	221	37	10	13	0	0	7	0	0	288
Otumoetai North Infill	188	46	23	4	4	3	0	0	0	268
Otumoetai South Infill	241	82	30	18	16	10	10	3	6	417
Poike Infill	53	13	6	1	0	0	0	0	0	74
Tauranga Central Infill	13	24	1	5	2	0	0	0	0	45
Tauranga Hospital Infill	78	15	5	4	2	2	0	6	0	112
Tauranga South Infill	198	79	27	19	12	24	17	8	2	387
Te Maunga Infill	148	11	1	1	4	0	0	3	0	168
Te Reti Infill	131	24	9	5	8	2	10	8	2	200
Welcome Bay East Infill	149	17	3	3	0	5	7	0	0	184
Welcome Bay West Infill	129	25	3	0	0	5	0	0	0	161
Yatton Park Infill	133	35	8	4	6	0	3	0	0	189
	3753	921	269	224	158	144	142	79	39	5730

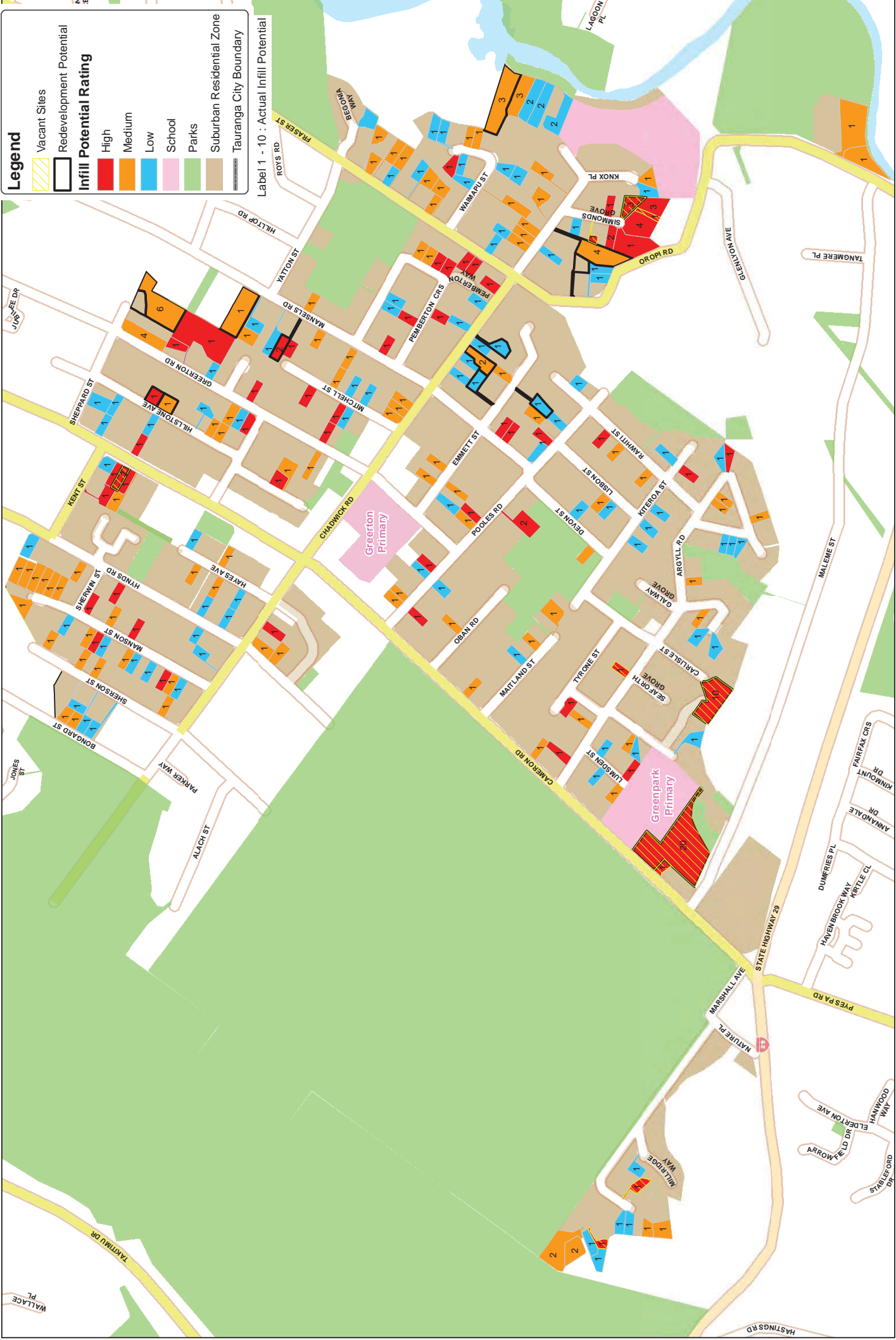
1-9 Assessment – Infill Rating

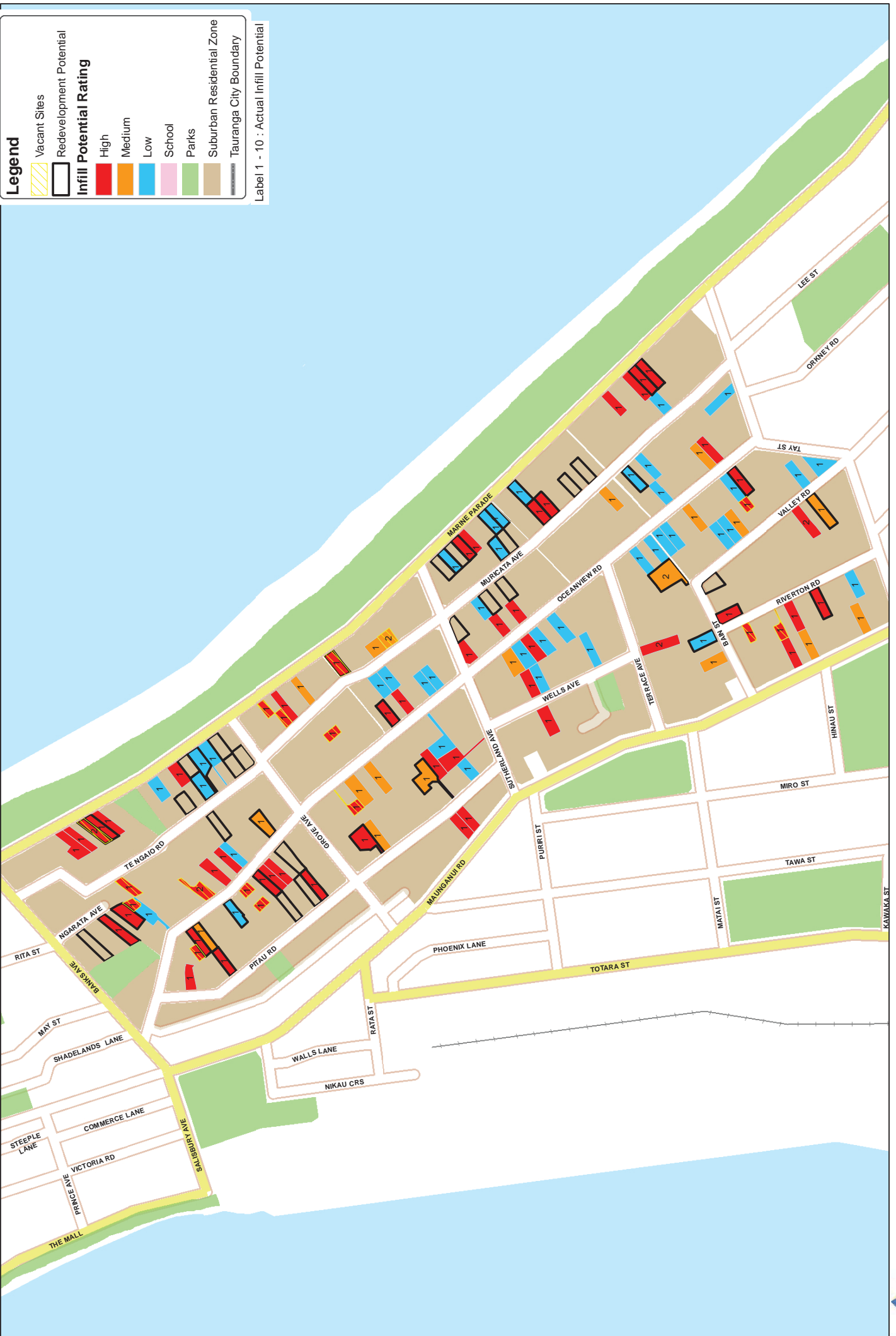
Infill Rating Assessment – Potentially Developable Dwelling Yield

Additional Dwelling Category	Infill Rating	Census Area Units Assessed				Subtotal
		Greerton	Otumoetai North	Omanu	Mount North	
1	H	48	61	117	57	282
	M	54	53	32	16	154
	L	61	74	72	36	243
2	H	8	7	24	8	47
	M	24	17	3	3	47
	L	18	22	10	4	54
3	H		4	9		13
	M	6	13	1		20
	L	2	6			8
4	H	2		13		15
	M	3	4		2	9
5	H	3	3			6
	L	4	1			5
6	H		3			3
	M	5				5
	L	2				2
7	H	4		7		11
	M	3				3
9	H	1				1
	M	2				2
Subtotals	H	66	78	170	65	379
	M	97	87	36	21	241
	L	87	103	82	40	312
Total		250	268	288	126	932

Appendix 3

Map Series of Four Census Area Units Infill Assessment





Information shown on this plan is indicative only. The Council accepts no liability for its accuracy and it is your responsibility to ensure that the information is appropriate and applicable to the end use intended.

Census Area Unit Mount Maunganui North

Residential Infill Assessment - Tauranga City Council -

Approx. Scale: 1:5,500 (at A3)
0 14.5 290 M



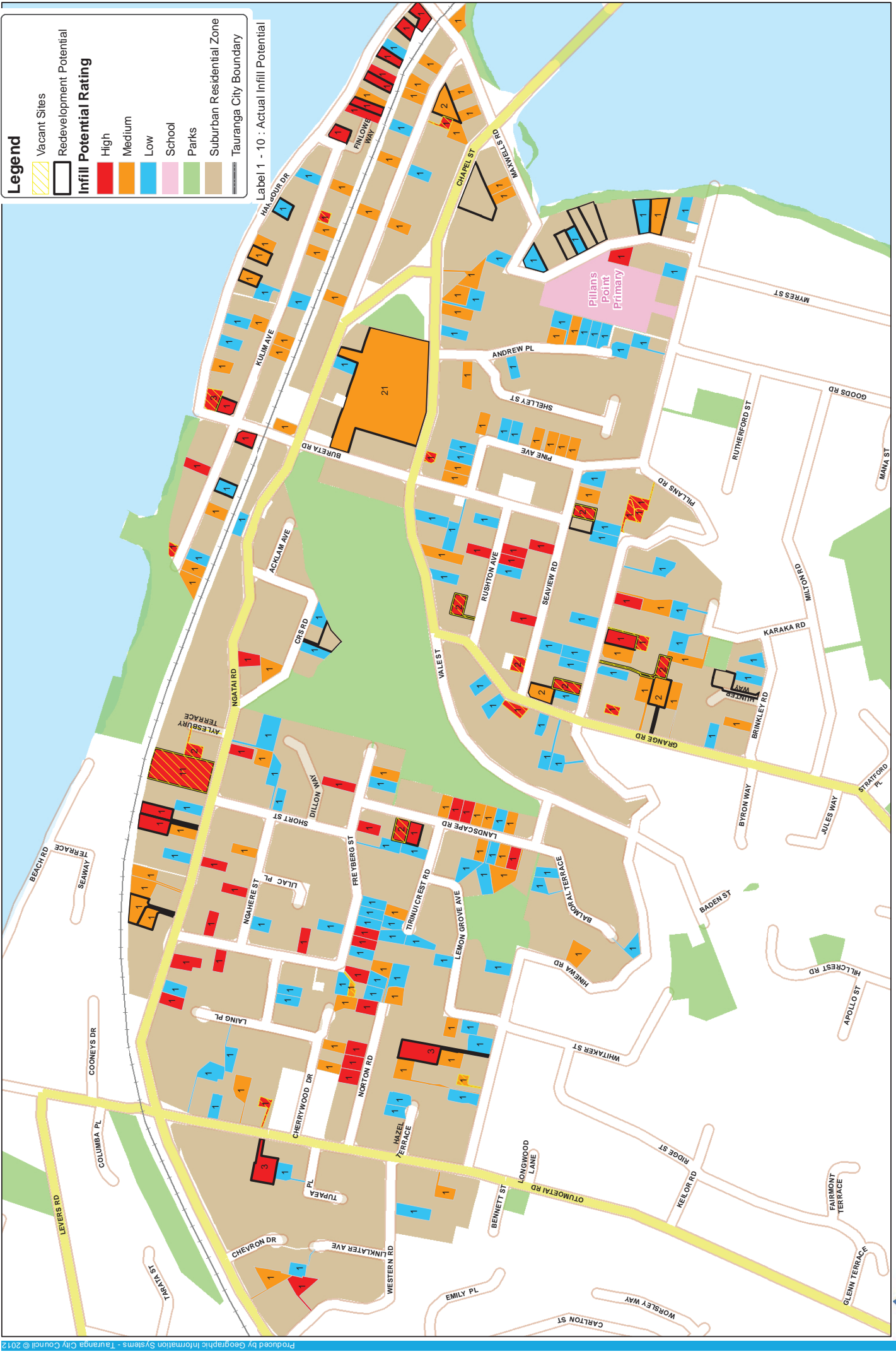


Census Area Unit Omanu

Residential Infill Assessment

- Tauranga City Council -

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