



Capacity for Growth Study 2012: Methodology and Assumptions

March 2013 Technical Report: 2013/009

Auckland Council
Technical Report 2013/009
ISSN 2230-4525 (Print)
ISSN 2230-4533 (Online)

ISBN 978-1-927216-71-2 (Print)
ISBN 978-1-927216-72-9 (PDF)

This report has been peer reviewed by the Peer Review Panel using the Panel's terms of reference

Submitted for review on 1 March 2013
Review completed on 25 March 2013
Reviewed by one reviewer

Approved for Auckland Council publication by:



Name: Greg Holland

Position: Acting Manager, Research, Investigations and Monitoring Unit

Date: 25 March 2013

Recommended citation:

Fredrickson, C and Balderston, K (2013). Capacity for growth study 2012: methodology and assumptions. Auckland Council technical report, TR2013/009

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Capacity for Growth Study 2012: Methodology and Assumptions

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Technical Report, March 2013

Disclaimer

Every care has been taken to ensure that the outputs of the Capacity for Growth Study 2012 study are accurate.

The purpose of this study is to determine the capability of Auckland to accommodate additional growth, (including dwellings) based on a subset of selected rules from the operative district planning provisions that were in place as at May 2012.

This has been undertaken through a computer based geospatial desktop modelling exercise, carried out at parcel or title level. This process necessarily involves the simplification, modification, or omission of some planning provisions that may impact on the real world ability to consent and/or realise capacity identified. It should also be noted that all subdivision is subject to individual consent assessment on a case by case basis on its merits. Accordingly the outputs of this modelling exercise and subsequent reported results of this study in no way imply that subdivision, or the subsequent construction of a dwelling or structure may take place on a parcel or title without fulfilling all of the necessary requirements of the relevant district plan(s) applying at the time of application.

The results of this study are designed to be reported at a large-scale level and while the results of the study are presented in parts of this report at the level they were modelled, the use of study outputs at an individual parcel or title scale is not recommended.

As the assessment is current plan and cadastre based it does not account for the many applications for non-compliant activities that council receives daily, nor for future changes to planning provisions. The study does not assess the potential for site amalgamations or multi-parcel applications, all of which would potentially increase yields indicated. The study is a measure of current plan enabled capacity, not a prediction of future growth.

For more information on study outputs, results, possible future updates and improvements, or further advice on how the results can be used or analysed, please contact the Research Investigations and Monitoring Unit at the Auckland Council.

Acknowledgements

Capacity for Growth Study team:

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With assistance from:

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Lindsay Wilson

Paul Owen

With thanks to:

Rob Bates

Kiely M^cFarlane

David Taylor

Without the expertise provided by Mike Oberdries, of Critchlow, the complex spatial modelling that has been undertaken as part of this project would not have been possible.

Special thanks to the many members of Auckland Council's Operative Plans teams who helped us gain a better understanding of the district planning rules and provided us with valuable feedback on many aspects of the project.

Also thanks to the Geospatial teams at Auckland Council who ably assisted us with data supply, our many questions about the data and the collection and updating of the building footprint records.

Front cover: Photograph by Garth Falconer, taken for Auckland Council. Pukekohe, looking north.

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Introduction

The Capacity for Growth Study assesses the ability of residential and business land within Auckland to accommodate growth.

The Capacity for Growth Study is a quantitative plan enabled assessment of capacity for development. It measures whether each parcel or title has the potential for more development under a selected set of operative rules (specifically subdivision, and some bulk and location provisions). The purpose of this technical publication is two-fold: to summarise the methodologies undertaken to produce plan enabled capacity yields; and to provide documentation of the assumptions used in the capacity calculation process.

The 2012 Capacity for Growth study is the fourth in the series and continues to be a valuable source of information and analysis for aiding planners and decision makers in Auckland to better understand development trends and land use in both urban and rural areas. Outputs from the study form an important part of council's evidence base and its uses include:

- As a base layer or source of information for other studies, including place specific analysis, market feasibility, and the council's models and forecasts;
- As an indicator of the adequacy of Auckland's land supply, by comparing a range of projected development rates to the available capacity;
- As a baseline for considering changes to the relevant planning provisions to either increase or decrease capacity in response to various other drivers; and
- As a tool for indicating the effects of policies on future outcomes, particularly those around subdivision and development.

The study was undertaken by the Land Use Built Environment and Infrastructure Research Team, a part of Auckland Council's Research Investigations and Monitoring Unit between early 2012 and March 2013, culminating the production of two technical reports.

This document is to be read in conjunction with *Capacity for Growth Study 2012: Results (TR2013/010)* technical report, which presents the findings and results from the study.

1.0 Background

For the purposes of calculating capacity, this study has been broken down into five components: residential, business, rural residential, business redevelopment and special and structure areas. Each of these five components utilises different methods, which are detailed in the following sections.

The Capacity for Growth Study 2012 primarily used a software programme called FME¹ to undertake the modelling process required to calculate capacity. Each of the capacity assessments outlined in this report utilises a series of geo-spatial queries and assessments in order to calculate capacity. However, to simplify the terminology utilised, the term “model” has been used to describe each series of geo-spatial queries and assessments. The ‘model’ used to calculate capacity is not a truly integrated single model, but rather a set of sub-models which each calculate a certain type of capacity, which are then aggregated in various ways depending on the desired reporting structure.

All capacity calculations, (except the business redevelopment capacity assessment and the special areas and structure plans assessment), were undertaken using FME. The business redevelopment capacity assessment uses results from the FME spatial assessments as inputs into a one-dimensional model, which was constructed in Microsoft Excel.

The special area and structure plan capacity assessment uses a similar Excel based approach except that the data is manually sourced and entered from various structure plan documents and similar ‘external to the model’ developed planning assumptions. Special areas and structure plans have not been assessed and information provided on these areas have been used as they were presented

For analysis and reporting purposes, this working report breaks the region into five distinct location types. These are outlined below in Table 1, which describes the location types, the method used to calculate capacity and the unit of analysis. Figure 1 shows the distribution and extent of these location types. These types largely reflect the five modelling categories used and have been reported in this way for simplicity and consistency.

Readers should be aware that the ‘rural’ area or ‘business’ zone may not reflect any extent or future definition of these locations. As noted previously, the modelled results can be aggregated into different spatial extents as necessary.

¹ FME is a an integrated collection of tools for spatial data transformation and data translation produced by Safe Software Inc. of Surrey, British Columbia, Canada. FME is considered to be a GIS (Geographic Information Systems) utility that enables conversion between data formats and processes and is able to manipulate and generate data geometry and attributes. ESRI ArcGIS remains the primary display and map generation tool for the study.

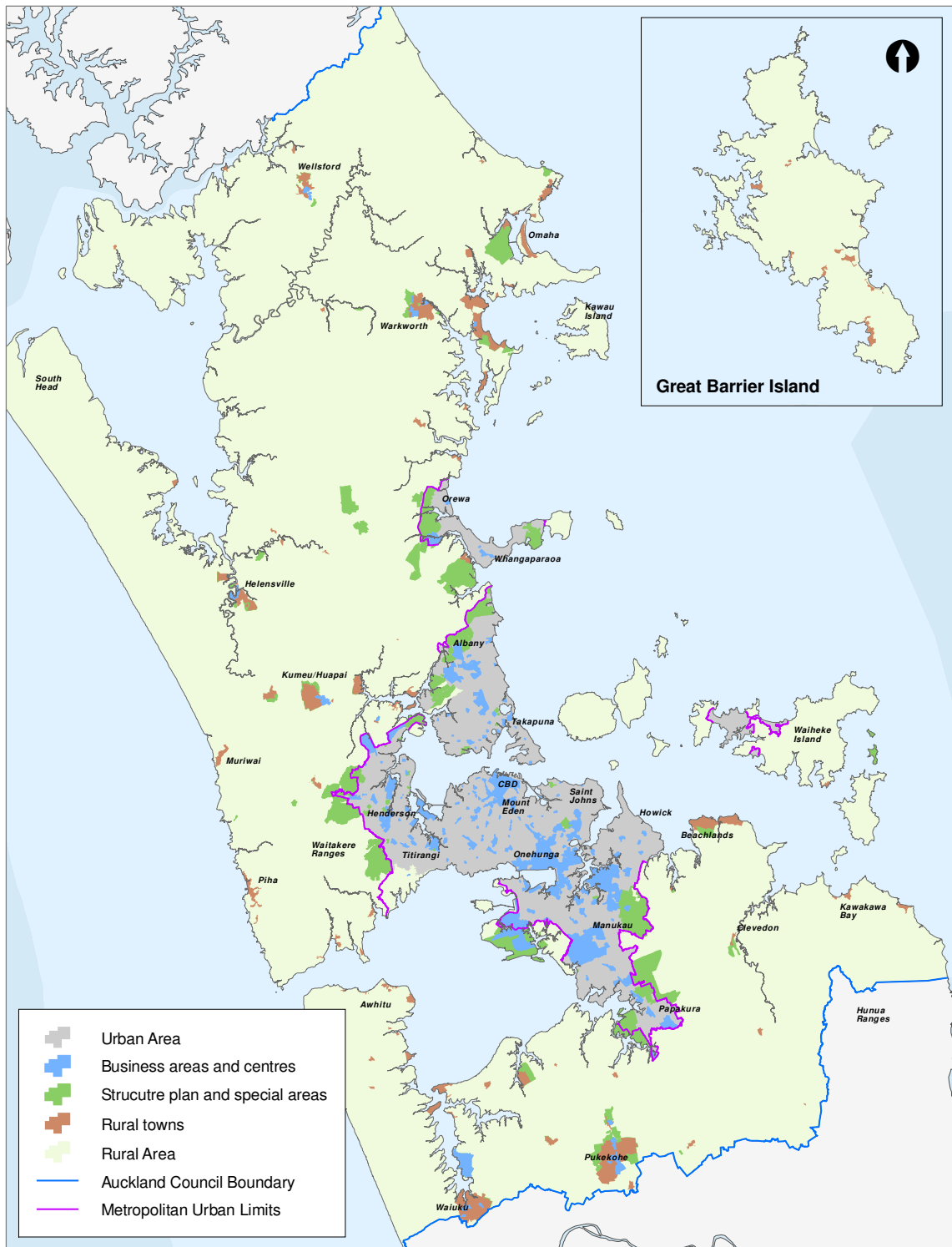
Table 1: Geographic location types used in study and their corresponding capacity calculation method

Location Type	Description	Method	Smallest geographic unit analysed
Urban area	All of the properties within the Metropolitan Urban Area (at the time of the study) that do not have a rural zoning/are not in the rural area (see Figure 1 below). Includes both residential and business areas.	Residential: application of district plan subdivision and bulk and location rules via FME spatial model.	Parcel
		Business: assessment of vacancy or potential vacancy via FME spatial model.	
Rural towns	Clusters of 'urban' type zoning (including residential and business zones) that occur outside of the Metropolitan Urban Area.	Residential and business, as per urban area.	Parcel
Business areas and centres	The large contiguous areas of business zoning that have a similar typology and are considered to be significant areas of employment ² , including urban and rural centres, as described in the technical papers written to inform <i>The Auckland Plan</i> . The geographic limits of these areas are defined by present zoning ³ . These areas are a subset of the urban area and rural towns.	Business redevelopment component – a spreadsheet based model utilising some parcel analysis and assumptions, to identify vacant and potentially vacant land within a business area. All business areas and centres fall within the urban area or rural towns.	Overall assessment at business area (i.e. multiple parcels analysed as one geography) Note: inputs used in this model can be collected and applied at a smaller level i.e. parcel or meshblock.
Rural area	Properties with a rural zoning that are outside of the Metropolitan Urban Area and those properties that are within the Metropolitan Urban Area that are zoned for rural use, excluding areas that have been identified as forming part of a rural town.	Rural residential component – titles analysed for subdivision potential to derive a net dwelling potential.	Title
Structure plan and special areas (SPSA)	Areas spread across the locations above that are not suitable for analysis by the other methods. In many cases these are structure plans, where an overall yield figure is provided for the structure plan area based on published information.	Spreadsheet to aggregate information gathered from published sources and subject-matter experts. Note: no additional analysis has been undertaken in these areas other than calculation of a net yield (i.e. maximum expected total from SPSA less current take up).	Structure plan or special area extent

² Note that these business areas do not include small areas of business zoning like those that contain small shops etc, generally in predominantly residential areas.

³ Present business zoning is used to define the extent of 'centres' in this study. It should be noted that these are not the same as centres defined for other purposes.

Figure 1: Extents of geographic location types uses in study



Detailed maps showing the extents and locations of rural towns, business areas and centres and structure and special areas are located in the appendices section of this report.

2.0 Assumptions and limitations

Major study wide assumptions are listed below⁴; component specific assumptions can be found in their relevant section or sub-section of this report.

- The provisions in the following district plans have formed the basis for this study:
 - Auckland City District Plan
 - Central Area Section 2005
 - Proposed Hauraki Gulf Islands Section Decision Version 2009
 - Isthmus Section 1999
 - Franklin District Plan 2000
 - Manukau City District Plan 2002
 - North Shore City District Plan 2002
 - Papakura District Plan 1999
 - Rodney District Plan 2011
 - Waitakere City District Plan 2003.
- The capacity results are a measure of plan enabled capacity. Capacity is reported in terms of net opportunities for additional dwellings, hectares of land or additional floor space, by geographic area and type.
- Capacity is calculated under current (May 2012) operative planning provisions, which were agreed upon and approved by the Auckland Council's Operative Plans teams. In most cases, the analysis applied the lowest consent category specified in the plan for residential subdivision and development. However the study utilised the next highest activity threshold in cases where territorial authority experience shows that these consents are regularly granted, and the relevant district plan provides clear parameters for modelling.
- The 2012 study is a 'zero-based' full assessment. Zero-based means this study is not limited to assessing those parcels identified in previous studies as having capacity. A zero based approach was taken as district plan rules can change over time and because the subdivision of parcels can lead to capacity being created.
- The 'strike date' for this study is May 2012. District planning rules that were in place at this time were used as a basis for this study and the data used to undertake the modelling was extracted from its sources.
- Each zone in the region was classified as either being residential, business, rural, special or other. This classification was an objective assessment based on the modelling approaches used and does not infer any classification for planning purposes.
- Capacity for residential dwellings and business land in special areas and structure plans (pipeline capacity) was identified from information on planned outcomes in published structure plan material.
- The number and extent of structure plans has been limited to those identified as having an assumed start date prior to 2023.
- The data used for the analysis of capacity is sourced from council's corporate geo-spatial database. These include, but are not limited to, building footprints, property

⁴ Some processes and data manipulation undertaken to generate useable base datasets for modelling have not been included as part of this methodological documentation for brevity.

boundaries and zoning information. A list of the residential zones and assumptions can be found in Appendix I.

- Where capacity has been assessed at the parcel/title level (refer Table 1) no accounting has been made for the potential of amalgamations of the parcels/titles assessed.
- District plan designations – parcels or titles identified as having a district plan designation⁵ on them that would severely restrict or prevent development of the parcel or title have been excluded from assessment for potential capacity. A map showing the location of district plan designations that were used can be found in Appendix D.
- Parcels or titles that fall within identified structure plans or special areas have been excluded from site-by-site assessment, with potential and capacity reported for the entire structure plans or special areas (refer to Appendix K: Structure plan areas with type, location and expected future development yields)
- Dwelling counts used in the study were provided by PropertyIQ Ltd. and are sourced from the 2011 property valuations. The dwelling counts were provided per valuation assessment which was then translated to parcel/title level using an allocation method. A schematic of this method (Figure 35) can be found in Appendix E.
- Building footprint capture from the 2010 aerial imagery was completed by Auckland Council's Geospatial Service Delivery teams in October 2012⁶, and has been used as the base data for the modelling process.
- Capacity for minor residential units⁷ was not assessed as part of this study.
- Urban capacity has been assessed at the parcel level. Rural residential capacity has been assessed at the title level. A significant amount of data has been used which is provided at the rates assessment level. Other data is only available at larger geographies such as meshblock, local board or region. Accounting for these varying geographies means that care should be taken utilising 'property' level results, and figures are generally provided at an aggregated level.
- All reported yields are rounded down to the nearest whole integer, for example if capacity for a parcel or title is calculated at 1.01 or 1.99 dwellings, then both would be reported as a potential yield of one (1).
- There are significant changes to rural capacity expected to be made operative through district plan changes after the date of this study. These plan amendments include Plan Change 22 in the former Franklin District and Plan Change 13 in former Papakura District. As these plan changes were not operative at the time of the study, outcomes from these provisions have not been included.

Note: Comparisons between the reported results of this study and previous iterations of the study should be undertaken carefully as differing geographies, modelling techniques and assumptions employed in each individual study make comparisons problematic. Contact the Research, Investigations and Monitoring Unit for assistance and information on comparing results.

⁵ District plan designations are granted under section 166 of the Resource Management Act 1991.

⁶ At the time of the release of the preliminary results through the Capacity for Growth Study 2012 Working Report, these updated footprints were not available for all areas

⁷ A 'Minor Residential Unit' (MHU) is a residential unit on a site in addition to another larger residential unit on the same site. Typically a minor residential unit cannot be disposed of separately to the main house (i.e. it cannot be given a separate title) and usually includes a maximum floor space limit. A minor residential unit is sometimes referred to as a "granny flat". MHUs could potentially provide a significant capacity resource for smaller households, but most sites would lose the potential for a MHU if infill is undertaken. A proportion of sites that do not otherwise qualify for infill may have potential for MHUs, but it is rare that an urban site subdivision under the minimum lot size provisions would allow for a MHU on the resulting sites in addition to an existing dwelling.

3.0 Capacity types

Residential capacity is calculated and reported in terms of net additional dwellings while business capacity is calculated and reported in terms of land area (hectares) or net floor space (metres squared). Greater detail on the type, method and source of the multiple components of the study are outlined below.

Table 2: Types of capacity

Capacity type	Definition of capacity type
Residential vacant	Capacity for dwelling units on residential zoned parcels that are currently wholly vacant (no dwellings or buildings), either via subdivision or a dwelling as of right.
Residential infill (incl. vacant potential) ⁸	Net capacity for additional dwelling units on residential zoned parcels that are partially vacant and have subdivision potential (based on the modelled consent category from district planning rules)
Residential redevelopment	Net capacity for additional dwellings on residential zoned parcels presuming that all dwellings/structures are removed and the sites are redeveloped to yield the maximum number of dwellings permitted (based on the modelled consent category from district planning rules).
Rural residential	Net capacity for additional dwelling units on rural zoned titles, either through titles being currently vacant or through subdivision (based on the modelled consent category from district planning rules).
Dwellings in Business Areas and Centres (Business Redevelopment)	Capacity for additional dwellings provided by development and/or redevelopment of parcels in business areas and centres. Capacity in this category is calculated as part of the business redevelopment component. As district plan rules do not provide definitive parameters in most cases as assumed development form has been used, usually significantly lower than the maximum theoretical district plan limits.
Business vacant	Capacity (in hectares) of business zoned parcels that are currently wholly vacant (no buildings/structures).
Business vacant potential	Capacity (in hectares) of the potentially vacant portion of those business zoned parcels that are not wholly vacant. ⁹
Total business land	Total area of business zoned land in a given area.
Business redevelopment capacity	Net capacity generated from the redevelopment of business land. Sub-types of business redevelopment capacity calculated include: Total floor space, business floor space, residential floor space, estimated employees and estimated dwellings.

⁸ In previous iterations of the Capacity for Growth Study, capacity for dwellings on sites that were not wholly vacant were split into two types; 'infill' (sites that were less than 2,000 m²) and 'vacant potential' (sites that were equal to or greater than 2,000 m²). Since both categories reported on the same type of capacity, and feedback showed there was some confusion over what the difference was, it was decided that these would be reported together as "infill (incl. vacant potential)" in the 2012 study. These two categories remain separate in the results tables located in the appendices of this report.

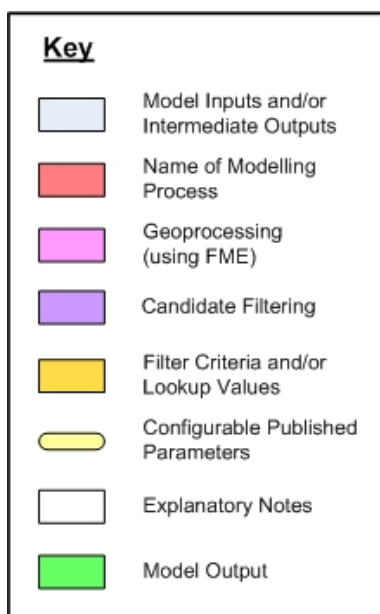
⁹ It should be noted that almost all business zoned sites have a portion of the site which is not covered by building/structure. Our modelling and methodological approach takes this into account and assesses vacant potential capacity based on a site's size and the proportion of site that is vacant (within a population of sites within the district plan area). Refer to section 6.4 including Figure 25.

Capacity type	Definition of capacity type
Pipeline (structure plan and special areas (SPSA))	Capacity that was in the planning processes at the time of the study (May 2012) but not necessarily documented in current district plans. Examples include capacity in the proposed district plan changes or strategic growth management documents. Counted for both residential and business categories. Pipeline capacity comes from special and structure plan areas. Due to their land uses planning nature or timing are not modelled. Figures for these areas are taken from available planning documentation and feedback from council planners and are variable in its quality and certainty.

4.0 Modelling process

The process for calculating the capacity for each parcel or title within a study component is conceptually the same – what differs between each assessment is the assumptions that are used. Figure 3 illustrates the modelling process for the entire Capacity for Growth Study with each of the study components highlighted. Capacity calculation methods for each of the components are outlined in the following sections of this report, with each containing a process diagram that illustrates the procedure taken to calculate capacity. Figure 2 below provides a legend to these diagrams.

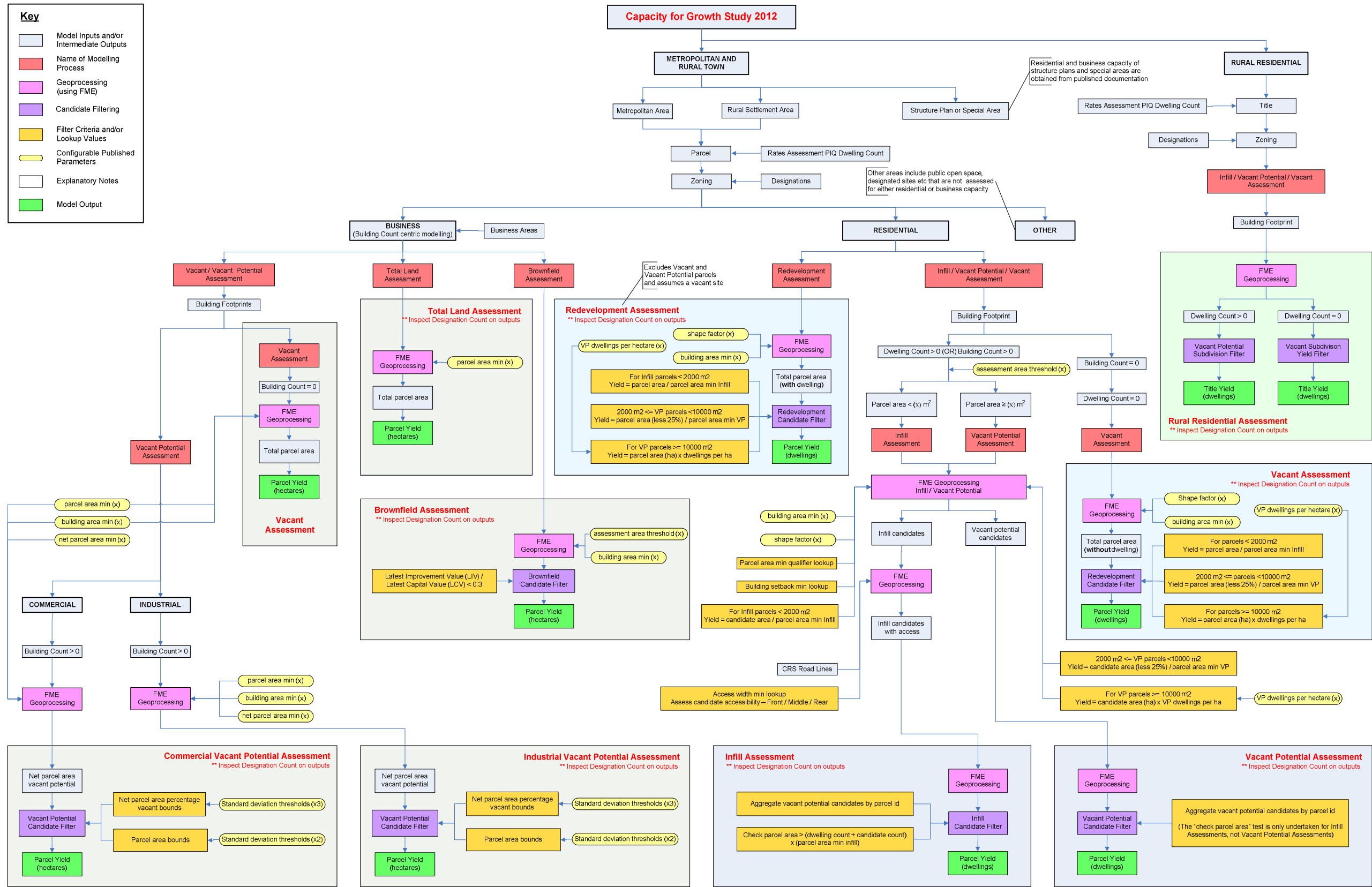
Figure 2: Modelling process diagrams legend



Each component's process diagram is an illustrative representation of that actual modelling process that has been undertaken in FME (software). Full and detailed examples of the modelling schematics (known as workbenches in FME) can be found in Appendix H: FME workbench schematics, at the end of this report.

Data sets that we have sourced in order to undertake the capacity modelling as part of the study can be found listed in Appendix F: Data and sources utilised in study, with description and source. The list also provides a brief description of the data and where it was sourced from. The list indicates what components of the study each of the datasets was used in.

Figure 3: Overview of Capacity for Growth modelling process (geo-processing modelling schematic)



Capacity for Growth Study 2012 : Geoprocessing Modelling Schematic

U:\CPO\Regional Strategy Community and Cultural Policy\Research Investigations and Monitoring\Land Use Research\Capacity for Growth 2012\Documentation\Process Diagrams\CRGS_2012_Process_Diagram_v3.0.vsd

Mike Oberdries and Craig Fredrickson | 28 September 2012

5.0 Residential capacity (urban and rural towns) methodology

Residential capacity measures the net number of additional dwellings units that could be built under operative planning rules. Capacity is calculated under three typologies: residential vacant, residential infill (including vacant potential) and residential redevelopment. An overview of the methods used to calculate these capacity types are outlined in the sections below.

Residential capacity in business areas (including centres) is calculated as part of the business redevelopment component, the methodology of which is reported in section 7.0.

The residential district plan zones that were surveyed are listed in Appendix I.

5.1 Residential capacity assumptions

This section details assumptions that apply to all parcels that were assessed as part of the residential modelling. These assumptions are listed below:

Table 3: Residential capacity modelling assumptions

Assumption name	Description	Components assumption used in
Minimum parcel size	There are many small parcels across the region; these can include the likes of small parcels adjoining larger ones, vehicle access ways, pedestrian accesses etc. Such parcels are considered too small to realise any form of capacity as such parcels that are smaller than 100 m ² were excluded from the modelling process	All residential components
Infill and vacant potential demarcation threshold	A threshold of 2,000 m ² was used as a demarcation point between infill and vacant potential. This allowed for the application of different densities on larger parcels. Note also 10,000m ² demarcation below.	Infill Vacant Potential Redevelopment
Minimum building footprint area	Buildings that are small, and therefore easily moved or removed should not be considered as a constraint to realising capacity; as such buildings that had a foot print that were smaller than 50 m ² were excluded from the modelling process.	All residential components
Minimum dimension for a building/dwelling platform	In order to assess whether a potential infill candidate can accommodate a dwelling, a minimum building platform test is used. The minimum used was 12 by 12 metres.	Infill
Large Parcel demarcation: dwellings per hectare	A dwelling per hectare density assumption is applied to vacant parcels or parcels that have vacant potential that are 10,000 m ² or larger in order to calculate a potential dwelling capacity. Parcels of this size are assumed to be developed in a slightly different way than smaller parcels, and the average density approach accounts for this variance, including parks, reserves, roads and etc. The density used was 13 dwellings per hectare, based on the 2006 Study assumptions.	Vacant Potential Redevelopment
Parcel area minimum qualifier	Minimum size of the residential parcel to be assessed for capacity	All residential components, but

Assumption name	Description	Components assumption used in
		assumptions are zone specific
Parcel area minimum infill	Minimum size of the residential parcel to be assessed for infill capacity	Infill, but assumptions are zone specific
Parcel area minimum vacant potential	Minimum size of the residential parcel to be assessed for vacant potential capacity	Vacant potential, but assumptions are zone specific
Parcel vehicle access width minimum	Minimum width between any existing buildings and the parcel boundary, that would allow a vehicle to pass from the road to the infill area of a parcel	Infill, but assumptions are zone specific
Parcel building setback minimum	Minimum distance from an existing building that infill development can occur.	Infill, but assumptions are zone specific

Other assumptions that are specific to a single capacity calculation type are included in the relevant sub-section of this report. Zone specific assumptions, such as minimum lot sizes can be found in Appendix I.

5.2 Residential vacant

Residential vacant capacity is the number of dwellings that can be yielded from residential zoned parcels that are currently vacant - having neither dwellings nor buildings located on them. Note that a vacant parcel is assumed to have potential capacity for a dwelling irrespective of possible subdivision potential or planning rules (one title equals one dwelling)

Vacant residential parcels occur across the region; not just in areas that have been newly developed, but also in existing suburbs. Primarily there are four kinds of residential vacant parcels in Auckland, these are detailed below (and illustrated in Figure 4):

1. New parcels that have been created through a small scale subdivision, and have yet to have a dwelling constructed on them
2. Parcels that have been vacant for a long period of time – their owner has chosen not to construct a dwelling on them to date
3. Parcels that are used for other purposes, such as amenity value (a larger back yard or garden), recreation (have a swimming pool or tennis court), parking for adjoining parcels etc.
4. Parcels that have been created through large scale subdivision (greenfield developments, often via a structure plan) and have yet to have a dwelling constructed on them. Note that most of these vacant parcels have not been measured through the residential vacant component of the study due to these parcels falling within structure plan and special areas. Capacity in structure plan and special areas are reported separately as 'pipeline' (refer Table 2).

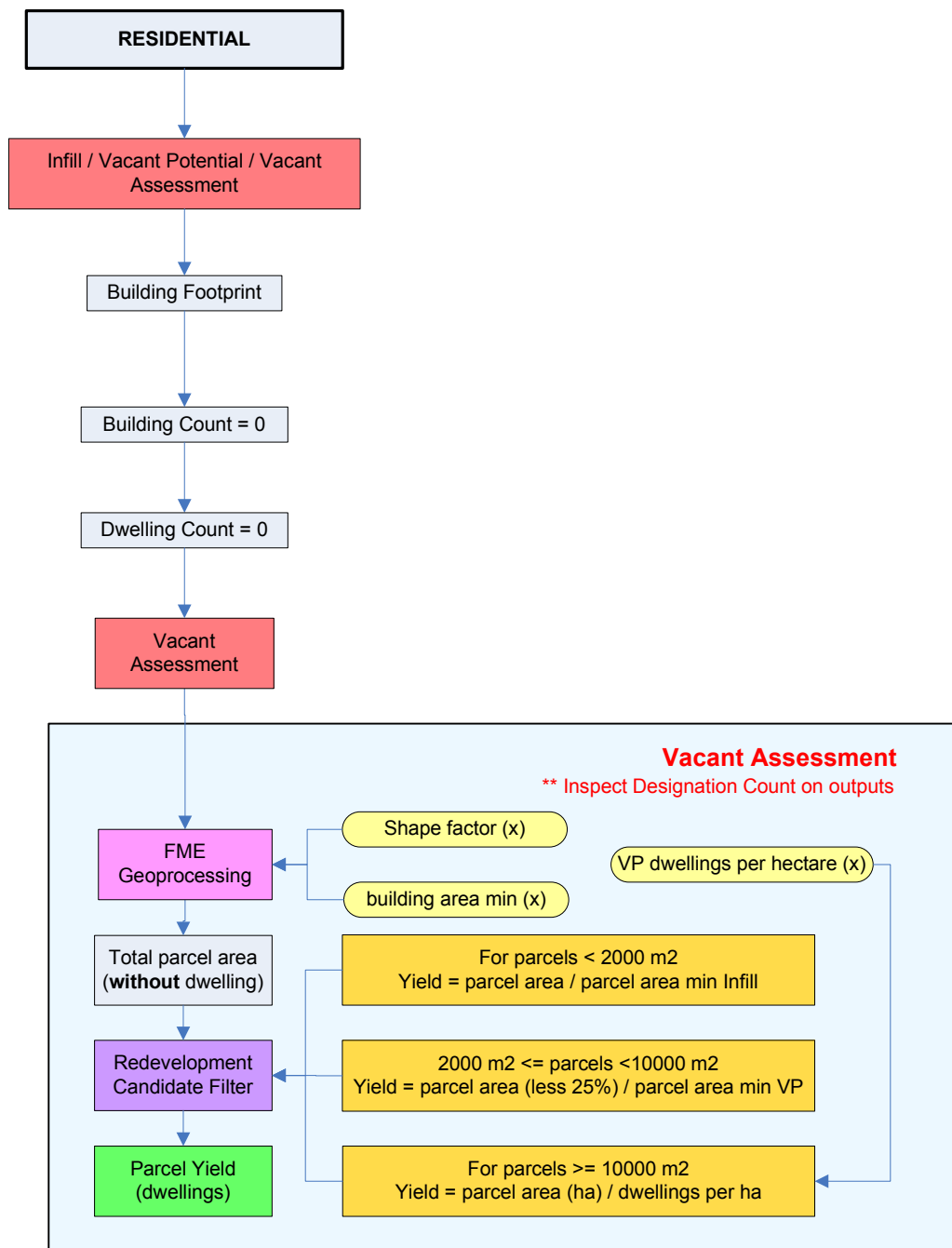
Figure 4: Examples of vacant residential parcels



Vacant residential land is measured as part of this study as it provides a good indication of how much land is readily available for development. As vacant residential land is zoned, and almost all of it is already serviced, it provides opportunities for dwellings that are “ready to go”.

Vacant residential capacity is calculated through a modelling process, which can be seen in Figure 5 below.

Figure 5: Diagram of residential vacant capacity calculation



Residential parcels identified by the model as being vacant are selected, and the capacity for these parcels is calculated in one of three methods, depending on the parcels size.

For parcels that are less than 2,000 square metres; the district plan zoning density was applied:

$$yield = \left(\frac{parcel\ area}{minimum\ lot\ size} \right)$$

For parcels that are equal to, or are larger than 2,000 square meters and smaller than 10,000 square meters; 25% of the parcel area was removed from the calculation to allow for reserve contribution, vested roads etc. and for the remaining area the district plan zoning density was applied:

$$yield = \left(\frac{parcel\ area \times 0.75}{minimum\ lot\ size} \right)$$

For parcels that are equal to, or larger than 10,000 square meters; a 'dwellings per hectare' factor was applied:

$$yield = \left(\frac{parcel\ area}{dwellings\ per\ hectare} \right)$$

The dwelling per hectare density applied to the parcels 10,000 meters or larger in the 2012 study was 13, the same factor as used in 2006. This factor is based upon a case study of subdivisions within the metropolitan area on residentially zoned parcels over 2 hectares between 2001 and 2006, undertaken by Urbanista Ltd. on behalf of the Auckland Regional Council. The study showed an average density of 13 dwellings per hectare regardless of district plan density provisions. This is an increase from the 2001 assumption of 10 dwellings per hectare. It should be noted that another case study was undertaken prior to the 2012 study modelling took place, which showed that the average dwellings per hectare yielded in the period 2006 to 2012 had reduced to 10 dwellings per hectare. It was decided to use the higher, 2006 density (13 dwellings per hectare) because subdivisions that were reviewed as part of the 2012 case study were not overly representative of likely future yields and the lowered yields were caused by factors including, but not limited to:

- The weakened property market over the period 2006-2012
- Less frequent occurrence of medium density developments in the period, due to the lowered demand in the relatively soft property market and
- An apparent market preference for larger homes (requiring an appropriate sized site)

Even when utilising the higher dwelling yield in the modelling assumptions, we believe it produces a conservative regional capacity number due to the increasing numbers of discretionary or non-complying consents issued for higher yielding medium and higher density developments that are not captured.

A detailed diagram of each of the spatial modelling and yield calculation processes (undertaken in our modelling software, FME) can be found in Appendix H: FME workbench schematics.

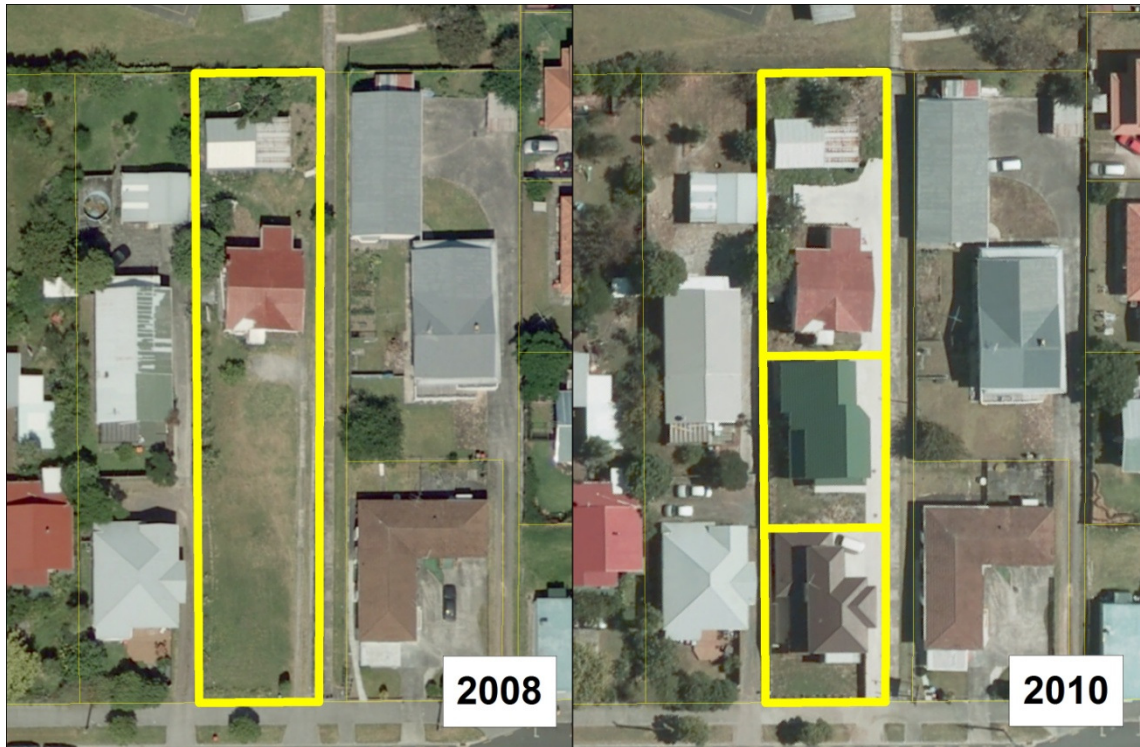
Results for residential vacant capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

5.3 Residential infill (including vacant potential)

Residential infill capacity (including vacant potential capacity) is the number of additional dwellings that can be yielded from residential zoned parcels that are partially vacant and have subdivision potential (based on the lowest consent category from district planning rules), presuming that any existing dwellings or structures greater than 50 square metres stay in place.

Figure 6 below shows an example of where infill development has taken place. The existing dwelling on the parcel has remained in place and in this case, the property has been subdivided allowing an additional two dwellings to be constructed on the front of the parcel.

Figure 6: Example of infill on a residential parcel



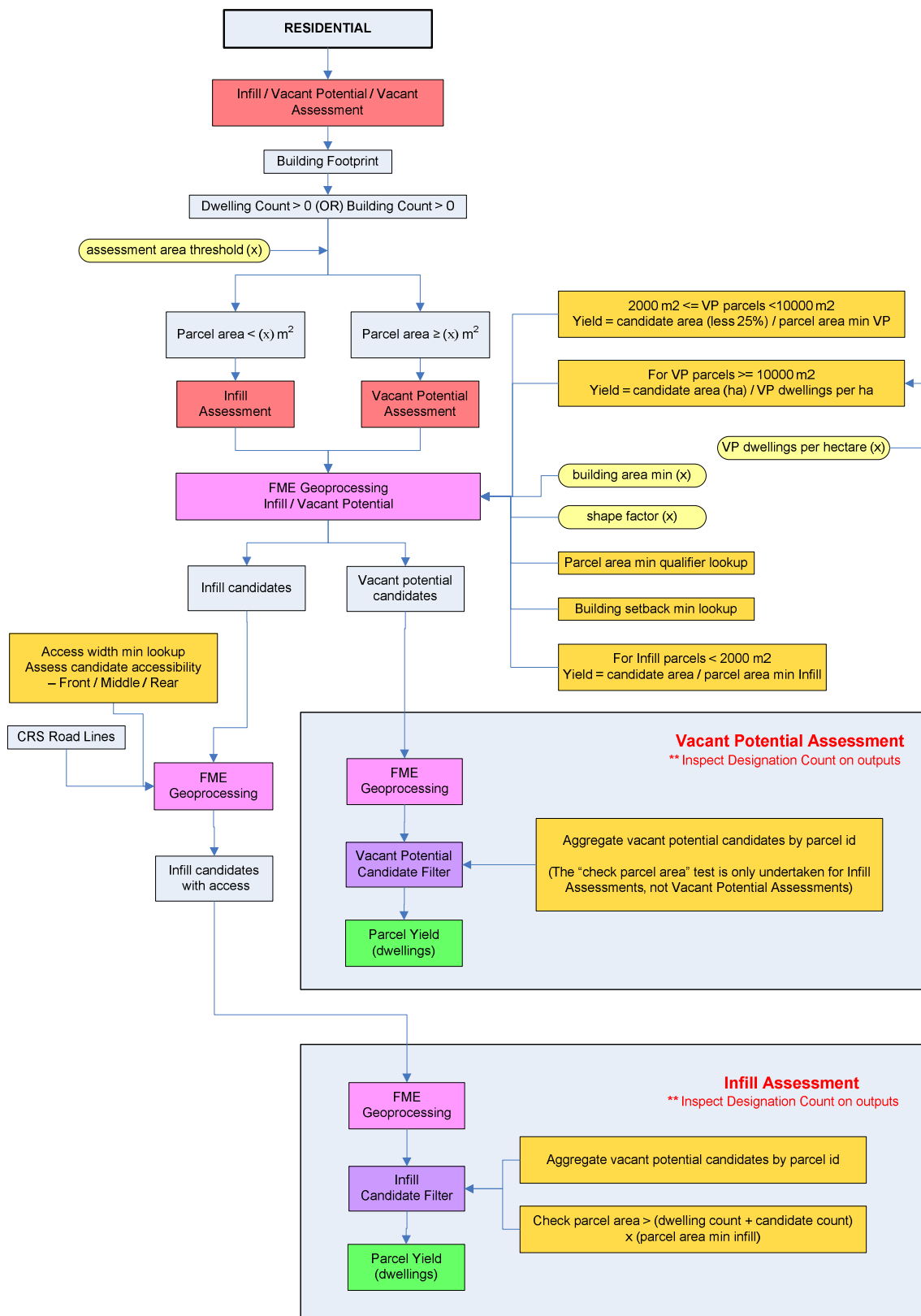
While the residential infill and residential vacant potential capacity is very similar in typology (i.e. they are both calculated on parcels that currently have a building and/or a dwelling located on them, calculations to determine each parcel’s capacity is modelled using differing calculation methods. Parcels considered for infill are less than 2,000 square metres, while parcels that are measured for vacant potential are equal to or larger than 2,000 square meters. The reason we make this distinction is to enable us to use and apply different assumptions to larger sites; this distinction is primarily for modelling purposes.

The process for calculating yields from both of these capacity types can be seen in Figure 7 below. The different approaches for calculating yields are listed below (Table 4). The application of the yield calculations shown are detailed in section 6.3.1.

Table 4: Residential parcel size subdivision assumptions

Subdivision type	Parcel sizes	Description
Small	Less than 2,000 m ²	Standard infill approach from relevant district plan rules
Medium	2,000 m ² to 10,000 m ²	As per the small subdivision, less 25% for reserve contribution, vested roads etc.
Large	Larger than 10,000 m ²	Regional net average dwelling density applied (13 dwellings per hectare in the 2012 study)

Figure 7: Diagram of residential infill (incl. vacant potential) capacity calculation



As part of this process, a spatial model was constructed to enable us to determine the part(s) of residential parcels that would be suitable for to accommodate additional dwelling(s) in accordance with the district planning rules. This model used the digital cadastral database

(property boundaries) and building footprint outlines in order to make the assessment. The following section briefly outlines part of this modelling process.

5.3.1 Overview of infill and vacant potential modelling process

Residential parcels that are assessed for infill must first meet the minimum area test – requiring them to be twice the minimum lot size for the zone which it lays in. For example if the minimum lot size was 400 square meters the minimum parcel size for assessment would need to be at least 800 square meters (as the new parcel and the existing parcel would both need to meet the minimum lot size requirements of the rules). The following figures (Figure 9 to Figure 13) illustrate the modelling process. A key to these figures is shown below in Figure 8.

Figure 8: Key to modelling process figures (Figure 9 to Figure 13)

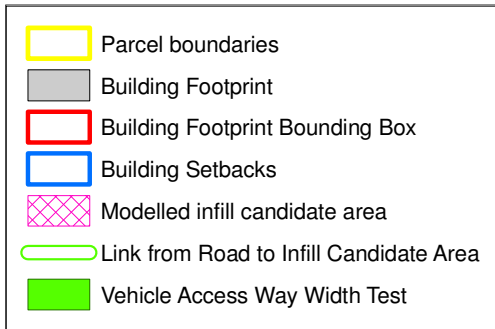


Figure 9 below shows an example residential parcel that meets the minimum lot size test for the zone.

Figure 9: Selection of parcel for infill testing



Once the parcel has been selected, a bounding box is generated on any buildings that are located on the parcel. This is shown below in Figure 10.

Figure 10: Application of building bounding box



The bounding box is generated to allow us to create a rectangular buffer around the building in order for us illustrate the minimum building setbacks, which is demonstrated in Figure 11 below.

Figure 11: Application of building setbacks



Once the setback from existing buildings has been confirmed the spatial model then generates the potential infill area of a parcel. Figure 12 below shows the infill area of the example parcel that the model generates.

Figure 12: Generation of infill area of candidate parcel



It should be noted that the hatched infill candidate area illustrated in Figure 12 is the modelled vacant area of the parcel where additional dwellings could be located, but does not indicate the extents of a potential new lot which would be net of the required area for any existing dwelling(s).

The next test to see whether a parcel is suitable to accommodate infill development is to assess if a parcel's candidate area is equal to or greater than the minimum lot size area of the zone. If that is found to be true, then a further test is run to see if there is sufficient remaining area for the existing dwelling to comply with the minimum lot size requirements for the zone.

Once suitable candidates for infill have been determined a final test is undertaken to check whether there is sufficient room for vehicle access from the road to infill candidate area of the parcel. This is displayed in Figure 13. This example shows that the vehicle access minimum width requirement is met between the existing dwelling and the boundary of the parcel. If this test fails, the parcel is considered unsuitable for infill development. It should be noted that while a parcel may fail on one, or many of the tests, this could theoretically be over come through the resource consent process; however this is out of scope of this study.

Figure 13: Test for minimum access width on infill model candidates



Once all of these tests have taken place to filter suitable residential parcels, the infill and vacant potential capacity yields are calculated. Parcels that are less than 2,000 square meters are classified as infill capacity, while those equal to and larger than this size are classed as vacant potential capacity.

Like the yield determined for the residential vacant, parcels smaller than 2,000 square metres (refer section 5.2), infill capacity is generated by using a minimum lot size;

$$yield = \left(\frac{candidate\ area}{minimum\ lot\ size} \right)$$

Yield calculation for residential vacant potential is the same as used for residential vacant parcels, and uses the same demarcation between parcel sizes to make the calculation. For candidate areas that are equal to, or are larger than 2,000 square meters and smaller than 10,000 square meters; 25% of the candidate area was removed from the calculation to allow for reserve contribution, vested roads etc. and for the remaining area the district plan zoning density was applied:

$$yield = \left(\frac{candidate\ area \times 0.75}{minimum\ lot\ size} \right)$$

For candidate areas that are equal to, or larger than 10,000 square meters; a 'dwellings per hectare' factor was applied

$$yield = \left(\frac{candidate\ area}{dwellings\ per\ hectare} \right)$$

It should be noted that the vehicle access test is not run on candidate areas on vacant potential parcels (i.e. parcels over 2,000 m²), as due to their larger size, vehicle access is assumed to be available, or made available and is allowed for in the 25% area removal and the average net density assumptions.

Figure 3 in section 4.0 presents a step-by-step overview of the entire modelling process undertaken. As well as this, a detailed diagram of each of the spatial modelling and yield calculation processes (undertaken in our modelling software, FME) can be found in Appendix H: FME workbench schematics.

Results for residential infill capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

5.4 Residential redevelopment

Residential redevelopment capacity is the number of additional dwellings that can be yielded from residential zoned parcels, presuming that all existing dwellings/structures are removed and the parcels are redeveloped to yield the maximum number of dwellings permitted (based on the modelled consent category from district planning rules).

Redevelopment is an important measure of the theoretical capacity of the operative plans. It is critical that we understand what the maximum numbers of dwellings that district plans have enabled in areas as while all of these opportunities may not be taken up, under the rules it is possible that they could be.

Residential redevelopment capacity is not calculated on parcels that are wholly vacant, or have been identified as having vacant potential.

Our analysis shows that redevelopment regularly occurs across Auckland, examples of which are shown in Figure 14 and Figure 15 below. Two types of redevelopment are most prevalent, these being redevelopment through the removal of the existing dwellings or buildings and

building to a higher density, or redevelopment through the relocation of an existing dwelling on a parcel to allow for additional dwellings - examples of which are shown in Figure 14 and Figure 15 below.

Figure 14: Example of redevelopment through the removal of an existing dwelling

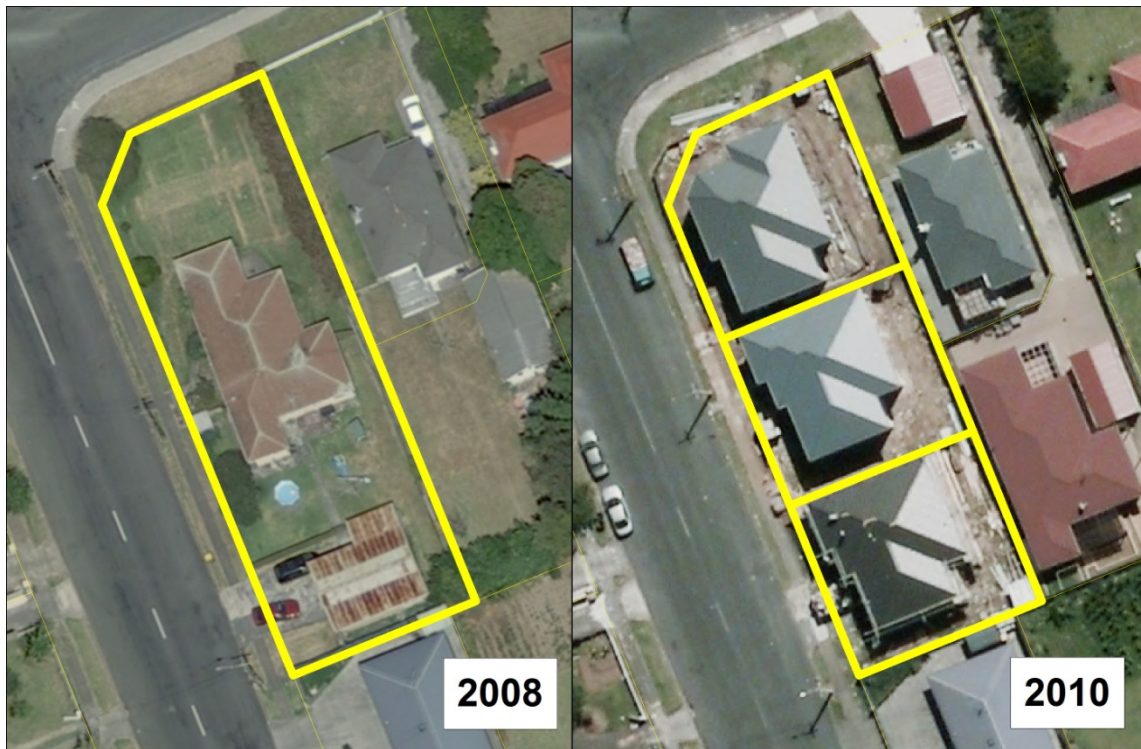
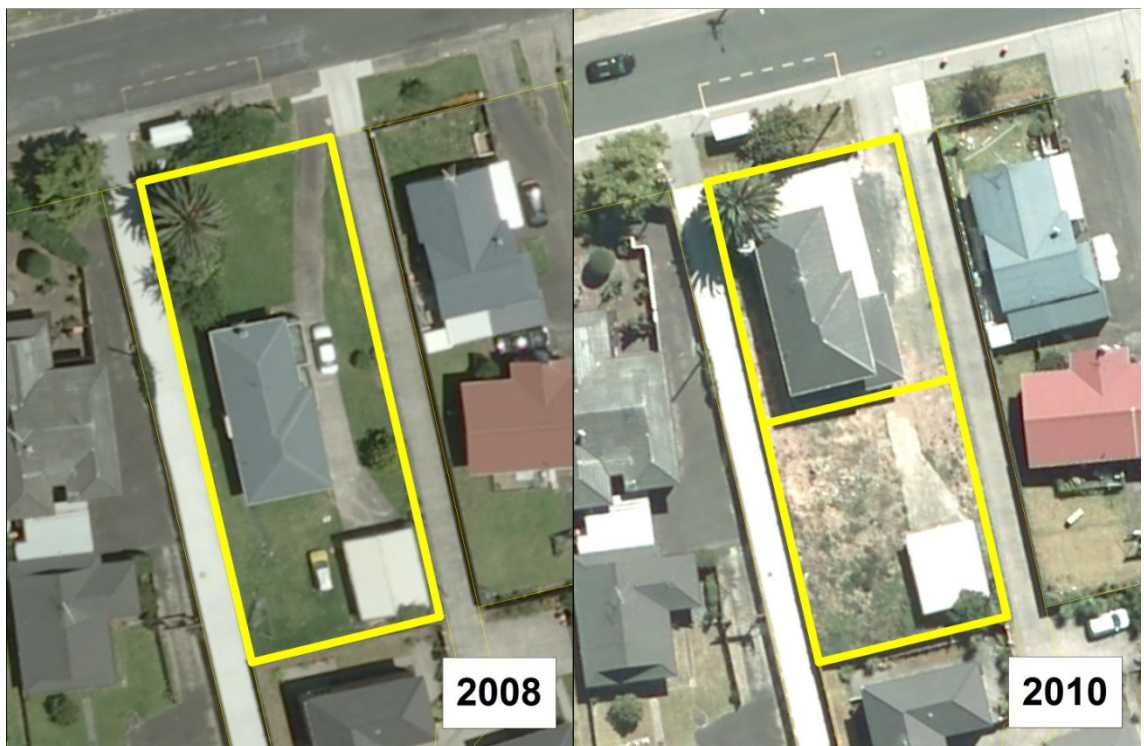


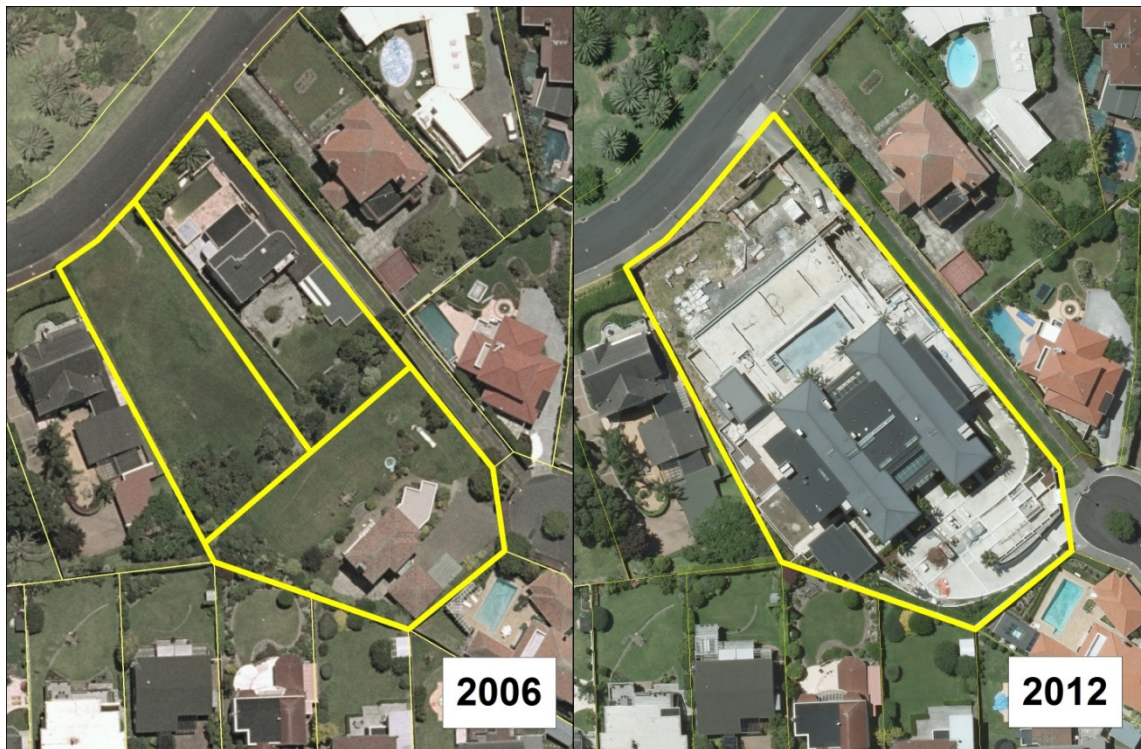
Figure 15: Example of redevelopment through the relocation of an existing dwelling



It should be noted that there are cases where redevelopment does not yield additional dwellings and in fact reduces the number of dwellings, and example of which can be seen in Figure 16 below. Often this reduction in the number of dwellings occurs through the amalgamation of parcels. The example seen in Figure 16 shows three parcels that have been amalgamated into one parcel in order to build a large residence on the parcel, thus reducing the capacity potential. The *Capacity for Growth Study 2006* recorded a potential of three additional dwellings across the parcels (a possibility for two dwelling on the then vacant parcel and one dwelling on one of the currently occupied parcels). With the amalgamation and subsequent dwelling construction the potential of the parcel has been reduced to zero.

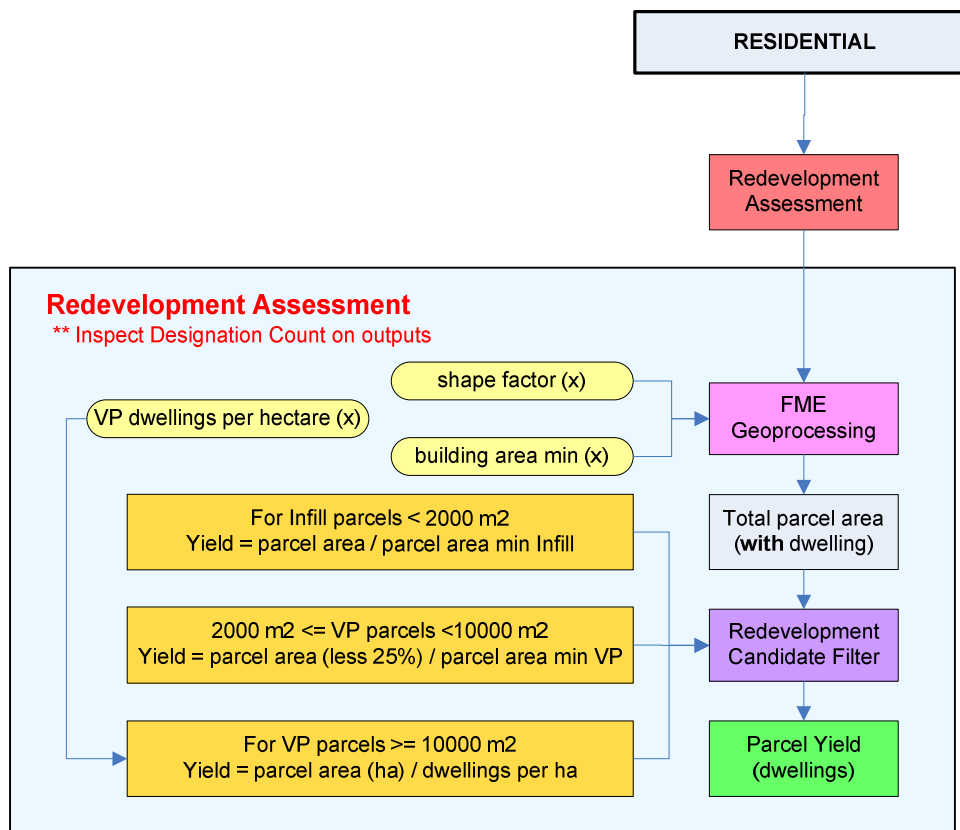
This type of redevelopment has not been assessed as part of the study.

Figure 16: Example of redevelopment yielding fewer dwellings



Like the other forms of residential capacity, residential redevelopment capacity is calculated through a spatial modelling process, which is outlined in Figure 17 below.

Figure 17: Diagram of residential redevelopment capacity calculation



The gross area of each residential parcel is calculated as part of the model, after which the capacity yield is calculated. Like the process for calculating yield in the residential vacant and residential infill components, this is done based on the size of the gross parcel area.

For parcels that are less than 2,000 square metres; the district plan zoning density was applied:

$$yield = \left(\frac{parcel\ area}{minimum\ lot\ size} \right)$$

For parcels that are equal to, or are larger than 2,000 square meters and smaller than 10,000 square meters; 25% of the parcel area was removed from the calculation to allow for reserve contribution, vested roads etc. and for the remaining area the district plan zoning density was applied:

$$yield = \left(\frac{parcel\ area \times 0.75}{minimum\ lot\ size} \right)$$

For parcels that are equal to, or larger than 10,000 square meters; a 'dwellings per hectare' factor was applied:

$$yield = \left(\frac{parcel\ area}{dwellings\ per\ hectare} \right)$$

A detailed diagram of each of the spatial modelling and yield calculation processes (undertaken in our modelling software, FME) can be found in Appendix H: FME workbench schematics.

Results for residential redevelopment capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

6.0 Business land capacity methodology

The business land capacity component of the study seeks to identify parcels of land that are zoned for business use and are either vacant or have vacant potential, and report the results as land available in hectares.

This section of the report only addresses land capacity. The business redevelopment component (refer section 7.0), looks at other factors including floor space, residential dwellings on business land and employees. The business district plan zones that were surveyed are listed in Appendix I.

Data utilised in the business land capacity component of this study is listed and detailed in Appendix F: Data and sources utilised in study, with description and source.

6.1 Business land capacity assumptions

This section details assumptions that apply to all parcels that were assessed as part of the business modelling. These assumptions are listed below:

Assumption name	Description	Components assumption used in
Minimum parcel size	There are many small parcels across the region; these can include the likes of small parcels adjoining larger ones, vehicle access ways, pedestrian accesses etc. Such parcels are considered too small to realise any form of capacity as such parcels that are smaller than 100 m ² were excluded from the modelling process	Vacant Vacant potential
Minimum building footprint area	Buildings that are small, and therefore easily moved or removed should not be considered as a constraint to realising capacity; as such buildings that had a foot print that were smaller than 50 m ² were excluded from the modelling process.	Vacant Vacant potential

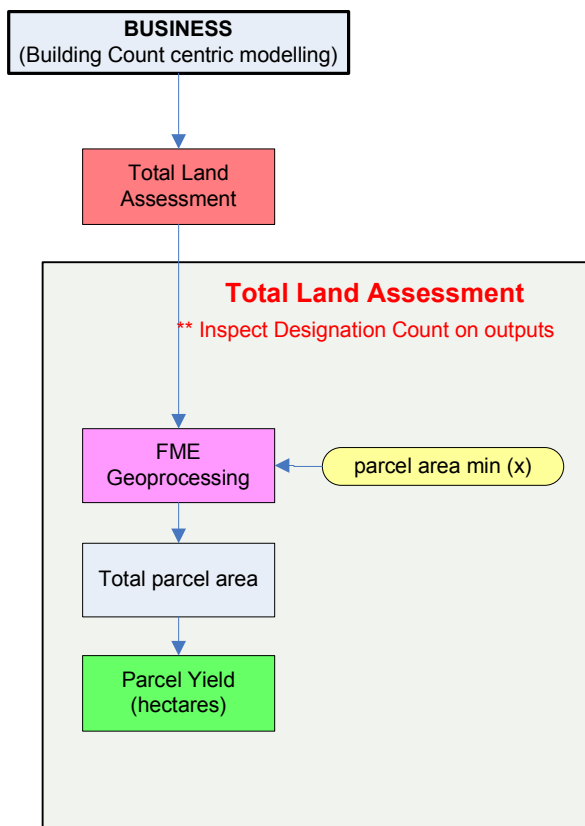
6.2 Total business land

This portion of the study calculates the amount of total business zoned land in Auckland. These calculations allow us to determine proportion of business land that is either vacant or has vacant potential and is undertaken on every business parcel regardless of its location and current use¹⁰. The process by which the total business land is calculated is illustrated in Figure 18.

The outputs from the business land total calculations area used as an input for the business redevelopment component of the study.

¹⁰ Note that only parcels that are equal to or above the minimum parcel size assumption parameter are assessed.

Figure 18: Diagram of total business land calculation



A detailed diagram of each of the spatial modelling and yield calculation processes (undertaken in our modelling software, FME) can be found in Appendix H: FME workbench schematics.

Results for total business land can be found in the *Capacity for Growth Study 2012: Results technical report*.

6.3 Business vacant

Business vacant land capacity is the measure of the area (in hectares) of business zoned land that is on parcels that are wholly vacant (i.e. there is no building located on the parcel).

Business vacant land is measured as it gives us an indication of how much land is available across the region which is already zoned for business uses and could be used for such purposes readily.

For the purposes of the Capacity for Growth Study we have classified vacant business land as not having a building located¹¹ on the parcel being assessed. Based on this classification there are two distinct types of vacant parcels present, the first being a business parcel that is an empty lot (example shown below in Figure 19) and the second being a business parcel that while it has no buildings located on it is currently used for other purposes.

¹¹ A building being equal or greater than the minimum building footprint area assumption

Figure 19: Example of business land vacant parcel - unused lot



Other purposes can include the likes of car parking, storage areas etc. An example of two other uses for business parcels can be seen in Figure 20.

Despite not being truly vacant, these parcels are counted as so due to the fact that because they do not have any permanent/significant building structure located on them they could be easily utilised for other business uses should the need or the desire of the owner arise.

Figure 20: Example of business land vacant parcels – ancillary business and other uses

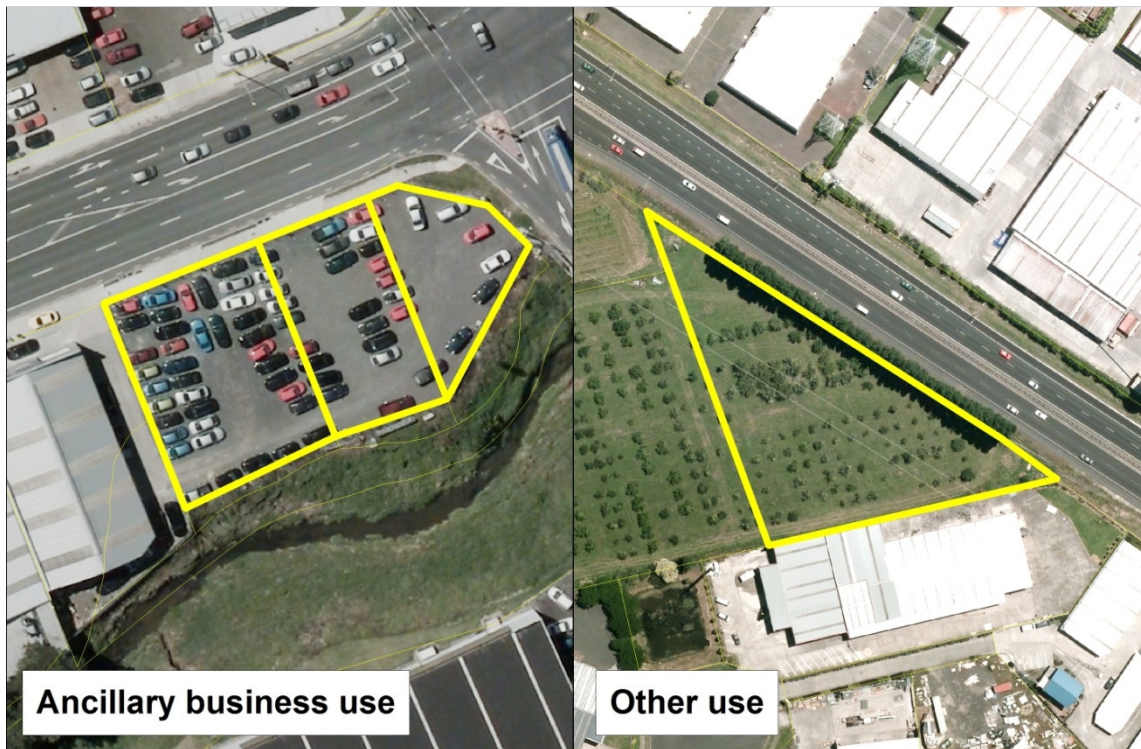
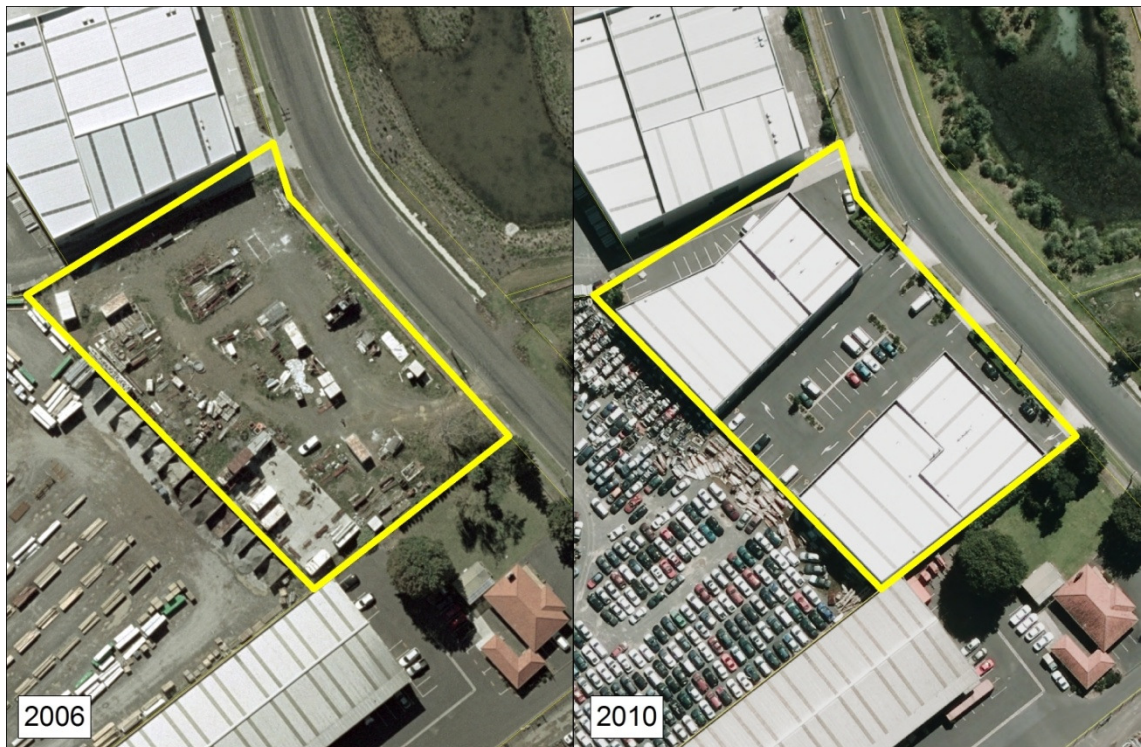


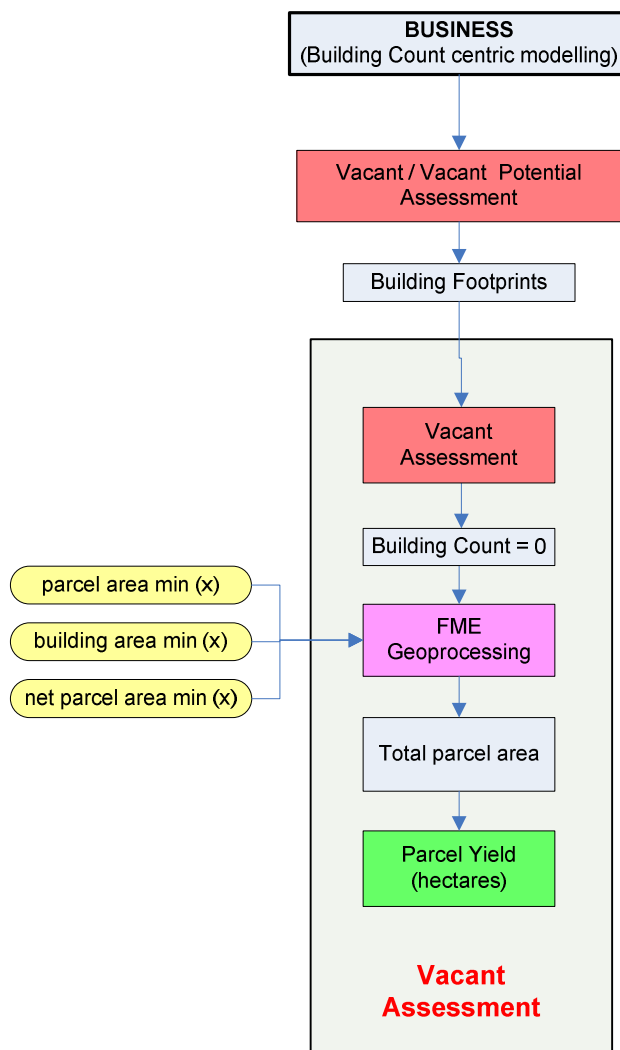
Figure 21 displays an example of this conversion from a vacant parcel. The parcel was used for storage at the time of the 2006 Capacity for Growth Study, but since has been built upon.

Figure 21: Example of a vacant business parcel (used but with no buildings/structures) in 2006 and no longer vacant in 2010



Vacant business land is measured through a modelling process, which is shown in the figure below.

Figure 22: Diagram of business vacant capacity calculation



Business vacant capacity yield is reported by area (in hectares), which is calculated as part of the modelling process seen in Figure 22.

Results for business vacant capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

6.4 Business vacant potential

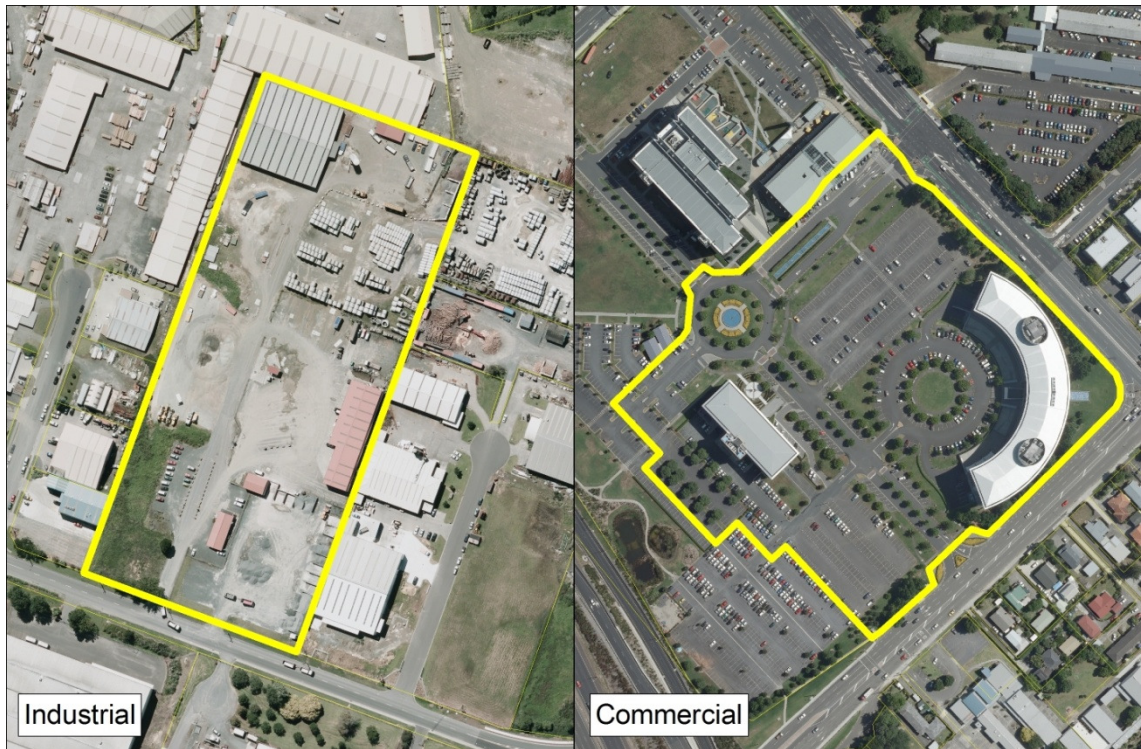
The measuring of vacant potential business land is undertaken as a large number of business parcels across the region have portions that are under utilised; meaning that they could be used for another purpose, including further development.

As part of this study we measured vacant potential on two different types of land: commercial and industrial. These categories are based on the zoning types as stated in the region's varying district plans. A full list of the business zones and their respective typology can be found in Appendix I.

Differentiation of these business zone types was required as we realised that the way the businesses located in each of these zone types is very different. Businesses and the buildings

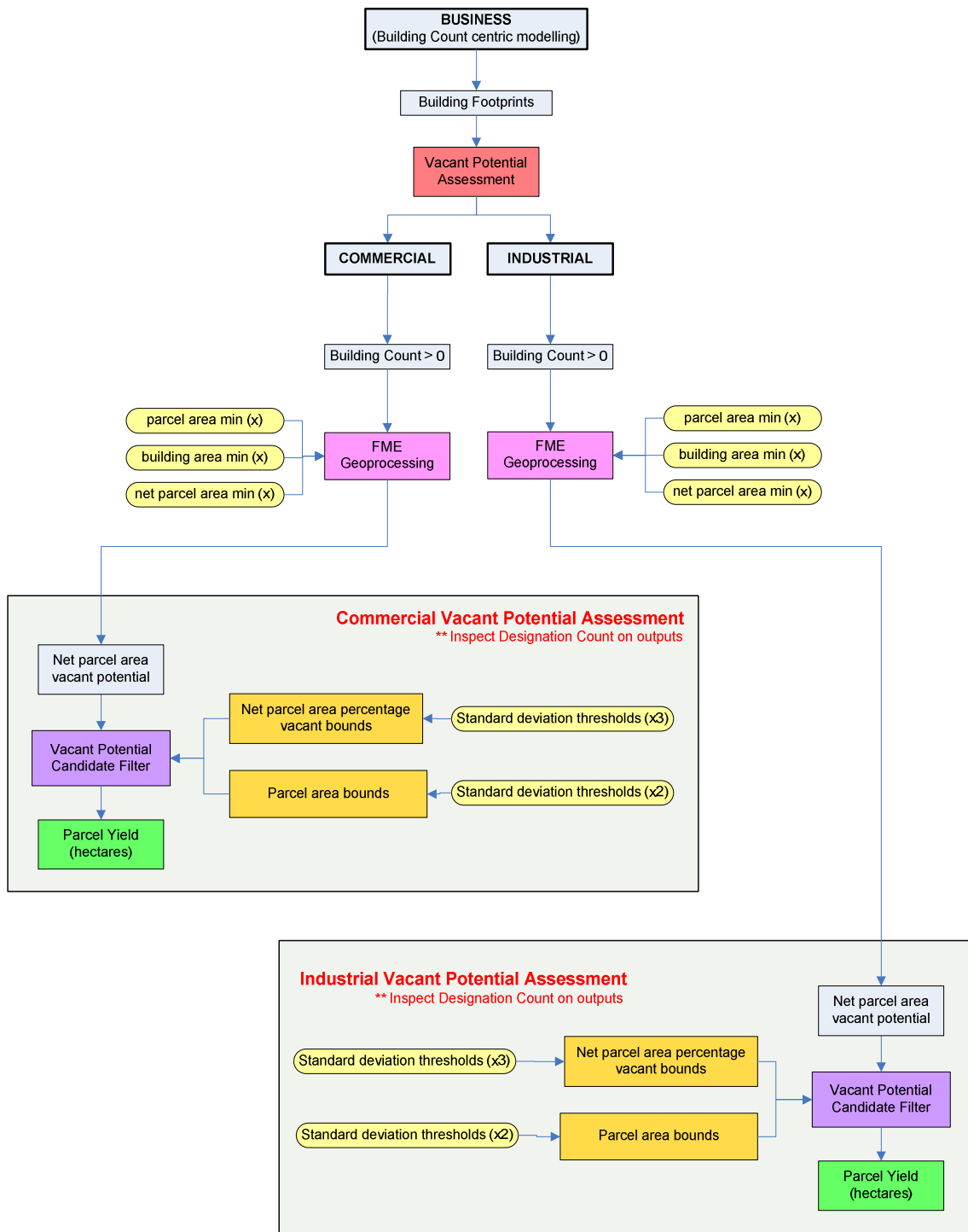
that house them use land differently – e.g. commercial tends to be more land intensive, often building upwards, the parcels also tend to be smaller; industrial tends to be land extensive with larger buildings, requiring larger parcels of land – also more need for land around buildings of use as storage, turning areas for trucks etc. Figure 23 below illustrates how two parcels (one from each business zone type) and exhibiting vacant potential are currently used. Because of the differing nature the demarcation was made so that these types could be analysed using the same modelling method – but using different assumptions to reflect varying uses.

Figure 23: Example of business parcels with vacant potential capacity - industrial and commercial



Business vacant potential yield is modelled, as seen in Figure 24 below.

Figure 24: Diagram of business vacant potential capacity calculation



The method employed to determine vacant potential capacity is different to that used during the 2006 iteration of the study. The 2006 study used a manual data capture process to assess whether business parcels were vacant or had vacant potential; over 20,000 parcels were manually checked by individuals using a custom GIS software tool installed on computers. Vacant potential was assessed using aerial imagery on-screen; an ‘eye-ball’ estimate of the proportion of each parcel that was vacant was made by the user and entered manually into the software tool, which then calculated the yield as a simple equation (parcel area multiplied by the estimated proportion vacant).

This process was open to human error and produced different interpretations depending on the user, was time consuming and had high resource and staffing costs.

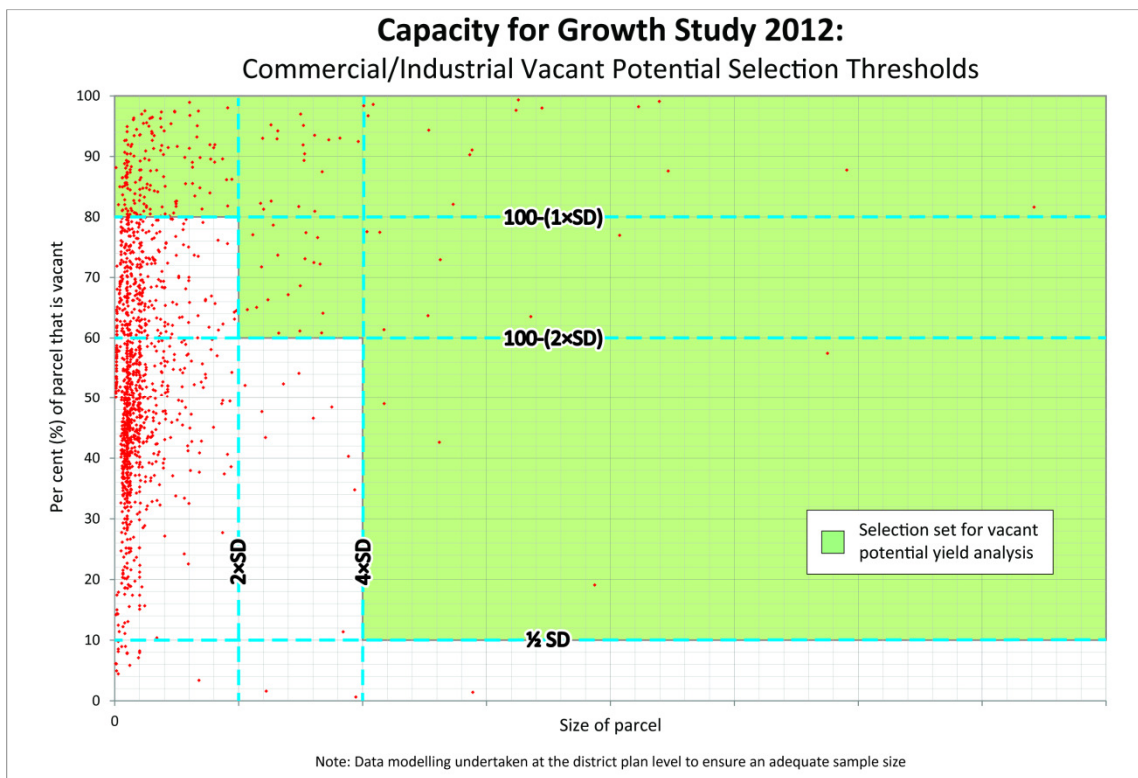
The 2012 version is entirely automated. The use of digitised building foot prints allow us to determine quickly and relatively accurately how much of parcel is covered by buildings. During the pilot study that was undertaken to establish preferred modelling techniques it was determined that a filter was required so that only those parcels that had a vacant potential area that was 'realistically' useable were returned (this was done manually as part of the user input process previously).

The process to filter the parcels for inclusion in vacant potential totals the following process was undertaken:

- Net parcel area calculated

$$\text{Net parcel area} = \text{Gross parcel area} - \text{building footprint area}$$
- Create a selection of parcels that have a large amount of vacant potential compared to the sample set¹². This selection is based on the following criteria (illustrated in Figure 25 below)
- Sum yield of parcels in vacant potential selection set.

Figure 25: Example of criteria for selection set of vacant potential parcels yield analysis



The filter used to create the selection set means that only parcels that have a large proportion of vacant potential associated with them are used for total yield calculations. This is undertaken as it was observed that parcels that have a lower proportion of vacant potential (in relation to total parcel size) the more likely the vacant portion of the parcel was being used effectively as part of the business activities that were taking place on the parcel and was therefore not realistically available for further development.

¹² The sample set for filtering is based on the district plan area being modelled.

Business vacant capacity yield is reported by area (in hectares), which is calculated as part of the modelling process seen in Figure 24.

A detailed diagram of each of the spatial modelling and yield calculation processes (undertaken in our modelling software, FME) can be found in Appendix H: FME workbench schematics.

Results for business vacant potential capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

7.0 Business redevelopment capacity methodology

7.1 Background

Redevelopment on business zoned land (this also includes mixed use zones that occur in and around town centres) is a measure of the additional capacity that could be made available from intensification of currently developed areas.

The business redevelopment component of the Capacity for Growth Study estimates the likely total floor space area of a business area or centre. Total floor space area is determined and subsequently apportioned to business and residential purposes.

The study uses assumptions rather than present zoning parameters for business areas and centres because the existing zoning framework for these areas does not provide a functional limit to capacity, in some cases effectively allowing for extremely large and unrealistic amounts of floor space. In many business areas, the only 'plan' limit to floor space potential is a height to boundary line from often far distant residential zones, which results in an unfeasibly high development potential.

The methodology undertaken to calculate business redevelopment capacity was developed as part of the 2006 iteration of the study. Portions of the methodology have been updated and improved as part of the 2012 study. Improvements include the purchase of existing floor space data by rates assessment area, collected as part of the new region wide property valuation process.

Business redevelopment capacity is measured so that we are able to determine the level at which business areas and centres around the region are able to accommodate further growth, through redevelopment. The ability for centres in particular to accommodate future growth (the accommodation of increased population through the addition of higher-density dwellings) was identified as a key outcome of the Regional Growth Strategy; as such a consistent Auckland-wide methodology was developed for the 2006 Capacity for Growth Study. *The Auckland Plan* (published in March 2012) continues with this view, stating the need for "greater intensification in both existing and new urban areas" (page 41, Auckland Council 2012) it goes on to note "metropolitan centres such as Takapuna and Manukau, will accommodate a large proportion of the city's future residential, retail and employment growth" (page 52, Auckland Council 2012), based on this measuring business redevelopment capacity it is still seen as a vitally important measure.

Business redevelopment capacity is calculated across an entire business area, rather than on a parcel by parcel basis (as is done with the residential and business capacity calculations). There are several reasons that this is done:

1. Business activities are not as limited by parcel boundaries to the extent that residential development is. Figure 26 below shows an example of three parcels in a business area that have a single building across all of them.
2. In some business areas, the only 'plan' limit to floor space potential is a height to boundary line from often far distant residential zone. These limits are based on the extent of the business zoning, rather than the extents of the individual parcels.
3. Buildings in business areas can and do abut each other, often over multiple levels.

Figure 26: Example of cross-parcel business activity



7.2 Defining business areas and centres

In total 251 business areas and centres were assessed for redevelopment capacity.

The business areas and centres used for this component of the study are the larger contiguous areas of business zoning that have a similar typology and are considered to be significant areas of employment, and include the larger urban and rural centres.

The definitions for the business area typologies are outlined in *The Auckland Plan* technical paper, *Business Land and Employment Growth*. The location, names and extents of these areas was provided in accompanying spatial analysis provided by council's geospatial unit in conjunction with the paper's authors. The geographic limits of these areas are defined by present zoning¹³. A list of the business areas and centres analysed as part of this component of the study can be found in Appendix L: Business areas and centres with classifications, with maps of the maps indicating their location and extent can be found in Appendix B.

7.3 Business redevelopment capacity types

The capacity types outputted from the business redevelopment component of the study are listed in Table 5, accompanied by a brief description.

¹³ As present business zoning is used to define the extent of 'centres' in this study, it needs to be noted that these are not the same as centres defined for other purposes. In the Auckland Plan a centre is generally conceived as both the business zoned area (which we have used) *and* a periphery, which will fall into one of our other categories, such as residential.

Table 5: Types of business redevelopment capacity

Business redevelopment capacity type	Definition of capacity type
Total floor space	Total amount of floor space (square meters) possible in a business area or centre calculated using floor area ratio (FAR) assumptions.
Business (non-residential) floor space	Amount of business (non-residential) floor space (square meters) likely to be yielded from a business area or centre.
Residential floor space	Amount of residential floor space (square meters) likely to be yielded from a business area or centre.
Estimated employees	Estimated number of employees likely to be accommodated in a centre or business area, based on the amount of business (non-residential) floor space yielded and a floor area per employee ratio.
Estimated dwellings	Estimated number of dwellings likely to be accommodated in a centre or business area, based on the amount of residential floor space yielded and a floor area per dwelling ratio.

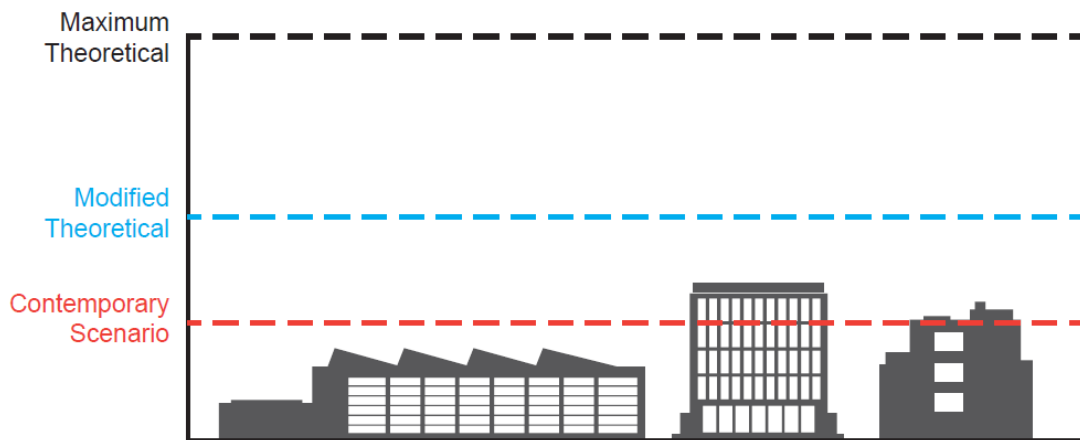
7.4 Business redevelopment scenarios

The 2012 study developed three business redevelopment scenarios; a 'contemporary' scenario, a 'modified theoretical' scenario and a 'maximum theoretical' scenario, the descriptions of which are detailed in Table 6. The conceptual differences between the three scenarios are illustrated in Figure 27.

Table 6: Business redevelopment scenarios

Scenario name	Details of scenario
Contemporary	Development potential of a business area, based on the build out vacant and vacant potential land of the area based on its current characteristics
Modified theoretical	A 'reasonable' aspirational scenario, in most cases scaled back from the maximum theoretical (see detail below) allowed under district planning rules. This scenario has been applied to some industrial and commercial zones where no district plan FAR or height/coverage controls exist. The FAR assumptions selected were guided by the permitted activities and the design of the zones, the 2031 planning horizon, case studies of contemporary development, territorial strategic directions and future expectations for these areas.
Maximum theoretical	Theoretical maximum development potential of a business area, as permitted under the relevant district plan. Some zones in the region have no height limits. In these cases maximum building height is limited only by the height-in-relation-to-boundary rule (HIRB) which is often applied at the edge of the zone. In theory, applying a 45 degree HIRB rule to a 200 metre wide zone could result in complying 100 metre high structures at the centre. In these cases a GIS model was used to calculate the FARs (as part of the 2006 study)

Figure 27: Illustrative diagram of the three business redevelopment scenarios for an example business area



A conceptual example of the difference between the maximum theoretical (permitted under the district plan rules) and the modified theoretical scenarios is demonstrate below in Figure 28 and Figure 29.

Figure 28: Example of developable volume and floor space under a maximum theoretical scenario

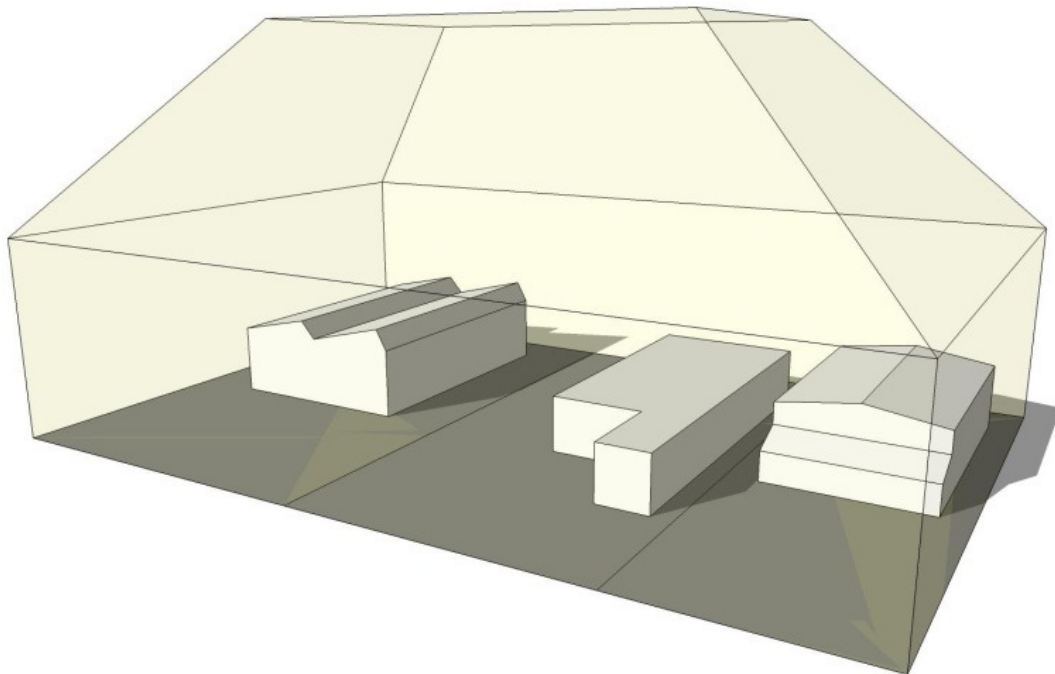
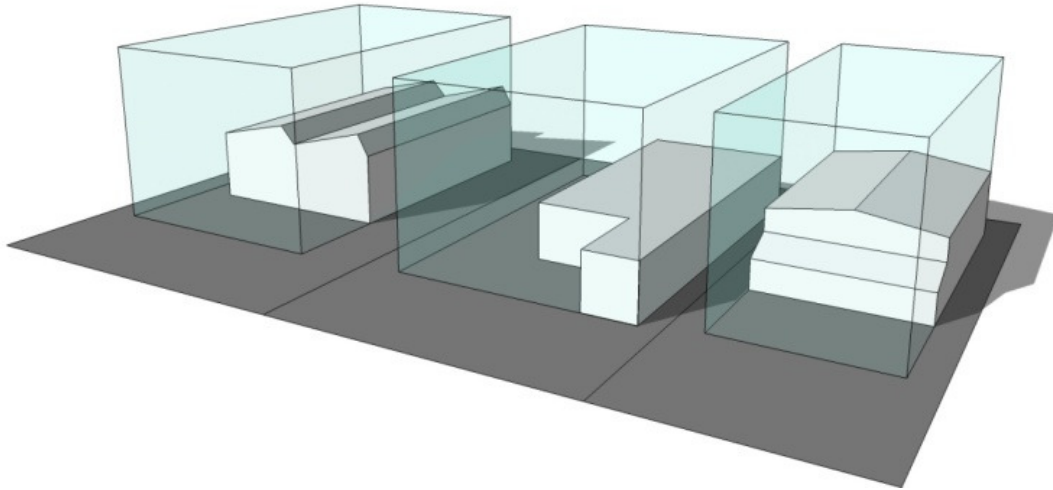


Figure 29: Example of developable building volume and floor space under a modified theoretical scenario



Of the three scenarios, only the modified and maximum theoretical scenarios were undertaken Auckland wide in as part of the 2006 study, with the contemporary scenario applied to business areas and centres in the former Waitakere City. Both the contemporary and modified scenarios have been modelled for the 251 business areas and centres as part of this 2012 study.

Only the 'modified theoretical' scenario results have been reported as part of the 2012 study results. This is consistent with the approach taken in the reporting of the 2006 study. The reason that only the modified theoretical scenario is reported is that it provides the most rational view of longer term development potential in business areas.

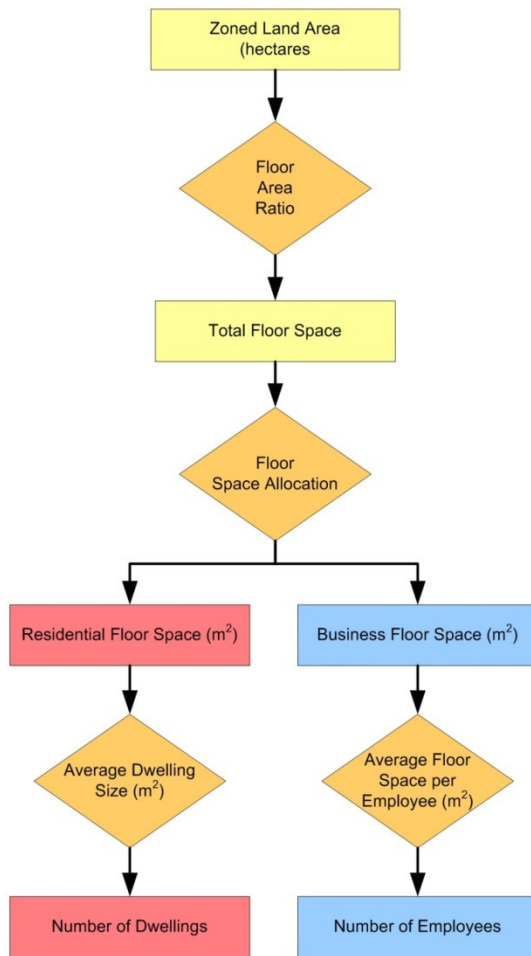
7.5 Methodology

This section outlines the steps taken to calculate the business redevelopment potential, and then determine the business redevelopment capacity for each of the businesses areas and centres chosen for assessment.

Inputs and data sourced to undertake the business redevelopment component can be found in Appendix F: Data and sources utilised in study, with description and source.

The process for calculating the business redevelopment potential is shown in Figure 30 below. The diagram illustrates the steps taken in each scenario calculation (this process is repeated three times for each business area or centre, once for each of the three scenarios).

Figure 30: Diagram of business redevelopment capacity calculation process



The orange diamonds shown in Figure 30 indicate the application of an assumption.

The assumptions for each individual business area or centre can be found in Appendix L: Business areas and centres with classifications including scenario assumptions.

7.6 Assumptions

7.6.1 Floor area ratio

Each of the scenarios expresses a business area's development potential as a floor area ratio (FAR). The FAR assumptions used can be found in Appendix L: Business areas and centres with classifications including scenario assumptions. FAR is the relationship between the floor area of buildings on a parcel and the land area of a parcel, for example a FAR of one indicates a floor area is equal to that of the parcel area. FAR does not predetermine the form of development, but an FAR of greater than one would require a multi-level structure

The FAR assumptions for each of the scenarios are derived from different sources:

- The FAR assumptions for the contemporary scenario are calculated based on the current FAR for a business area.
- The FAR assumptions for the modified and the maximum scenarios are based on the assumptions derived for the 2006 business redevelopment study.

7.6.2 Residential floor space allocation factor

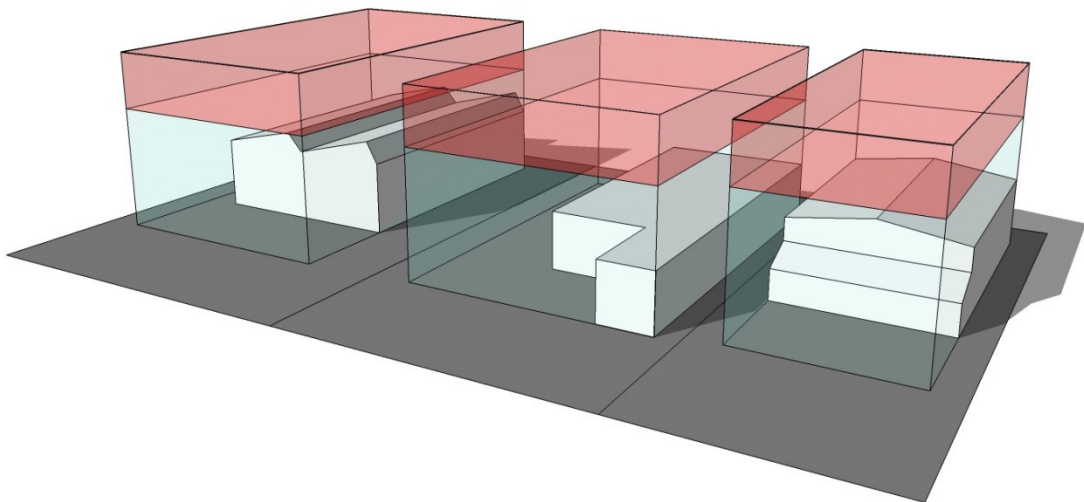
The residential floor space allocation is the proportion of total floor space that is expected to be used for residential purposes. The assumptions used are based on the business area type (refer to Table 7 below) and have been carried over from the 2006 study. This assumption is consistent across all three scenarios.

Table 7: Business redevelopment residential allocation factors

Business Area Classification	Residential Allocation Factor
CBD	40%
Metropolitan Centre	40%
Local Centre	30%
Town Centre	30%
Production and Distribution	2%
Business Park	0%
Heavy Industry	0%
Other	0%
Out of Centre Retail	0%
Special Activity Area	0%

The diagram below (Figure 31) shows how a residential allocation factor is applied to the floor space

Figure 31: Diagram of an example of residential allocation to a modified theoretical scenario



The red area in Figure 31 above indicated the portion of building space that is assumed to be used for residential activity.

7.6.3 Average dwelling size

The average dwelling size assumption indicates the average amount of floor space (in square metres) that is allocated to each potential dwelling in a business area. This figure is used to

convert the amount of floor space calculated in to number of dwellings. This assumption is applied based on the business area type (see Table 7), but allowance in the model has been given to allow the average dwelling size for each individual area to be customised (refer to Appendix L: Business areas and centres with classifications including scenario assumptions for the assumption used for individual areas).

Table 8: Business redevelopment residential dwelling average size

Business Area Classification	Default average dwelling size (m²)
Business Park	118
CBD	76
Local Centre	117
Metropolitan Centre	154
Production and Distribution	105
Special Activity Area	106*
Town Centre	109

* Indicates an estimate based on average dwelling size for all business areas. This assumption has been used as no dwelling consents have been issued in these area types in the last 10 years.

The default average dwelling sizes shown in Table 8 is derived from building consents issued in business areas over the past ten years (2002 to 2012). Dwellings consented to in business areas were extracted and tagged with the business area classification they fell in. An average dwelling size is calculated based on the total across the region for each classification area.

7.6.4 Average floor space per employee

The average floor space per employee assumption indicates the average amount of floor space (in square metres) that is allocated to each potential employee in a business area. This allows conversion of the floor area calculated to be converted in potential employment. This assumption is calculated based on the existing employee numbers and non-residential floor space for an individual business area or centre. The assumption for each business area assessed can be found in Appendix L: Business areas and centres with classifications including scenario assumptions.

Once this stage of calculating business redevelopment potential has been completed, an area's remaining development capacity is calculated by the subtraction of existing totals from the modelled totals.

Existing floor space (residential and non-residential) and the number of employees are calculated for each area using external data sources (refer Appendix F: Data and sources utilised in study, with description and source).

Results for business vacant potential capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

8.0 Rural residential capacity methodology

The rural residential capacity component of the Capacity for Growth Study 2012 assesses each title in Auckland's rural area for its subdivision potential, sometimes multiple times, to calculate a net dwelling yield. This component incorporated a number of modelling innovations; enabling assessment under multiple rules (e.g. the plans for Rodney, Franklin, Papakura, Manukau and the Hauraki Gulf Islands all contain provisions allowing a choice of subdivision options for various sites or zones) and allowing for multiple overlays (e.g. bush areas, existing covenants, and areas for restoration).

The variability and complexity of the rules and approaches required for modelling the rural subdivision provisions, means that the rural sub-study required, and resulted in a number of new innovations to processing and modelling that will be useful in future iterations and planning processes, including the forthcoming Unitary Plan.

Results for rural residential capacity can be found in the *Capacity for Growth Study 2012: Results* technical report.

8.1 Rural residential assumptions and limitations

Below are assumptions and limitations that are specific to the rural residential component of this study:

- All district plan rules (zoning extents and zoning subdivision provisions) were as per the operative district plans or proposed plans (if beyond challenge), which ever held the most weight as at June 2012.
- Where possible data has been captured or utilised to match as closely as possible to the study date of May 2012.
- Where an existing title has more than one dwelling, existing dwellings are allocated to any new potential new lots before any new vacant title is created, based on the assumption that this is what most consenting processes would require. Therefore the dwelling yield is less than the number of new rural titles being created, and cannot be used to forecast subdivision consents or new titles (e.g. for development contributions calculations).
- Rural residential capacity is reported as a net dwelling yield. The net dwelling yield is based on the calculating and using the highest yielding subdivision approach possible under the lowest consent category available for the title.
- The study has not assessed the potential for rural based employment.
- While subdivision is used as the mechanism for determining a net dwelling yield, the model does not actually model 'subdivision' as lines on a map, but rather the mathematical potential for a minimum lot area to fit within a potential candidate area, less current dwelling count and rounded down to the nearest integer.
- Rural capacity is calculated at the individual title scale (and is reported at the macro scale). Considerably different outcomes could occur where more than a single title is utilised in a single application (i.e. the study does not consider combinations of titles or amalgamation to gain more subdivision potential, mainly because there is no objective, repeatable or practicable way of predicting which if the infinite combinations and iterations of titles would be likely or feasible, and is anecdotally rare in any case).
- Rural assessment has been undertaken on a 'title' level (where as the urban assessments on a 'parcel' level)

- The assessed rural zones include zones that are partly or wholly inside the metropolitan limits, as well as those outside, but do not include the urban type zoning of rural towns (as defined for this study, a full list can be found in Appendix J: List of rural towns) or special areas and structure plans (as defined for this study).
- Yield figures reported in the *Capacity for Growth Study 2012: Results* technical report are based on the assumptions contained in this report. Different assumptions (such as a plan change to change minimum lot sizes or a higher level consent application to exceed modelled rule parameters or an application amalgamating titles) would yield different outputs.
- Results include currently vacant titles that cannot be subdivided, that are assumed to have an underlying 'right' to erect a single dwelling, irrespective of district plan rules controlling location or bush clearance.

8.2 Rural residential methodology

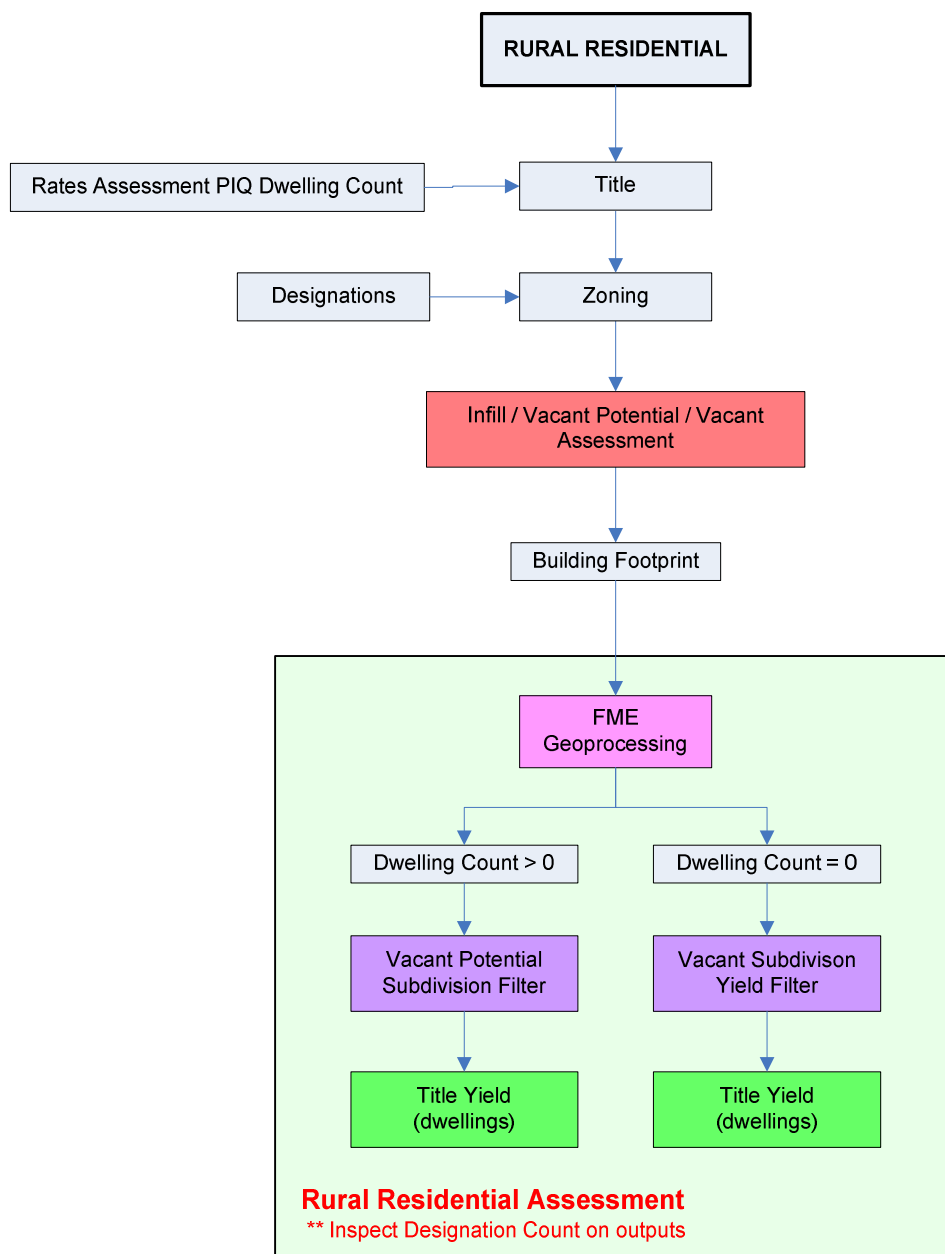
Rural residential capacity has been calculated based on the parameters of the subdivision rules applying to each title that falls within the 'rural area' spatial definition and is not in a structure plan /special area; rural town; business area; or otherwise inside a metropolitan residential zone. A definition of the 'rural area' is shown in Table 1 and a map indicating its extent is illustrated in Figure 1.

Custom spatial models (also known as FME workbenches) were created for each individual rural zone to calculate potential capacity. A significant number of zones also allow for more than one approach to subdivision, meaning that the number of potential subdivision approaches exceeds the number of zones. In these cases, each option has been assessed and the highest single yielding approach has been reported as it is assumed this will be what a profit motivated subdivider would do. This method does not include a 'mix n' match' or a cascading method of subdivision which is possible in some district plan zones, most notably in the former Rodney District.

A large number of overlays were also developed to feed the various workbenches to enable the calculation of such criteria as the potential for restoration planting, the extent of 'horticultural land', potential bush areas for covenant or potential riparian planting etc depending on the requirements of the relevant rule. Details about these overlays can be found in Appendix F: Data and sources utilised in study, with description and source with maps illustrating the extent and location of each of these overlays shown in Appendix M: Maps of location and extents of rural component spatial overlays.

Methodology for rural residential is conceptually the same, but in practice quite different for each zone and each district plan. The section below outlines the generic assumptions and methodological approach with subsequent sections focussing on each district plan and the rules within.

Figure 32: Diagram of rural residential capacity calculation



All yields are given as a measure of the potential for net dwelling increase, after accounting for any existing dwellings on the title (The calculation of subdivision potential is only undertaken to calculate the potential for additional dwellings. Yield is not a measure of potential new titles, nor a projection of subdivision consents).

Titles that have a current dwelling count of zero and have no calculated potential for subdivision are assumed to have the potential for a single additional dwelling (Yield = 1) as a basic property right (i.e. land use consents (if any) required to establish the dwelling on a currently vacant title are not calculated nor taken account of).

All calculation results are rounded down to the nearest whole integer, for example if a zone has a subdivision rule allowing one title per 1.0 hectares, and a candidate title is 2.9 hectares with a single dwelling, the yield calculation would be:

$$2.9 \text{ ha} \div 1 \text{ ha} = 2.9 \text{ sites}$$

$$2.9 \text{ rounded down} = 2$$

Potential of 2, minus existing dwelling count of 1 = Yield of 1

In this example the remaining 0.9 hectares potential lot is ignored, as it does not comply with the rules. A possible 'real world' application of such a result is that the title may have a 1.0 hectare new lot and a 1.9 hectares balance or two 1.45 hectares titles or any variation thereof.

An alternative scenario may be that a three (or more?) lot subdivision consent where one or more lots is smaller than 1.0 hectare may be applied for by way of application under a higher consent category, but as that is beyond the rule parameters modelled and subject to the consent process¹⁴ we have not considered this potential further.

Where accounting for existing dwellings results in a negative yield (i.e. the current number of dwellings exceeds the potential subdivision potential under current rules) these are recorded as a yield equalling zero. This is done because this study is assessing potential capacity, not gross new titles.

No accounting is made for minor household units (commonly known as 'granny flats' which may provide a significant source of future housing stock.

In district plans where there is more than one subdivision option is available for a title, all are assessed and the highest yielding approach from the lowest consent category is reported.

A full list of the datasets used in undertaking the rural residential components of the capacity study can be found in Appendix F: Data and sources utilised in study, with description and source.

8.3 Rodney District Plan 2011

The district plan for the former Rodney District provides a varying array of potential options for subdivision, almost always in return for an environmental benefit such as protection, enhancement, or the creation of an environmental feature.

Rural zones in the plan control activities possible on the title including the bulk and location of any resulting development. In regards to subdivision, the zones work by controlling the selection of the subdivision approaches available within the zone and their consent category, but not subdivision directly.

There are 11 rural zones that we have assessed as being 'rural' for modelling purposes and 14 different subdivision methods provided for in the plan. Not all methods are possible in every zone and not every zone has more than one possible method. It should be noted that in the Islands General Zone all subdivision is a non-complying activity and there are no parameters provided for an objective or repeatable spatial assessment of subdivision. Accordingly no capacity calculation for the Islands General Rural zone has been undertaken.

Due to multiple subdivision methods being available for each title, the single highest yielding approach has been assumed to be the approach likely to be by any potential sub-divider. A 'cascading'¹⁵ subdivision approach has not been used when assessing potential in the district

¹⁴ All subdivision is subject to resource consent. The point is that such applications would no longer be assessed at the consent category that the rules specifying the minimum lot size are, so moves the proposal into a higher category subject to more discretionary assessment and analysis, which is not easily modelled in an objective manner. We neither suggest nor imply that planning assessment can or should be undertaken by algorithm.

¹⁵ 'Cascading' is the potential for a sub-divider to mix and match approaches on a single site and/or in subsequent applications by further subdividing any balance lot created in the first or subsequent subdivisions. In the former Rodney District this is provided for, but as a discretionary activity.

because it is difficult to determine all of the possible iterations that may occur (and therefore making calculation and reportage of a single potential figure from all possible iterations under such an approach relatively subjective). Such an approach is also classified as being a 'discretionary activity' in all zones; meaning it is not the lowest consent category available and therefore falls outside of the scope of this assessment.

Rodney District had undertaken an exercise in 2008¹⁶ based on the District Plan 2011 which made an assessment of the potential utilising 'cascading', reporting a potential yield of just over 33,500 titles. This compared to the 2006 study for the same area and more or less the same rules, but assuming a highest single yielding approach (as we have done) giving a title yield of 16,854, or effectively twice as much allowing for cascading. A differential of similar magnitude would be reasonable to assume from our present results, without undertaking more detailed investigation. The Rodney report does also note that its findings are an indication of the growth potential made available by the plan, and are not a prediction of future growth, though of course the ability for areas to grow is collated to what is enabled at any given point in time.

Table 9 below outlines the 'zone' to 'subdivision method' relationship, the consent category of the method and whether the method has been counted in the final Capacity for Growth Study yield totals. The methods indicated by with an asterisk have been assessed as part of the rural modelling process but as they are at a higher consent category they have not been reported.

If a method is not noted within a zone in this table then it is non-complying in that zone (i.e. subdivision other than the methods noted or beyond the limits of the method noted are non-complying).

Calculation methods for titles in the Rodney District Plan area can be found at the end of this report in Appendix N.

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¹⁶ See also "Rodney District Dwelling Capacity, Exercise 1: Rural Capacity Study, 24 November 2008, where such an approach was modelled using various assumptions around assumed uptake rates and subdivision approach mix based on cost per lot and location available from:
http://www.rodney.govt.nz/DistrictTownPlanning/Documents/Rural_Strategy/RDC_rural_capacity_study/Rodney_District_Rural_Capacity_Study.pdf

Table 9: List of rural zones and subdivision approach for the Rodney District Plan

Zone	Subdivision method													
	SNA Protection	Esplanade Reserve	Public Reserves	Housing on Maori Land	Countryside Living Rural	Countryside Living Cluster	Significant Land Rehabilitation	Low Intensity Settlement	120Ha	Rural Hamlets	Significant Enhancement Planting	Countryside Living Town	Future Urban	Okura Policy Area
General Rural	RDA	RDA	RDA	RDA			DA*		RDA	RDA	DA*			
Landscape Protection Rural	RDA	RDA	RDA	RDA			DA*			RDA	DA*			
East Coast Rural	RDA	RDA	RDA	RDA			DA*			RDA	DA*			
Countryside Living Rural		RDA			RDA	RDA								
Countryside Living Town		RDA	RDA								RDA			
Kawau Bush Policy Area	RDA		RDA				RDA							
Kawau Settlement Policy Area			RDA					RDA						
Islands General														
Dune Lakes	DA	DA	DA	DA							DA			
Future Urban													RDA	
Okura Policy Area														RDA

* Modelled, but not reported as DA is higher consent category than the other RDA available in the zone.

DA:
Discretionary
activity

RDA: Restricted
Discretionary
activity

8.4 North Shore City District Plan 2002

The rural area of former North Shore City is small compared to the rural areas of some of Auckland's other former territorial authorities. The rural portion of the former city consists of the area north of Long Bay and Albany; from the northern metropolitan urban limit to the boundary with the former Rodney District, and a second area inside the metropolitan limits, on the Greenhithe peninsula (much of the remainder of the Greenhithe Peninsula is within the Greenhithe Structure Plan and is captured within a Special Area).

Despite the rural portion of North Shore City being small, a broad range of zones exist. A list of these zones and the subdivision approach used to calculate their capacity is show below in Table 10.

Table 10: List of rural zones and subdivision approach for the North Shore City District Plan

Zone/subdivision approach	Lowest consent category
Rule 9.4.7.1, Rural 1 Zone	Limited Discretionary
Rule 9.4.7.2, Rural 2 Zone	Limited Discretionary
Rule 9.4.7.3.1 Rural 3 Zone	Limited Discretionary
Rule 9.4.7.3.2 Rural 3A Zone	Limited Discretionary
Rule 9.4.7.4.1.(i): Rural 4(i) West Okura Zone	Limited Discretionary
Rule 9.4.7.4.1.(ii): Rural 4(ii) East Okura Zone	Limited Discretionary

Calculation methods for titles in the North Shore City District Plan can be found Appendix N.

8.5 Waitakere City District Plan 2003

The Waitakere City District Plan has a large rural area that encompasses over two-thirds of the city, the majority of which lies within Auckland Council's Waitakere Regional Parkland. The privately owned rural area is quite diverse in its nature, with flat productive land to the north of the urban area, steeper former mixed agriculture and orcharding land to the west and in the Waitakere Ranges foothills as well as the Waitakere Ranges proper. The Waitakere area also has a number of discrete and well separated areas of privately owned land in coastal and rural settlements or clusters or single houses nestled within the bush.

In the zones which contain large amounts of native bush, most subdivision rules reflect a desire to avoid development that would lead to damage to the bush, but allowing higher density where cleared areas or lower quality bush areas exist. The district plan also operates a double zone system where environmental features such as bush (or Natural Areas) overlay the basic zones (or Human Environments). In the more pastoral, or open areas most rules simply require a large lot size to maintain separation and maintain productive potential.

A number of 'Structure Plan Areas' also overlay the rural areas which have site specific rules. These are treated as 'Special Areas' and are not assessed individually but rather a total expected yield is taken from the relevant structure plan documents, less any opportunities known to be utilised to date.

Rural Village and Coastal Village Environments are included in the separate Rural Towns assessment category of this study.

A list of zones, subdivision approach and lowest consent categories for the plan are outlined in Table 11 below.

Table 11: List of rural zones and subdivision approach for the Waitakere City District Plan

Zone/Subdivision Approach	Lowest Consent Category
Rule 6: Countryside	Controlled
Rule 7: Foothills	Controlled
Rule 7.1.(aa) Penihana South	Controlled
Rule 10: Bush Living	Discretionary
Rule 10A: TLSA1	Discretionary
Rule 10B: TLSA2	Discretionary
Rule 11: Waitakere Ranges	Discretionary

Calculation methods for titles in the Waitakere City District Plan can be found in Appendix N.

8.6 Auckland City District Plan – Proposed Hauraki Gulf Islands Section (Decision Version) 2009

Auckland City, while being the most populated of Auckland's former cities or districts also contained a large amount of rural land, all of which is located on the Hauraki Gulf Islands.

Assessment of capacity as part of this study has been undertaken under the "*Hauraki Gulf Islands Plan Decisions Version 2009 Annotated by Appeals*", as this is the 'effectively operative' version. A number of title or zone specific appeals remain to this version of the plan. The maps and text of the version used for this study is available on the Auckland Council website: <http://www.aucklandcity.govt.nz/council/documents/hgidecision/default.asp> (version: updated 08/08/2012) has been used as the basis of this assessment.

There are a number of appeals outstanding and the resolution of these appeals may result in changes to the potential yield in the zones or titles these appeals relate to. Changes from appeals will be monitored and included if required in future updates. As the Capacity for Growth Study is a snapshot (as at May 2012) we have measured capacity based on publicly available planning documents at the time of the study.

Subdivisions in the rural areas of the Hauraki Gulf Islands are facilitated by two separate provisions:

1. A "Minimum Size Area" (MSA) approach in all of the plan's zones, and
2. For some zones (Rural 1, and Landforms 2-7) a "Significant Environmental Feature" (SEF) option is provided that enables a higher lot density (i.e. smaller minimum lot sizes) if specified SEF features on the title are protected.

As the Significant Environmental Feature approach is always at a higher consent category than the MSA approach (discretionary for SEF vs. restricted discretionary for MSA), the yield under this approach has not been utilised in the yield calculation totals. Potential capacity yield under the SEF approach has however been modelled and is available on request.

8.6.1 Significant Environmental Feature Subdivision Discussion

A Significant Environmental Feature layer was created for use in the modelling by combining all of the features listed in section 12.9.3.3 of the plan, either from maps within the plan itself or proxies from council's existing geospatial datasets.

Significant Environmental Features can include:

- Any significant native vegetation
- Any significant feature of archaeological, historical or cultural value
- A Site of Ecological Significance (or SES, from the district plan maps)
- A Sensitive Area (or SA, from the district plan maps)
- An Outstanding Natural Landscape (ONL) as identified in the Regional Policy Statement.

To be included for consideration these features must not already be protected by covenant. Significance in reference to this rule is measured with reference to Appendix 4 of the Hauraki Gulf Islands Section of the district plan which requires onsite field assessment by a suitably qualified professional.

No minimum area is given in the rules for the extent of the SEF required to be protected, to enable the SEF option densities to apply to a title and a number of the features (trees, archaeological titles etc) are provided in our data as 'point features'. These have been buffered by 15 metres and merged with the other features to create a single SEF layer. A 500 square metre minimum area has been utilised as a cut off for SEF feature qualification.

Discussions with planners managing the Hauraki Gulf Islands Section of the plan suggest that a larger SEF size should be used to meet the 'significance' criteria in the appendix to avoid 'over capacity' but this must be offset by the danger of removing titles with 'significant' point feature that would otherwise qualify for subdivision. Additionally there is no area limit in Appendix 4 of the plan. Without assessing each feature in the field the 500 square metre limit is considered to strike a reasonable balance between catching titles with large features that may not meet the significance criteria and cutting off titles with small features that are significant. Future improvements to the model could be included to vary the minimum SEF Area from 500 square metres depending on the SEF type (eg Bush Protection SEF may have a two hectare limit, but an archaeological SEF feature remains at 500 square metres).

Table 12 below outlines the consent category for the potential subdivision options in the rural areas of zones on the Hauraki Gulf Islands.

Table 12: List of rural zones and subdivision approach for the Auckland City District Plan – Hauraki Gulf Islands Section

Zone/subdivision approach	Minimum size area (MSA) (modelled and reported)	Significant Environmental Feature (SEF) (*modelled but not reported)
Landform 1	Restricted Discretionary	N/A
Landform 2	Restricted Discretionary	Discretionary
Landform 3	Restricted Discretionary	Discretionary
Landform 4	Restricted Discretionary	Discretionary
Landform 5	Restricted Discretionary	Discretionary
Landform 6	Restricted Discretionary	Discretionary
Landform 7	Restricted Discretionary	Discretionary
Rural 1	Restricted Discretionary	Discretionary

Zone/subdivision approach	Minimum size area (MSA) (modelled and reported)	Significant Environmental Feature (SEF) (*modelled but not reported)
Rural 1 (Onetangi Rd)	Restricted Discretionary	Discretionary
Rural 1 (73 Onetangi Rd)	Restricted Discretionary	Discretionary
Rural 2	Discretionary	N/A
Rural 2 (Thompsons Pt)	Discretionary	N/A
Rural 3 (Rakino)	Discretionary	N/A

8.6.2 Minimum Lot Size Subdivision Parameters

Minimum lot sizes applied under each zone are shown in Figure 33 below (Table 12.1 and from the Hauraki Gulf Islands Section of the plan). Where required relevant specific provisions have been detailed in the calculation methodology section of this report, located in Appendix N.

Figure 33: Minimum site areas for land units (from the Hauraki Gulf Islands District Plan)

Land units	Minimum site area
Landform 1 and 2	25ha
Landform 3	3.5ha
Landform 4-7 [DR30] [AP37]	25ha
Island residential 1	1500m ²
Island residential 2	2000m ²
Commercial 1-5	1500m ² and special rules apply, see clause 12.9.5
Commercial 6-7	NC
Matiatia	Special rules apply, see clause 12.9.10
Open space 1-4, conservation	Special rules apply, see clause 12.9.6
Rural 1 (Onetangi Road)	5ha
Rural 1 (other areas)	3.5ha
Rural 1 (for the site located at 73 Onetangi Road, Onetangi being Section 1 Survey Office Plan 65859 and Part Lot 17-18 and Part Lot 31 DP 11657)	3.5ha average and 2ha minimum. Note: For staged subdivision, the average site area must be calculated with reference to the parent site as it existed on 22 July 2011.
Rural 2 (outside of Thompsons Point)	5ha and special rules apply, see clause 12.9.7
Rural 2 (Thompsons Point) [DR30] [AP24]	Special rules apply, see clause 12.9.7
Rural 3	3ha special rules apply, see clause 12.9.8.3A ; or 2ha special rules apply see clause 12.9.8.3B
Pakatoa	Special rules apply, see clause 12.9.9
Rotoroa	NC

8.6.3 Significant Environmental Feature Parameters

Minimum lot sizes applied under each zone are shown in Figure 34 below (Table 12.2 from the Hauraki Gulf Islands Section of the plan). Note that figure refers to the minimum and minimum average area of resulting sites once a parent title SEF has been identified and protected, and not the minimum area of the SEF.

Figure 34: Minimum site areas for protecting significant environmental features (from the Auckland City District Plan - Hauraki Gulf Islands Section)

Land units	Minimum site area	Minimum average site area
Landform 2	4ha	7.5ha
Landform 3	1.5ha	2ha
Landform 4-7	4ha	7.5ha
Rural 1	1.5ha	2ha

Notes:

1. All site areas are net site areas.
2. Subdivision for protecting significant environmental features is provided for only in the land units listed in table 12:2.

8.6.4 Other notes

Capacity for the Hauraki Gulf Islands Settlement Policy Areas has been assessed as part of the rural town component of the study. The Settlement Policy Areas include large areas of Waiheke that fall within the metropolitan urban limits and are therefore modelled and reported as part of the urban area calculations.

Pakatoa has been treated as Special Area as it has specific rules applying to it.

All subdivision of Rotorua is non-complying and therefore titles in this area have a reported yield of zero (non-complying subdivision cannot be objectively modelled as it has no specified parameters).

Prior to running the model, analysis was undertaken to ascertain the 'predominant land form' on each title, against which the subdivision rules (Minimum Site Area) are applied for the whole title. Note that while the model calculates yield arithmetically (not geographically by 'drawing' the subdivision) the future layout of any subsequent buildings and development will be controlled by the actual landform activity status and the Minimum Site Area applying to the landform. We assume that such future subdivision design and layouts will comply with any relevant landform requirements and assessment criteria.

Calculation methods for titles in the Auckland City District Plan can be found in Appendix N.

8.7 Manukau City District Plan 2002

Manukau has a diverse rural area; from small isolated pockets of fringe rural zones near Auckland International Airport, at Puhinui and Ihumatao through the larger areas such as the Brookby Valley and Whitford areas and the northern slopes of the Hunua Ranges. Land uses in these zones vary; from intensive horticultural use through lifestyle and countryside living to remote rural farm blocks.

Across the rural zones, various provisions apply reflecting this diversity of use and future strategic land use intentions. Approaches to subdivision vary from simple minimum lot size based rules, stepped density approached, to complex incentive based rules - including options for different approaches to be taken on the same title.

The table below outlines the rural zones, the lowest consent category, and the approaches available within a zone.

Table 13: List of rural zones and subdivision approach for the Manukau City District Plan

Zone	Lowest consent category	Subdivision approaches available in zone
Rural 1	Controlled	120Ha Minimum Lot Size Horticultural Lots (greater than 12Ha) Rural Residential Lots Native Bush Lots
Rural 2	Controlled	Stepped Density based on Site Area
Rural 3	Controlled	Minimum Lot Size
Rural 4	Restricted Discretionary	Stepped Density based on Site Area
Flatbush Countryside Transition	Restricted Discretionary	Minimum Lot Size
Flatbush Countryside Transition (Gracechurch)	Restricted Discretionary	Minimum Lot Size
Puhinui Special Culture Zone	Controlled	120Ha Minimum Lot Size Horticultural Lots (greater than 12Ha) Rural Residential Lots
Puhinui Special Natural Heritage Zone	Controlled	120Ha Minimum Lot Size Horticultural Lots (greater than 12Ha) Rural Residential Lots
Puhinui Rural	Controlled	120 ha minimum lot size Horticultural lots (greater than 12 ha) Rural residential lots
Whitford A	Restricted Discretionary	Minimum lot size with bonus lot provisions for planting.

Where a zone provides for a range of subdivision options, all variations are calculated for a title and a final test selects the single highest yielding approach as this being assumed to be the most likely approach taken by a future subdivider.

Calculation methods for titles in the Manukau City District Plan can be found in Appendix N.

8.8 Papakura District Plan 1999

The Papakura District rural area is to the east and south of Papakura's main urban area and contains an assorted range of environments for such a compact location including the wide flats of Karaka to the steep slopes of the Hunua Ranges.

Significant proportions of the rural area are identified as future urban and are assessed in this study as special areas. These include all stages of the Takanini Structure Plan area and the entire Hingaia Peninsula. Only rural zones outside of these areas are modelled.

Where the Ardmore Protection Area overlaps a title, that area is considered to be excluded from the title as no dwellings are permitted in this area.

Table 14: List of rural zones and subdivision approach for the Papakura District Plan

Zone	Lowest consent category	Subdivision approaches available in Zone
Rural Papakura	Discretionary	Conservation Lots (Stepped Density based on Bush Area and Site Area) Rural Lots (A Single Lot based on Usable Land Area and Site Area) Horticultural Lots
Rural Papakura (Drury Subdivision Area)	Discretionary	Stepped Density based on Site Area and Usable Land Area Conservation Lots
Rural Papakura (Hill Subdivision Area)	Discretionary	A Single Lot if Site Area > 14Ha Conservation Lots
Rural Residential (Zones 1 and 2)	Controlled	Stepped Density based on Site Area
Nature Conservation Area	Discretionary	Stepped Density based on Bush Area and Site Area
Rural Takanini - Drury	Discretionary	Single Lot based on Horticultural Land Area and Site Area

Calculation methods for titles in the Papakura District Plan can be found in Appendix N.

8.8.1 Papakura District Plan Rural Plan Change 13

Papakura District Council has proposed a significant change to the way that the rural area would be managed via Plan Change 13 "The Rural Plan Change". As this plan change is not fully operative (and as a full text and maps version was not available on the Auckland Council website as at June 2012) at the time of this study, the capacity provided by this change has not assessed.

Evidence provided in the Section 32 report written for the decision version of Plan Change 13 (since subject to appeal) indicates that the new provisions would provide a numerically similar yield (in fact slightly less as calculated at that time) to the current provisions provided in the plan, but would distribute this capacity in a slightly different way as much more of the subdivision potential would be in return for some form of environmental enhancement (covenanting and replanting etc) , rather than based solely on site area as is the dominant mechanism in the operative plan as modelled.

8.9 Franklin District Plan 2000

The Franklin District is extensive, but since the amalgamation of Auckland councils on 1 November 2010, the portion of the Franklin district plan area that falls within the Auckland region is much smaller¹⁷.

Only two operative plan rural zones fall within the modelled area – Rural and Forest Conservation. Despite there being only a few zones, these zones share a number of potential subdivision approaches:

Table 15: List of rural zones and subdivision approach for the Franklin District Plan

Zone	Lowest consent category	Subdivision approaches available in zone
Rural	Discretionary	22.8 General Purpose Lots 22.9 Conservation Lots 22.10 Lots for Network and Other Utilities* 22.11 Lots for Existing Intensive Uses* 22.12 Lots for Road Severance*
Forest Conservation	Discretionary	22.8 General Purpose Lots 22.9 Conservation Lots 22.10 Lots for Network and Other Utilities* 22.11 Lots for Existing Intensive Uses* 22.12 Lots for Road Severance*

* These provisions cannot be objectively calculated so have not been modelled or captured in this study. The nature of the rules also suggests that they would not result in a net increase in the potential for dwellings from a resulting title in any case (roads and utility sites are not usually occupied). Title relocation is also provided for but does not increase total yield across the District as a whole but may impact the location of the yield (for example by the transfer of lots from the Waikato to Auckland portions of Franklin to satisfy greater demand in the more northern Auckland area).

Results for the rural Franklin area in this study are the sum of the highest individual title yields from General Purpose or Conservation Lots in the Rural and Forest Conservation Zones only.

8.9.1 Franklin District Rural Plan Change 14

Plan Change 14 to the Franklin District Plan 2000 represents a significant change in the approach to rural subdivision and development in the former Franklin District. While many of the policies, objectives and rules are operative, the subdivision provisions including the transferable rural lot right (PC14 Variation 13) are still subject to appeal. The Environment Court has set down hearings on these issues for November 2012 and no decision has been issued at the time of writing.

Accordingly no operative PC14 based rural subdivision rules or maps are available to be modelled and therefore have not been included in this study. Discussions with planners involved with the plan change indicate that the council's position would lead to more development in the new approaches 'receiving environments' than the modelled operative rules envision, but in return for protection and enhancement in the donor zones and as the appellants are generally seeking more generous provisions, it can be assumed that this would eventually be the case.

Calculation methods for titles in the Franklin District Plan can be found in Appendix N.

¹⁷ This is a key reason why comparisons of capacity results between the 2006 and current studies should be undertaken with caution.

9.0 Structure plan and special areas

Capacity figures for structure plan and special areas are collected/measured and reported differently to the other types of capacity covered in this study.

Due to their land use planning nature or timing these areas have not been modelled by us. These areas generally contain a number of existing parcels or titles over which potential is distributed unevenly by the structure plan. These parcels have not been allocated a capacity yield (as existing parcels are not a relevant consideration in most structure planning processes), but are instead aggregated (to the Structure Plan or Special Area level) and *share* a single yield figure that applies to the whole area.

These figures have been primarily sourced from the relevant structure planning documentation, and amended where required following discussions with Operative Plan staff to reflect more recent developments and knowledge. Like the rest of the figures reported in this report, the structure plan and special area yields are 'plan enabled' capacity, reflecting the intentions of the relevant planning documentation. Some structure plans are more prescriptive than others, and some structure plans envisioned development that is considerably different from what is actually being built in these areas. Such is the nature of the contestable planning and development process.

As such they should only be considered an indication of what should happen in these areas (if the 'plan' is followed in the future), but not necessarily what will happen, particularly if the structure plan is not anticipated to commence for some time. Plans can and do change, as does the market and future preferences.

While structure plan and special areas are discussed as a single group in this report due both kinds of areas not being modelled, the two have distinct qualities in the effects they have on capacity, which reflects their status in the relevant district plan(s).

Table 16 below outlines the descriptions of the two area types.

Table 16: Description of structure plan and special areas

Area type	Description
Structure plan area	<p>Areas subject to 'structure planning' generally providing a relatively prescriptive and integrated planning structure applying to all of the land within the structure plan area.</p> <p>Such approaches generally apply to large scale greenfields development areas and are increasingly common as a planning approach to reflect local issues or where standard zoning may generate undesirable outcomes. Examples include Flat Bush and Massey North.</p> <p>Interested readers are referred to the relevant structure plan documentation for more information including greater detail on the individual structure plans.</p>
Special area	<p>Generally apply either as an unusual base zoning or overlay to recognise some unusual or 'special' current or future activity.</p> <p>In most cases capacity for 'non-special' activities is considerably curtailed, and accordingly no yield has been calculated. Examples include major infrastructure such as hospitals.</p> <p>Special areas are also sometimes applied as a 'holding zone' prior to future Structure Plan processes.</p> <p>Interested readers are referred to the relevant district plan sections for more information and detail on the individual special areas.</p>

9.1 Why don't we model these areas?

These areas are not modelled as the structure plan or Special Area generally provides clear parameters for development within the area, and modelling on an 'existing parcel' would provide no additional benefit or increased understanding of potential for development within the wider area, and in most cases is also relatively difficult to do.

Reasons for not modelling capacity using our parcel based approach include:

- Structure plans are increasingly based on a combination of environmental, cultural and economic assessments to generate a comprehensive and integrated plan for the entire area. Usually such approaches are applied across large areas with relatively few owners in order to create well designed sustainable new urban areas. In this manner most structure plans are 'cadastre blind' and existing ownership patterns are more or less irrelevant for the initial layout and distribution of development potential within the Structure Plan. This compares with 'established' zonings where development occurs in a relatively ad-hoc manner within the underlying cadastral framework.
- The structure plan is more detailed and in many cases provides a maximum dwelling yield, negating the need for any modelling.
- Existing title or parcel boundaries within the area are not a logical geography for calculating capacity from most structure plans, and should such parcel level detail be required then reference should be made to the relevant structure plan.
- Many structure plans are the end result of a long and heavily negotiated process following landscape, ecology, urban design and infrastructure requirements as well as wider strategic and growth management requirements, interacting with specific land owner/developer requirements. This process often also continues following the insertion of the structure plan in the district plan. Replicating such complexity in a computer model is both difficult and largely unnecessary given that the Structure Plan usually provides more than sufficient detail for most purposes.

The constraints above with respect to estimating total yield should however be differentiated from what we are able to with respect to tracking development as it occurs which we can do to some level of detail.

Uptake can be compared to estimated yield to provide an estimated remaining yield, which is the key reported metric.

9.2 More information:

A full list of structure plan and special areas considered as part of this study can be found in Table 37 and Table 38 in Appendix K: Structure plan areas with type, location and expected future development yields and list of special areas and their locations, at the end of this report.

Interested readers should refer to the relevant Structure Plans or Special Areas in the relevant District Plans for further information and details.

10.0 Glossary

Business Areas and Centres: The large contiguous areas of business zoning that have a similar typology and are considered to be significant areas of employment, including urban and rural centres, as described in the technical papers written to inform *The Auckland Plan*. The geographic limits of these areas are defined by present zoning. These areas are a subset of the urban area and rural towns.

Infill (residential): The process, by which an additional dwelling or dwellings are added to either the front or the back of a residentially zoned parcel, which is already occupied by a dwelling.

Metropolitan Urban Limits (MUL): The extent to which the urban area of Auckland can develop, as defined by the Auckland Regional Policy Statement. Note that the MUL used in this study is based on the extents of the MUL at the time of the last change prior to this study (2010).

Parcel: A cadastral polygon with a legal description (can also be known as a property, section or lot). This geographic area is used to undertake capacity assessment within residential and business zones that are in the urban area.

Rural residential: Additional dwelling units on rural zoned titles, either through titles being currently vacant or through subdivision (based on the modelled consent category from district planning rules).

Redevelopment (business): The redevelopment of business land.

Redevelopment (residential): The removal of dwellings from a residential zoned parcel and the rebuilding up to the maximum number of dwellings allowed under the district planning rules.

Rural area: Properties that fall outside of the Metropolitan Urban Area (at the time of the study), those properties that are within the Metropolitan Urban Area but are zoned for rural use and excluding areas that have been identified as being a rural town.

Rural Area: Properties with a rural zoning that are outside of the Metropolitan Urban Limits (MUL) (2010) and land that is within the MUL that is zoned for rural use, excluding areas that have been identified as forming part of a rural town.

Rural Towns: Clusters of 'urban' type zoning (including residential and business zones) that occur outside of the Metropolitan Urban Area.

Structure plan and special areas (SPSA): Areas that due to their land use planning nature or timing are not modelled. Figures for these areas are taken from available planning documentation and feedback from council planners and are variable in its quality and certainty.

Title: The land contained on a registered Certificate of Title. This geographic area is used to undertake capacity assessment within rural areas. Note that a title may contain one, or many parcels.

Total business land: Total area of business zoned land in a given area.

Urban area: All of the properties within the Metropolitan Urban Limits (MUL) (2010) that do not have a rural zoning/are not in the rural area (see Figure 1). This includes both residential and business zones.

Vacant (business): Capacity (in hectares) of business zoned parcels that are currently wholly vacant (no buildings/structures).

Vacant (residential): Capacity for dwelling units on residential zoned parcels that are currently wholly vacant (no dwellings or buildings), either via subdivision or a dwelling as a right.

Vacant potential (business): Vacant potential is the measure of the vacant portion of parcel that is currently zoned for business use and is not already occupied in some way by a building. Generally this portion of the site is unoccupied and could be used for further development.

Abbreviation codes of Auckland's former territorial authorities (city and district councils):

Rodney District: RDC

North Shore City: NSC

Waitakere City: WCC

Auckland City: ACC

Manukau City: MCC

Papakura District: PDC

Franklin District: FDC

11.0 References

Auckland City District Plan - Central Area Section 2005

Auckland City District Plan - Isthmus Section 1999

Auckland City District Plan - Proposed Hauraki Gulf Islands Section (Decision Version) 2009

Auckland Council. 2011. *Business Land and Employment Growth* (Auckland Plan Technical Paper). Auckland: Auckland Council.

Auckland Council. 2012. *The Auckland Plan*. Auckland: Auckland Council.

Franklin District Plan 2000

Gamble, S. 2010. *Capacity for Growth Study 2006*. Auckland: Auckland Regional Council.

Manukau City District Plan 2002

North Shore City District Plan 2002

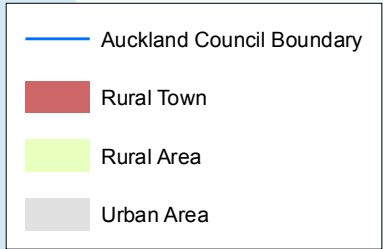
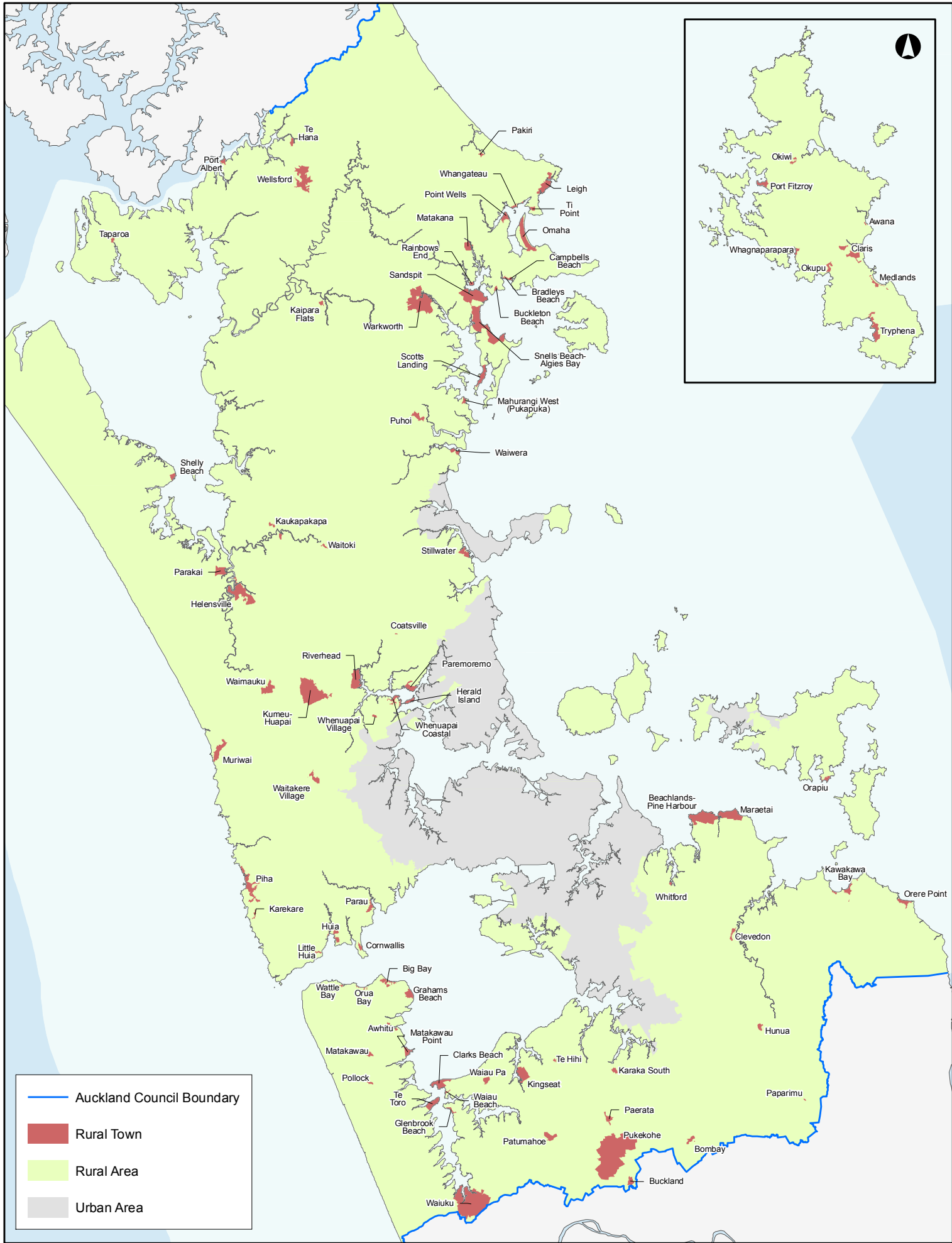
Papakura District Plan 1999

Rodney District Plan 2011

Waitakere City District Plan 2003

12.0 Appendices

Appendix A: Map of location and extent of rural towns



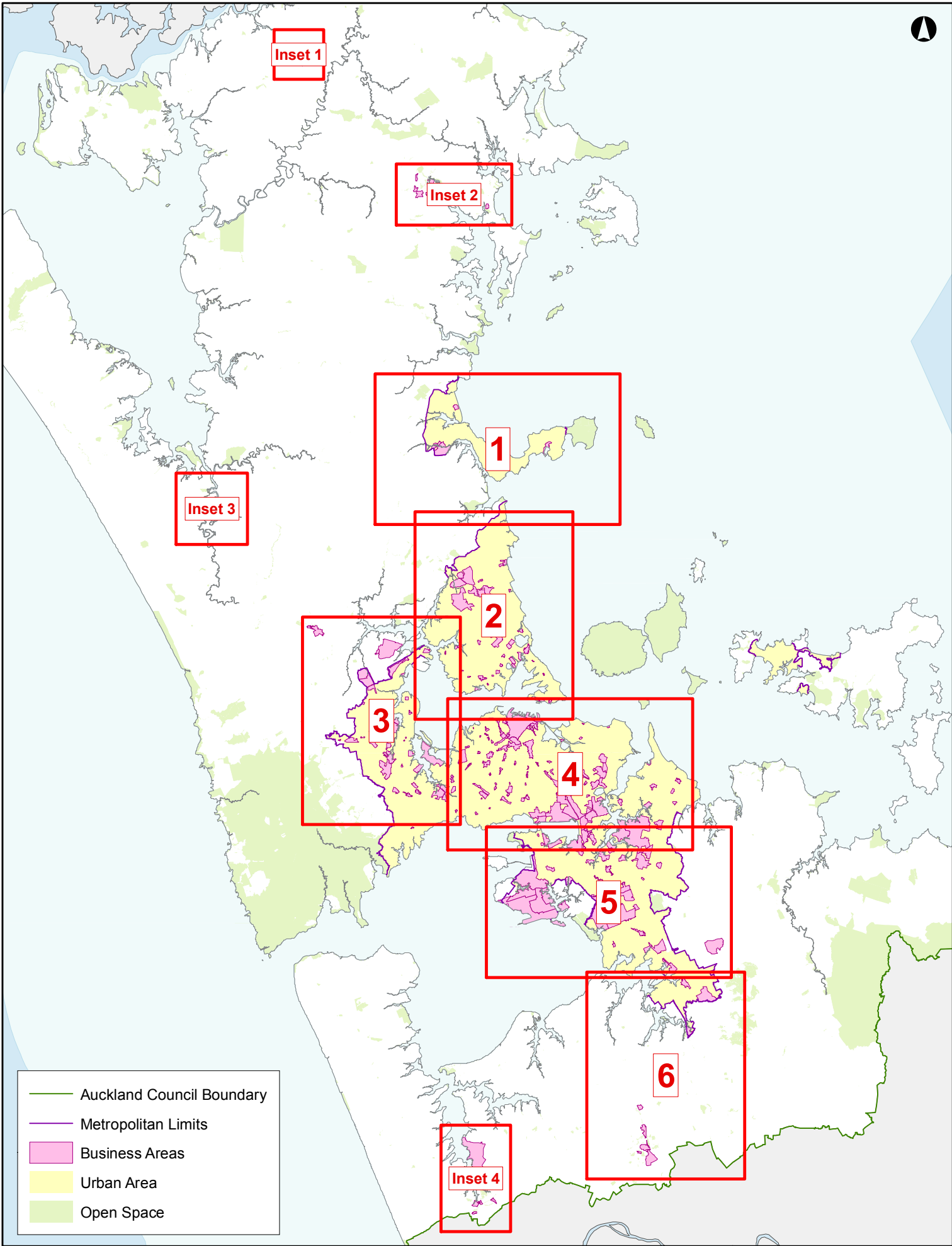
Appendix A
Location and Extent of Rural Towns

Capacity for Growth Study 2012



Craig: 22/01/2013 U:\CPO\ASR\Research Investigations and Monitoring\Land Use Research\Report Maps\MXDs\Appendix - Location of Rural Towns.mxd

Appendix B: Maps showing location of business areas (with type)

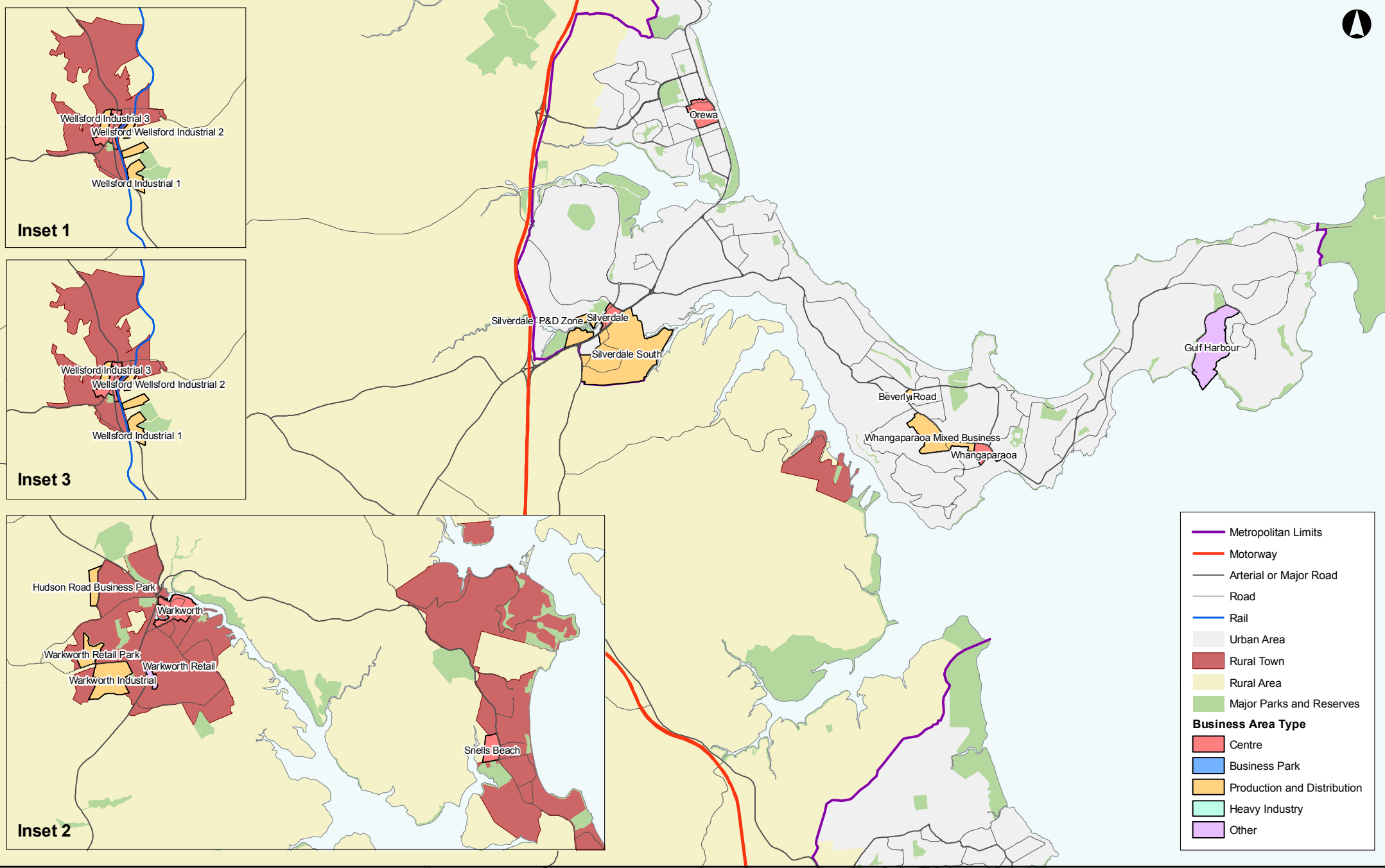


Appendix B, Index Map
Location of Business Areas (with type)

Capacity for Growth Study 2012

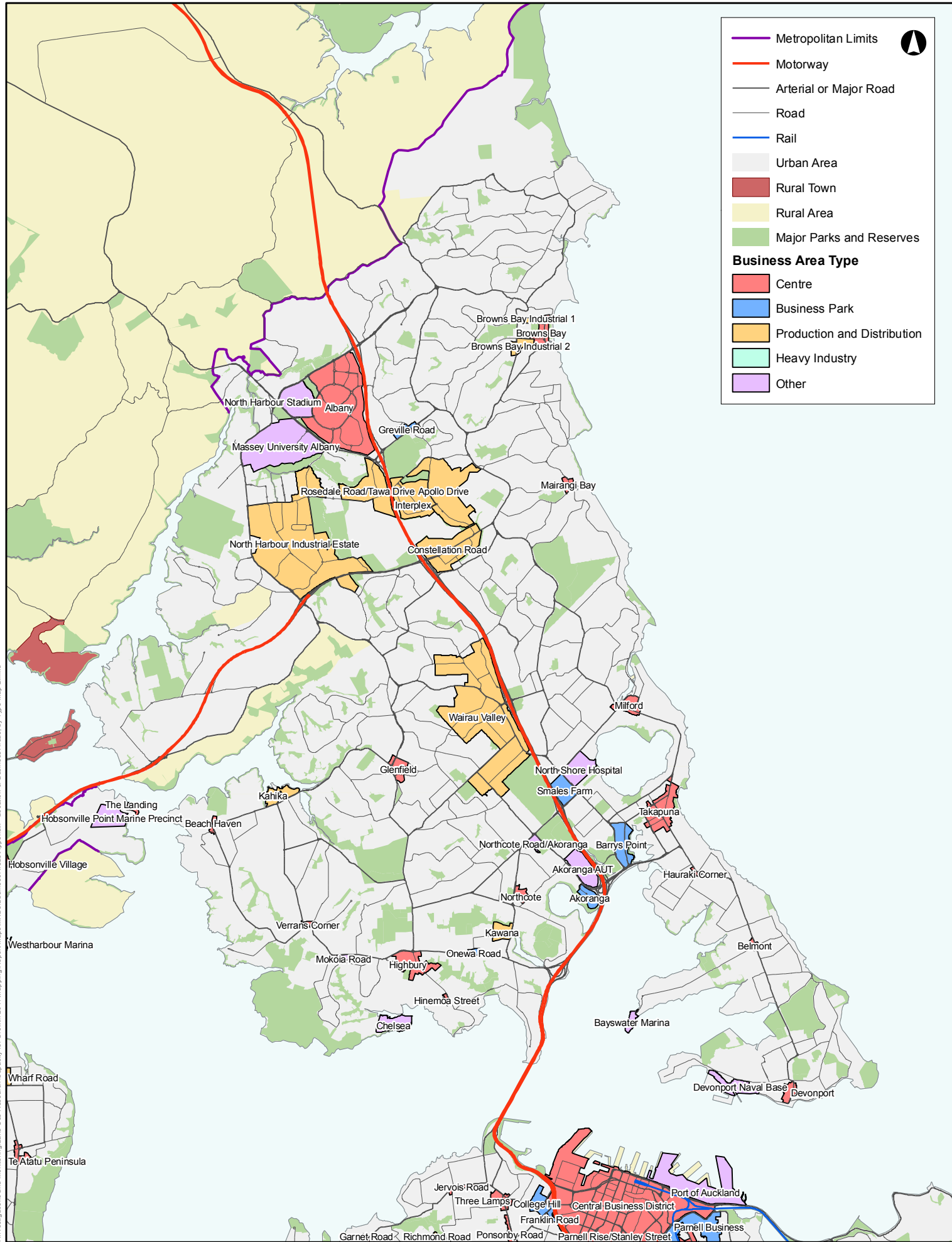


Craig: 30/01/2013 U:\CPO\ASR\Research Investigations and Monitoring\Land Use Research\Capacity for Growth 2011\Mapping\Report Maps\MXDs\Series 1 Map CO Rural Town Map Index.mxd



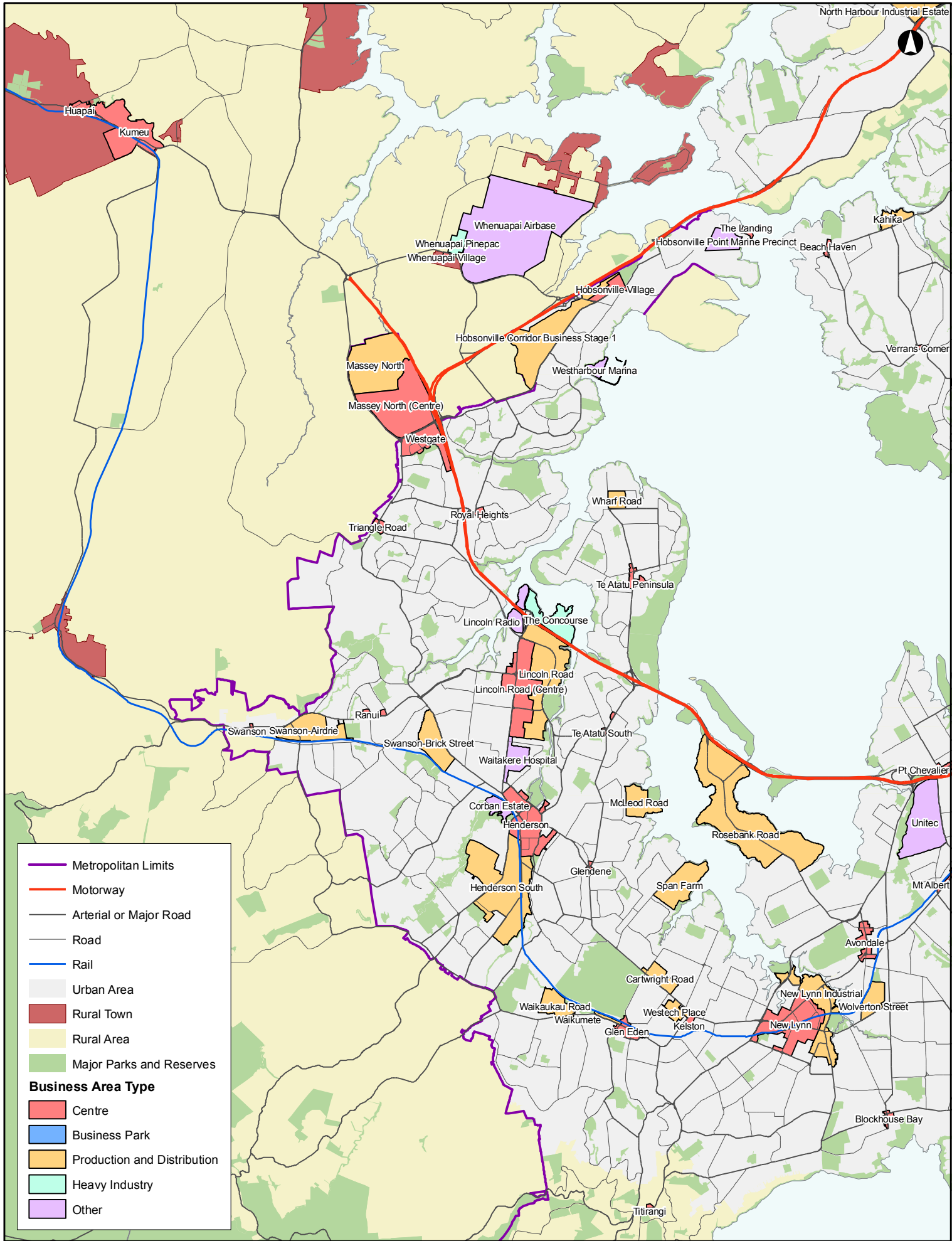
Appendix B, Map 1
 Location of Business Areas (with type) (Business Redevelopment study component)
Capacity for Growth Study 2012

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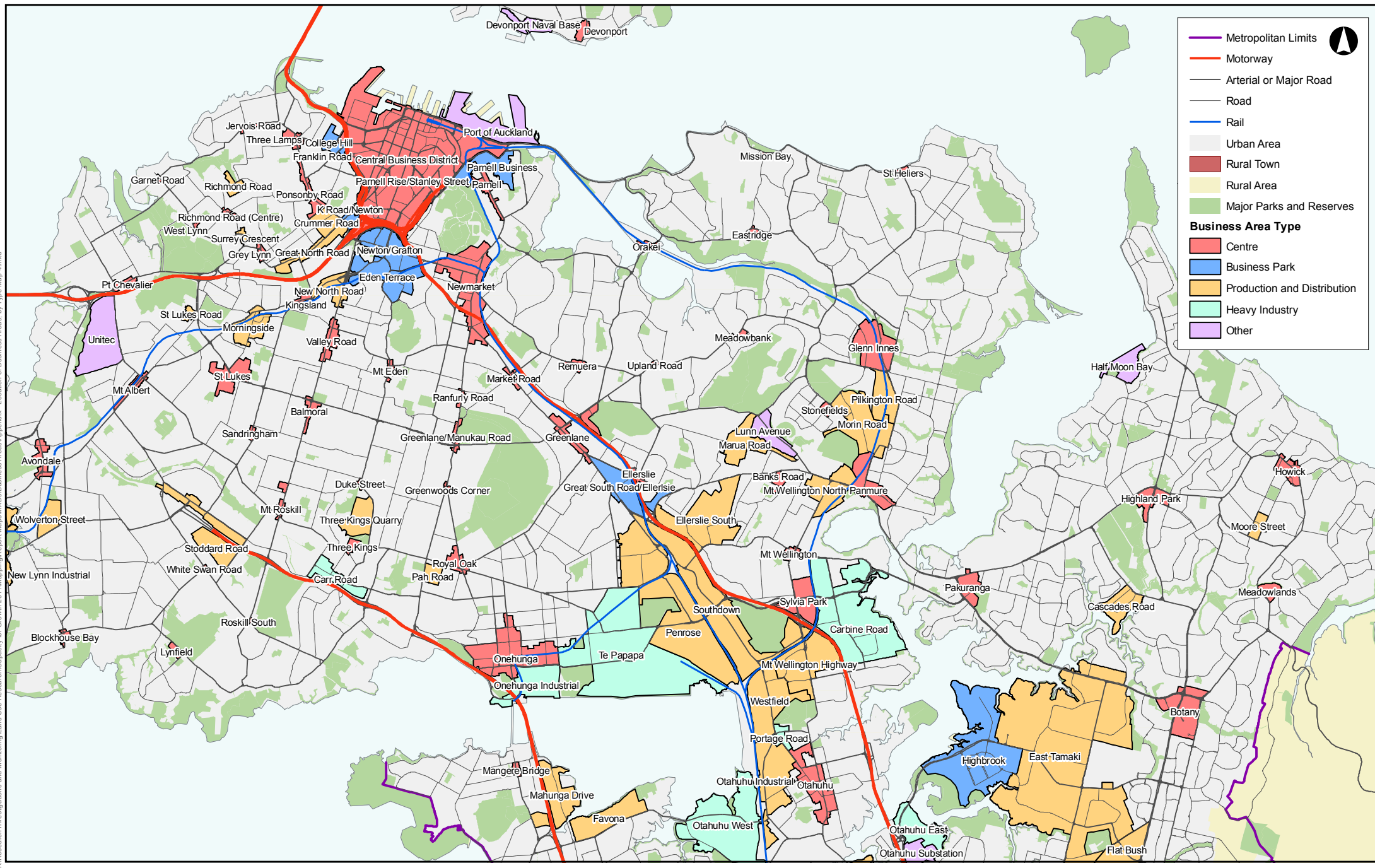
Appendix B, Map 2
 Location of Business Areas (with type)
 (Business Redevelopment study component)

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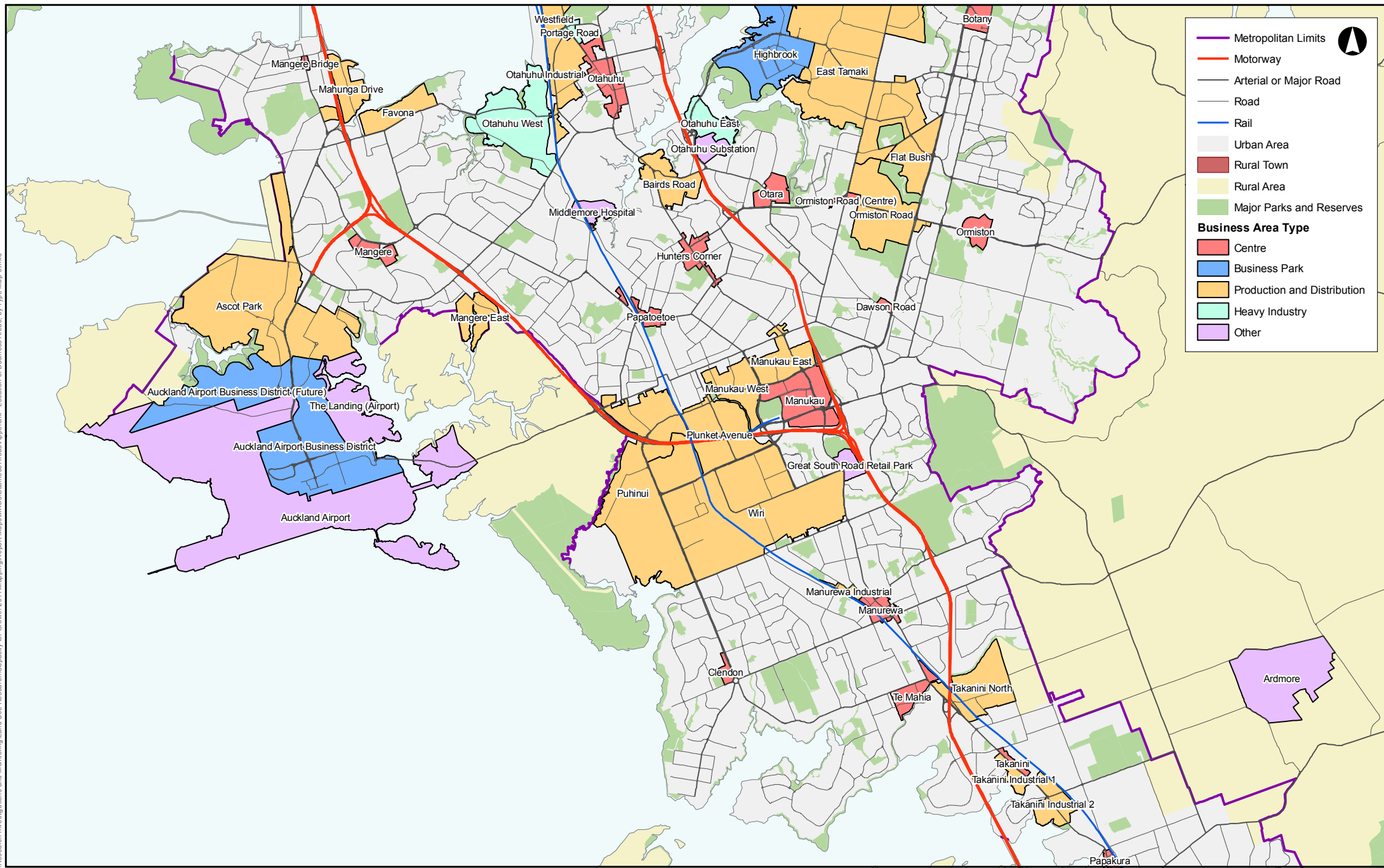
Appendix B, Map 3
 Location of Business Areas (with type)
 (Business Redevelopment study component)

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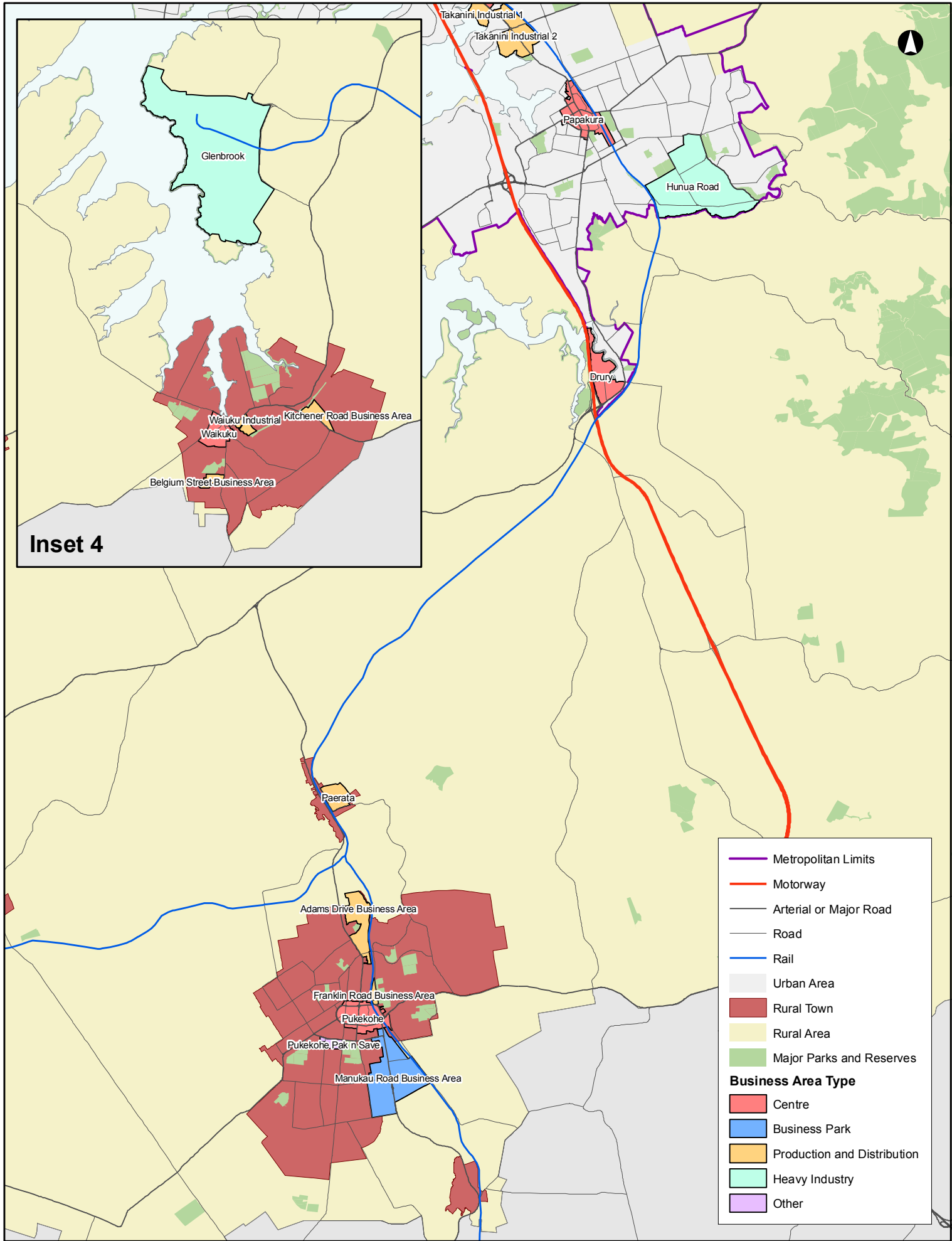


Appendix B, Map 4
Location of Business Areas (with type) (Business Redevelopment study component)
Capacity for Growth Study 2012

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Appendix B, Map 5
 Location of Business Areas (with type) (Business Redevelopment study component)
Capacity for Growth Study 2012



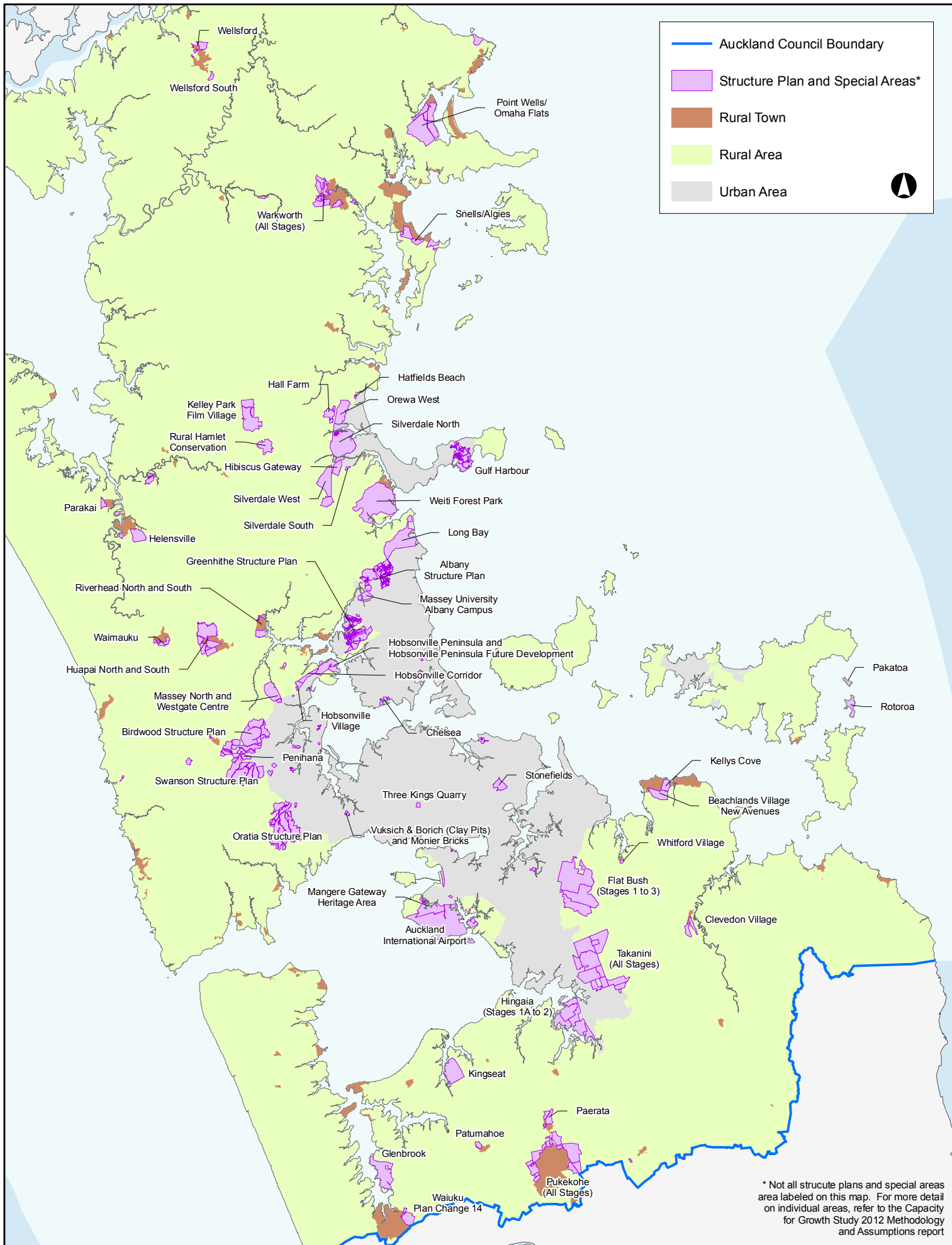
Appendix B, Map 6
 Location of Business Areas (with type)
 (Business Redevelopment study component)

Capacity for Growth Study 2012



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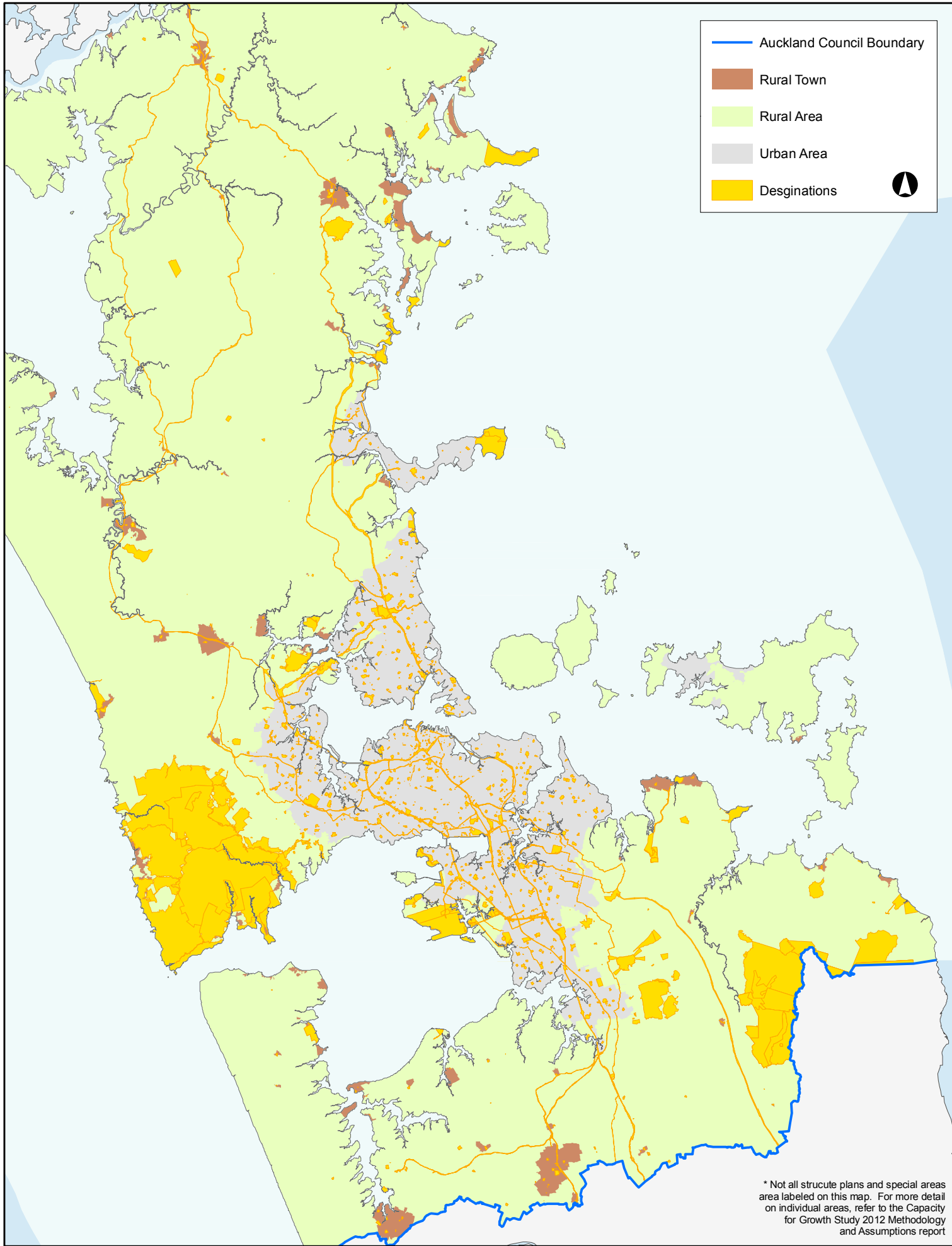
Appendix C: Map of location and extent of structure plan and special areas



Appendix C Location and Extent of Structure Plan and Special Areas

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Appendix D: Map of location of district plan designations utilised in modelling process



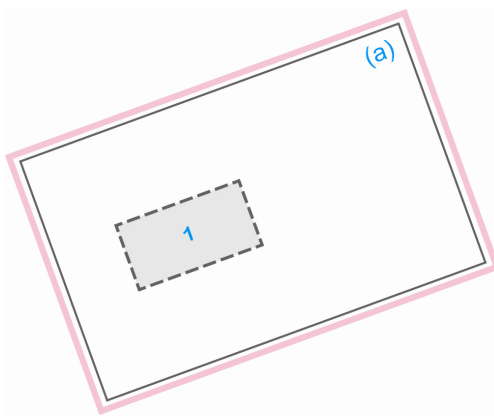
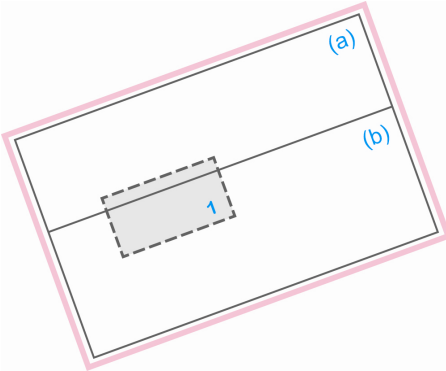
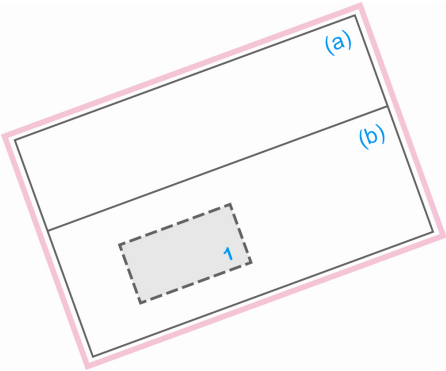
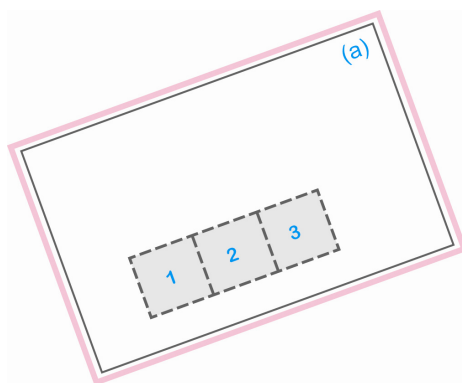
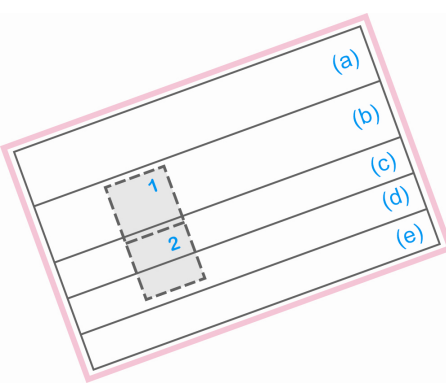
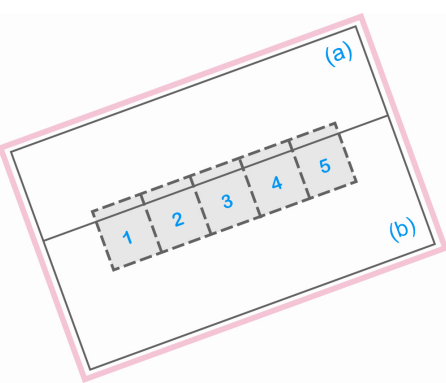
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Appendix D
 Location and Extent of District Plan Designations (used in Modelling Processes)



Appendix E: Modelling rules for apportioning dwelling count from the rates assessment polygon to parcel polygon

Figure 35: Modelling rules for apportioning dwelling count from the rates assessment polygon to parcel polygon

		Rates Assessment Parcel Count (SPATIAL Dataset)		
		ONE Parcel (spatial) [PC = Parcel Count]	MANY Parcels (spatial) [PC = Parcel Count]	
Rates Assessment Dwelling Count (NON-SPATIAL Dataset)	ONE Dwelling (non-spatial) [DC = Dwelling Count]		Scenario (1) 	Scenario (2) 
		Apportionment Rule (B): $DC/PC = 1$ Assign the Rates Assessment Dwelling Count to the Parcel ** Annotated inside FME Workbench as (B)	Apportionment Rule (A): $0 < DC/PC < 1$ Assign the Rates Assessment Dwelling Count to the largest Parcel (by area) ** Annotated inside FME Workbench as (A)	
	MANY Dwellings (non-spatial) [DC = Dwelling Count]			
		Apportionment Rule (C): $DC/PC > 1$ Assign the Rates Assessment Dwelling Count to the Parcel ** Annotated inside FME Workbench as (C)	Apportionment Rule (D1): $0 < DC/PC < 1$ Assign the Rates Assessment Dwelling Count (x) to the ranked (x) largest Parcels (by area) ** Annotated inside FME Workbench as (D1)	Apportionment Rule (D2): $DC/PC \geq 1$ Prorate the Rates Assessment Dwelling Count by Parcel area and round to the nearest whole number ** Annotated inside FME Workbench as (D2)

- The relationship between Rates Assessment polygons and Parcel polygons is a MANY:MANY relationship
 - ONE Parcel may have MANY Rates Assessments, for example an Access Lots
 - MANY Parcels may have ONE Rates Assessment, for example a Retirement Village
 - The unique identifier for the Rates Assessment polygon "footprint" is held under the CRCGEOMETRYID field
- Dwelling Count data (on-spatial) is sourced from Property-IQ and can be linked to Auckland Council's Rates Assessment data (spatial) by joining on a common VALUATIONREF field (requires a common roll/assessment/suffix format standard)
 - Dwelling Count is not the same as Building Count - a single Building may comprise more than one Dwelling
 - There is always ONE VALUATIONREF per Dwelling, but there may be MANY VALUATIONREFs per Rates Assessment
 - Property-IQ Dwelling Count data does not exist for Rural Auckland - only a measure of whether a Dwelling exists or not is provided.

Mike Oberdries and Kyle Balderston | 14 September 2012

Appendix F: Data and sources utilised in study, with description and source

Table 17: Data and sources utilised in study, with description and source

Data	Description	Data used to assess:				Source:	Sourced from council's geospatial repository (SDE)
		Residential	Business	Rural residential	Business redevelopment		
CRS Parcel	Polygonal cadastral land parcel boundaries Snapshot of data extracted May 2012.	✓	✓	✓		Land Information New Zealand	✓
CRS Titles	Polygonal title land boundaries. Snapshot of data extracted May 2012.			✓		Land Information New Zealand	
Territorial authority boundaries	Boundaries for Auckland's former territorial authorities (city and district councils) as at November 2009.	✓	✓	✓	✓	Statistics New Zealand	✓
Rates assessment areas	Rates assessment area polygons. Snapshot of data extracted May 2012.	✓	✓	✓		Auckland Council	✓
Property valuation values	Property valuation data from the 2011 valuation assessments, stored as part of the rates assessment area polygons (see above). Snapshot of data extracted May 2012.	✓	✓	✓		Auckland Council	✓
District plan rules	The planing rules as set out in the region's district planning documents.	✓	✓	✓	✓	Auckland Council	
District plan zoning	Extents of zoning classifications, defined by polygons for the district plans of Auckland. Snapshot of data extracted May 2012.	✓	✓	✓	✓	Auckland Council	✓
District plan designations	Designations as listed and defined in district plans, defined by polygons. Snapshot of data extracted May 2012.	✓	✓	✓		Auckland Council	✓
Dwelling counts	Count of dwellings per valuation assessment (2011).	✓	✓	✓	✓	PropertyIQ Ltd.	
CRS road polygons	Polygonal cadastral land parcel boundaries for parcels classified as being road. Snapshot of data extracted May 2012.	✓				Land Information New Zealand	✓
CRS road centrelines	Polylines of all current road centrelines as per LINZ LandOnline Cadastral database. Includes some access ways and tracks as well as some that are paper roads only Snapshot of data extracted May 2012.	✓				Land Information New Zealand	✓
Building footprints	Building outlines defining the extent of permanent building or structures, captured from high resolution aerial photography. Data was originally captured from 2008 photography and in some areas (e.g. North Shore) updates have been made to match 2010 imagery. In some areas (e.g. Rodney) there have been updates made from building consent plans. Snapshot of data extracted May 2012.	✓	✓	✓		Land Information New Zealand	✓
Metropolitan urban limits	Metropolitan urban limits of Auckland, as at May 2012.	✓	✓			Auckland Council	✓
Rural town extents	Extent of rural towns, created from reviewing district plan zoning information. Rural towns defined as 'urban' (specific residential, business and mixed use) type zoned outside of the metropolitan limits. Created by Research, Investigations and Monitoring (AC). As at May 2012.	✓	✓	✓		Auckland Council	
Rural area extent	Extent of rural area, created from reviewing district plan zoning information. Rural area defined as 'non-urban' type zoned, in most cases outside of the metropolitan limits. Created by Research, Investigations and Monitoring (AC). As at May 2012.	✓	✓	✓		Auckland Council	
Special areas extents	Created by Research, Investigations and Monitoring (AC). As at May 2012.	✓	✓	✓		Auckland Council	
Business areas and centres extents	Extent of business areas and centres across Auckland. Area extents, names and classifications provided by Economic Development (AC), created as part of the technical work undertaken for <i>The Auckland Plan</i> . Edited to confirm to parcel boundaries and district plan zoning by Research, Investigations and Monitoring (AC). As at May 2012.			✓		Auckland Council	
NZLRI LCDBII (NZ Land Cover Inventory Land Cover Database II,)	Categorises land cover (i.e. type of forest, wetland, grassland, horticulture, urban areas) based on 96/97 satellite imagery.			✓		Landcare Research	✓
NZLRI LUC (Land Use Classification Database)	An inventory of five physical factors controlling land use - rock, soil, slope, erosion and vegetation.			✓		Landcare Research	✓

Data	Description	Data used to assess:				Source:	Sourced from council's geospatial repository (SDE)
		Residential	Business	Rural residential	Business redevelopment		
QEII Covenants	Lists titles with QEII covenants, and QE2 protection for identifying uncovenanted native bush. <i>NOTE: We were not able to source a layer that contained other covenant types that may be utilised for similar purposes such as those registered under the Reserves Act 1977 or Waitakere Ranges Heritage Area Act 2004 for example. See however Franklin Covenants below. Accordingly the various Uncovenanted Native Bush Layers may be slightly generous which would result in an over assessment of capacity.</i>			✓		QEII National Trust	✓
Wastewater reticulation network	Identifies where the reticulated wastewater network is for various zone specific purposes.	✓		✓		Auckland Council	✓
Te Ture Whenua Maori Land	Identifies communally owned Maori land managed under the Te Ture Whenua Maori Land Act 1993.			✓		Auckland Council	✓
Lakes	Identifies the location of lakes, as shown in the New Zealand Topographic Map series.			✓		Land Information New Zealand	✓
Rivers	Identifies the location of rivers, as shown in the New Zealand Topographic Map series.			✓		Land Information New Zealand	✓
Coast (DCBD)	Used as a proxy to indicate the location of the coastline. Created from the parcel (DCDB) boundaries that have a sea or coastal abutment.			✓		Auckland Council	✓
Wetlands (Wetlands of Ecological and Representative Importance)	Identifies where wetlands are for zone specific purposes. Used in conjunction with Department of Conservation wetlands layer (WERI data).			✓		Department of Conservation	✓
Rodney Significant Natural Areas	From Rodney District Plan for zone specific purposes.			✓		Auckland Council	✓
Rodney Land Rehabilitation areas	From Rodney District Plan for zone specific purposes.			✓		Auckland Council	✓
Rodney Public Reserves	From Rodney District Plan for zone specific purposes.			✓		Auckland Council	✓
Rodney Esplanade Creation areas	From Rodney District Plan for zone specific purposes.			✓		Auckland Council	✓
Waitakere General Natural Area	From Waitakere District Plan for zone specific purposes.			✓		Auckland Council	✓
Waitakere Managed Natural Area	From Waitakere District Plan for zone specific purposes.			✓		Auckland Council	✓
Waitakere Restoration Natural Area	From Waitakere District Plan for zone specific purposes.			✓		Auckland Council	✓
Waitakere Airbase Noise 65dBA	From Waitakere District Plan for zone specific purposes.			✓		Auckland Council	✓
Hauraki Gulf Islands Significant Environmental Features	From Auckland District Plan - Hauraki Gulf Islands Section for zone specific purposes.			✓		Auckland Council	✓
Manukau Indicative Constraint Areas	From Manukau District Plan for Whitford Rural zone specific purposes.			✓		Auckland Council	✓
Franklin covenants	Identifies titles in Franklin District with covenants precluding further subdivision. <i>NOTE: We were not able to source an equivalent Rodney District layer with similar information which would identify sites where the subdivision potential had already been used under the TTR provisions that exist in that district, nor other layers that may exist for various reasons in other former council areas. Accordingly some rural sites will have been assessed as having potential where this potential may have already been utilised by transfer to another location, or may otherwise be precluded by covenant. See also QEII Covenants above.</i>			✓		Auckland Council	✓
Department of Conservation (DOC) Wetlands	Wetlands in the Auckland region collated by Chris Wild at DOC using a variety of sources (PNA reports, WERI, SSWI etc). This dataset was created as part of Department's Protection Strategy work.			✓		Department of Conservation	✓
Floor space (residential, non-residential)	Amount of Floor space (m ²), by floor space type by valuation assessment (2012), converted from Rates Assessment to Parcel geography.				✓	PropertyIQ Ltd.	
Employee counts (EC)	Count of employees, by meshblock. Collected by Statistics NZ via the Linked Employee Employer Database and released as part of the Business Demographics data series, converted from Meshblock to Business Area geography.				✓	Statistics New Zealand	

Appendix G: FME workbench processing inventory

Table 18: FME workbench processing inventory

Legend

	Mandatory Data Preparation (run once)		Mandatory Geo-processing		Optional Supplementary Processing
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Processing Order	FME Workbench Name	FME Category	Workbench Description	Workbench Published Parameters	Workbench Input Datasets	Workbench Output Datasets	FME Workbench Batch Mode (Process by District Plan)
1	Data_Prep_RA_Format_VREF_1.fmw	Residential Business	Formats the VALUATIONREF strings held against the Rates Assessment polygons to allow Property-IQ datasets to be linked	Input datasets Output datasets	Rates Assessments (All Auckland)	Rates Assessments (All Auckland) ** writes to Master_Data_Input	Not Required – process runs against ALL Auckland
1.1 (OPTIONAL)	Data_Prep_RA_Floor_Space_Apportionment_1.1.fmw ** this processing is optional	Residential Business	Builds data relationships between Rates Assessments and PIQ Floor Space attributes. Rates Assessments are output as both Stratum features (stacked polygons) and Footprint features (non-stacked polygons with floor space attributes aggregated)	Input datasets Output datasets	Parcels (All Auckland) Rates Assessments (All Auckland) Floor Space Data (Property-IQ) Categories LUT (Property-IQ)	Rates Assessment Stratum (All Auckland) Rates Assessment Footprints (All Auckland) ** with floor space attributes attached ** writes to Master_Data_Input	Not Required – process runs against ALL Auckland
2	Data_Prep_Parcel_RA_Dwelling_Cnt_Apportionment_2.fmw	Residential Business	Builds data relationships between Parcel features and Rates Assessment features so the Property-IQ dwelling count data can be apportioned from the Rates Assessment to the Parcel	Input datasets Output datasets	Parcels (All Auckland) Rates Assessments (All Auckland) Dwelling Counts Data (Property-IQ) Dwelling Age Data (Property-IQ) Categories LUT (Property-IQ)	Parcel Rates Assessments (All Auckland) ** with dwelling counts, dwelling age and valuation assessment attributes attached ** writes to Master_Data_Input	Not Required – process runs against ALL Auckland
3	Data_Prep_Parcel_RA_Clip_By_DP_3.fmw	Residential Business	Clips Parcel Rates Assessment polygons to TA / DP extents	Input datasets Output datasets	Parcel Rates Assessments (All Auckland) TLA 2010 Extent Pilot	Parcel Rates Assessments (By DP + Pilot) ** with dwelling counts, dwelling age and valuation assessment attributes attached ** writes to Master_Data_Input	Not Required – process runs against ALL Auckland
4	Data_Prep_Roads_4.fmw	Residential Business	Translates CRS Road polygons into CRS Road lines and clips by TA / DP	District Plan Acronym Input Datasets Output Datasets	CRS Road Polygons TLA 2010 Extent Pilot	CRS Road Lines ** writes to Master_Data_Enhanced	MASTER_Data_Prep_Roads_4.fmw
5	Data_Prep_Zones_5.fmw	Residential Business	Clips Zone polygons to TA / DP extents and links zone-specific modelling attributes held in the zone lookup table	District Plan Acronym Input datasets Output datasets	Zones TLA 2010 Zone LUT (Excel)	Zones enhanced ** writes to Master_Data_Enhanced	MASTER_Data_Prep_Zones_5.fmw
6	Data_Prep_Parcels_6.fmw	Residential Business	Filters Parcel polygons by inclusion and exclusion polygons. Splits Building Footprint features by Parcel by TA / DP polygons. Tags Parcel features with Zone attributes by TA / DP	District Plan Acronym Designation Inverse Buffer Distance Input Datasets Output Datasets	Parcels Building Footprints Residential Zones Business Zones Designations Extent MUL Extent Rural Towns Extent Special Areas Extent Pilot Extent Business Areas	Parcels Residential enhanced Parcels Business enhanced Building Footprints enhanced ** writes to Master_Data_Enhanced	MASTER_Data_Prep_Parcels_6.fmw

Processing Order	FME Workbench Name	FME Category	Workbench Description	Workbench Published Parameters	Workbench Input Datasets	Workbench Output Datasets	FME Workbench Batch Mode (Process by District Plan)
6.1 (OPTIONAL)	Data_Prepare_Zone_LUT_Resample_6.1.fmw ** this process is optional and will overwrite existing Residential and Business data outputs (so make a back-up first)!	Residential Business	Creates new links to zone-specific modelling attributes held in the Zone Resample lookup table This facilitates "what-if" investigations of the affect of different zoning constraints	District Plan Acronym Excel Lookup Table Pilot Only {Yes No} Input Datasets Output Datasets	Parcels Residential enhanced Parcels Business enhanced Extent Pilot Zone LUT Resample (Excel)	Parcels Residential enhanced Parcels Business enhanced ** overwrites to Master_Data_Enhanced	MASTER_Data_Prepare_Zone_LUT_Resample_6.1.fmw
7	Geoprocessing_Vacant_Capacity_1.fmw ** typically run as an overnight process	Residential	Geoprocessing algorithm to assess residential infill capacity and residential vacant potential capacity THIS GEOPROCESS RUNS A COMPUTATIONALLY INTENSIVE ALGORITHM AND SHOULD TYPICALLY BE RUN AS AN OVERNIGHT PROCESS WHEN EXECUTED IN BATCH MODE!	District Plan Acronym Assessment Area Threshold for VP versus Infill Minimum Building Footprint Area Minimum Dimension for a Building Platform VP Dwellings Per Hectare Input Datasets Output Datasets	Residential Parcels enhanced Building Footprints enhanced	Residential Infill Candidates Residential VP Candidates	MASTER_Geoprocessing_Vacant_Capacity_1.fmw
8	Geoprocessing_Infill_Access_2.fmw	Residential	Geoprocessing algorithm to assess residential infill capacity candidate accessibility	District Plan Acronym Assessment Area Threshold for VP versus Infill Input Datasets Output Datasets	Residential Parcels enhanced Building Footprints enhanced CRS Road Lines Residential Infill Candidates	Residential Infill Candidates With Access Residential Infill Candidates Without Access	MASTER_Geoprocessing_Infill_Access_2.fmw
9	Geoprocessing_Vacant_Capacity_Yields_3.fmw	Residential	Geoprocessing algorithm to aggregate yields at the parcel level for Infill capacity and for Vacant Potential capacity	District Plan Acronym Input Datasets Output Datasets	Residential Parcels enhanced Residential Infill Candidates With Access Residential VP Candidates	Residential Parcel Yields Infill Residential Parcel Yields Infill Failed Residential Parcel Yields VP Residential Parcel Yields VP Failed	MASTER_Geoprocessing_Vacant_Capacity_Yields_3.fmw
10	Geoprocessing_Vacant_Yields_4.fmw	Residential	Geoprocessing algorithm to aggregate yields at the parcel level for Vacant capacity	District Plan Acronym Minimum Building Footprint Area Minimum Dimension for a Building Platform VP Dwellings Per Hectare Input Datasets Output Datasets	Residential Parcels enhanced Building Footprints enhanced	Residential Parcels Vacant Residential Parcels Vacant Failed	MASTER_Geoprocessing_Vacant_Yields_4.fmw
11	Geoprocessing_Redevelopment_Yields_5.fmw	Residential	Geoprocessing algorithm to aggregate yields at the parcel level for Redevelopment capacity	District Plan Acronym Minimum Building Footprint Area Minimum Dimension for a Building Platform VP Dwellings Per Hectare Input Datasets Output Datasets	Residential Parcels enhanced Building Footprints enhanced Residential Parcels Vacant Residential Parcels VP Parcel Rates Assessments	Residential Parcel Yields Redevelopment	MASTER_Geoprocessing_Redevelopment_Yields_5.fmw
11.1 (OPTIONAL)	Residential_Infill_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting ** no CBD Residential inputs	Residential	Merges 8x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..IFME_Model_Run_1.0\Metropolitan_And_Rural_Town\Residential\Infill_Assessment	Input Datasets Output Datasets	Infill (By DP) Infill With Access (By DP) Infill Without Access (By DP) Parcel Infill Yield (By DP) Parcel Infill Yield Failed (By DP)	Infill (All Auckland) Infill With Access (All Auckland) Infill Without Access (All Auckland) Parcel Infill Yield (All Auckland) Parcel Infill Yield Failed (All Auckland)	Not required

Processing Order	FME Workbench Name	FME Category	Workbench Description	Workbench Published Parameters	Workbench Input Datasets	Workbench Output Datasets	FME Workbench Batch Mode (Process by District Plan)
11.2 (OPTIONAL)	Residential_Redevelopment_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting ** no CBD Residential inputs	Residential	Merges 8x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Residential\\Redevelopment_Assessment\\	Input Datasets Output Datasets	Parcel Redevelopment Yield (By DP)	Parcel Redevelopment Yield (All Auckland)	Not required
11.3 (OPTIONAL)	Residential_Vacant_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting ** no CBD Residential inputs	Residential	Merges 8x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Residential\\Vacant_Assessment\\	Input Datasets Output Datasets	Parcel Vacant Yield (By DP) Parcel Vacant Yield Failed (By DP)	Parcel Vacant Yield (All Auckland) Parcel Vacant Yield Failed (All Auckland)	Not required
11.4 (OPTIONAL)	Residential_Vacant_Potential_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting ** no CBD Residential inputs	Residential	Merges 8x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Residential\\Vacant_Potential_Assessment\\	Input Datasets Output Datasets	Vacant Potential (By DP) Parcel Vacant Potential Yield (By DP)	Vacant Potential (All Auckland) Parcel Vacant Potential Yield (All Auckland)	Not required
12	Geoprocessing_Total_Land_Yields_1.fmw	Business	Geoprocessing algorithm to determine the Total business parcel yields (in hectares)	District Plan Acronym Minimum Business Parcel Area Threshold Input Datasets Output Datasets	Business Parcels enhanced	Business Parcel Yields Total Land	MASTER_Geoprocessing_Total_Land_Yields_1.fmw
13	Geoprocessing_Vacant_Yields_2.fmw	Business	Geoprocessing algorithm to determine the Vacant business parcel yields (in hectares)	District Plan Acronym Minimum Building Footprint Area Minimum Business Parcel Area Threshold Input Datasets Output Datasets	Business Parcels enhanced Building Footprints enhanced	Business Parcel Yields Vacant	MASTER_Geoprocessing_Vacant_Yields_2.fmw
14	Geoprocessing_Vacant_Potential_Yields_3.fmw	Business	Geoprocessing algorithm to determine the Vacant Potential business parcel yields (in hectares)	District Plan Acronym Minimum Building Footprint Area Minimum Business Parcel Area Threshold Minimum Business Net Parcel Area Threshold Input Datasets Output Datasets	Business Parcels enhanced Building Footprints enhanced Extent Pilot	Business Parcel Yields VP Commercial Business Parcel Yields VP Industrial	MASTER_Geoprocessing_Vacant_Potential_Yields_3.fmw
15	Geoprocessing_Brownfield_Yields_4.fmw	Business	Geoprocessing algorithm to aggregate yields at the parcel level for Brownfield capacity	District Plan Acronym Assessment Area Threshold for Brownfield Minimum LIV / LCV Score Input Datasets Output Datasets	Parcel Rates Assessments Business Parcels enhanced Building Footprints enhanced	Business Parcel Yields Brownfield	MASTER_Geoprocessing_Brownfield_Yields_4.fmw
15.1 (OPTIONAL)	Business_Brownfield_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting	Business	Merges 9x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Business\\Brownfield_Assessment\\	Input Datasets Output Datasets	Parcel Brownfield Yield (By DP)	Parcel Brownfield Yield (All Auckland)	Not required

Processing Order	FME Workbench Name	FME Category	Workbench Description	Workbench Published Parameters	Workbench Input Datasets	Workbench Output Datasets	FME Workbench Batch Mode (Process by District Plan)
15.2 (OPTIONAL)	Business_Total_Land_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting	Business	Merges 9x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Business\\Total_Land_Assessment\\	Input Datasets Output Datasets	Parcel Total Land Yield (By DP)	Parcel Total Land Yield (All Auckland)	Not required
15.3 (OPTIONAL)	Business_Vacant_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting	Business	Merges 9x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Business\\Vacant_Assessment\\	Input Datasets Output Datasets	Parcel Vacant Yield (By DP)	Parcel Vacant Yield (All Auckland)	Not required
15.4 (OPTIONAL)	Business_Commercial_VP_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting	Business	Merges 9x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Business\\Vacant_Potential_Assessment\\Commercial\\	Input Datasets Output Datasets	Parcel Commercial VP Yield (By DP)	Parcel Commercial VP Yield (All Auckland)	Not required
15.5 (OPTIONAL)	Business_Industrial_VP_Merge_ALL.fmw ** excludes Pilot outputs to avoid double counting	Business	Merges 9x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Metropolitan_And_Rural_Town\\Business\\Vacant_Potential_Assessment\\Industrial\\	Input Datasets Output Datasets	Parcel Industrial VP Yield (By DP)	Parcel Industrial VP Yield (All Auckland)	Not required
16	Data_Prepare_Titles_1.fmw ** Titles may exist as multi-part polygons	Rural	Derive a single Title Footprint polygon from M:M relationships existing between Title polygons and Parcel polygons. Accumulate attribution to reflect these relationships. Filter out Title Footprint Rural polygons by overlaying a number of exclusion polygons Clip Title Footprint Rural polygons to District Plan extents	Input Datasets Output Datasets	LINZ CRS Titles (ALL Auckland) TLA 2010 Extent Rural Limit Extent Rural Towns Extent Special Areas Designations	Title Footprints (All Auckland) ** writes to Master_Data_Input Title Footprints Rural ** writes to Master_Data_Rural_Input	Not Required – process runs against ALL Auckland
17	Data_Prepare_Title_Footprints_Enhanced_2.fmw ** Titles may exist as multi-part polygons	Rural	Appends Zone, Building Footprint and Rates Assessments attributes to Rural Title Footprint features by TA / DP. NOTE: Rural Dwelling Count data from Property-IQ is not an actual count but an indication as to whether a dwelling exists or not.	District Plan Acronym Minimum Building Footprint Area Input Datasets Output Datasets	Title Footprints Rural Zones Parcel Rates Assessments Building Footprints Zone LUT (Excel)	Title Footprints Rural enhanced ** writes to Master_Data_Rural_Enhanced	MASTER_Data_Prepare_Title_Footprints_Enhanced_2.fmw
18	Geoprocessing_Title_Yields_WCC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (WCC) Zone Rural LUT (Excel) General Natural Area Managed Natural Area Extent Rural Reticulated Airbase Noise 65dBA General and Managed Natural Area General and Restoration Natural Area	Title Footprints Rural Yields (WCC)	MASTER_Geoprocessing_Title_Yields_By_DP_3.fmw

Processing Order	FME Workbench Name	FME Category	Workbench Description	Workbench Published Parameters	Workbench Input Datasets	Workbench Output Datasets	FME Workbench Batch Mode (Process by District Plan)
19	Geoprocessing_Title_Yields_RDC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (RDC) Zone Rural LUT (Excel) Esplanade Creation Housing Maori Land Land Rehabilitation Public Reserves Significant Enhancement Planting Significant Natural Area Protection Significant Natural Area Wetland Protection Wetland Protection	Title Footprints Rural Yields (RDC)	
20	Geoprocessing_Title_Yields_PDC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (PDC) Zone Rural LUT (Excel) Extent Uncovenanted Bush Extent Usable Hort. Land Extent 'A' Uncovenanted Natural Feature Extent 'B' Uncovenanted Natural Feature	Title Footprints Rural Yields (PDC)	
21	Geoprocessing_Title_Yields_NSC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (NSC) Zone Rural LUT (Excel) Extent Uncovenanted Bush	Title Footprints Rural Yields (NSC)	
22	Geoprocessing_Title_Yields_MCC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (MCC) Zone Rural LUT (Excel) Extent Usable Hort. Land Extent Uncovenanted Bush Extent Potential Esplanade Extent Whitford Rural ICA	Title Footprints Rural Yields (MCC)	
23	Geoprocessing_Title_Yields_HGI_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (HGI) Zone Rural LUT (Excel) Significant Environmental Features	Title Footprints Rural Yields (HGI)	MASTER_Geoprocessing_Title_Yields_By_DP_3.fmw
24	Geoprocessing_Title_Yields_FDC_3.fmw ** Titles may exist as multi-part polygons	Rural	Geoprocessing algorithm to determine the total rural Title Footprint yields (as dwelling counts). Refer Zone_Rural_LUT.xlsx for the District Plan specific business rules defining the yield calculation methodology.	Input Datasets Output Datasets	Title Footprints Rural enhanced (FDC) Zone Rural LUT (Excel) Extent Conservation Lot Features	Title Footprints Rural Yields (FDC)	
24.1 (OPTIONAL)	Rural_Title_Yield_Merge_ALL.fmw ** Titles may exist as multi-part polygons ** no Pilot, ACC and CBD Rural inputs ** truncates the attribute schema	Rural	Merges 7x District Plan (DP) file geodatabases into a single Auckland Council file geodatabase. FME workbench location: ..\\FME_Model_Run_1.0\\Rural_Residential\\Yield_Assessment\\	Input Datasets Output Datasets	Rural Title Yields (By DP)	Rural Title Yields (All Auckland) ** output data schema may vary from one DP geoprocess to another, so only common attributes have been carried forward to the merged schema	Not required

Appendix H: FME workbench schematics

The schematics of the FME workbenches shown in this report are available on the Auckland Council website or directly by request from the Research, Investigations and Monitoring Unit.

DATA TYPES
 The relationship between Plans and Rates Assessments is a 1:M. 1. ONE Parcel may have MANY Rates Assessments for example, Access Lot. 2. MANY Parcels may have ONE Rates Assessment for example, Residential Village.
 There is 1 VALUATIONREF per Dwelling and there may be MANY VALUATIONREFs per Rates Assessment.
 Dwelling count is not the same as Building count. A single building may comprise more than one Dwelling.
 The Rates Assessment polygon identifier is the CROCEMETRYID, where there is a MANY:1 relationship between the "Parent" VALUATIONREF polygon and the CROCEMETRYID polygon.

R20B - Rates Assessments_VREF_Formatted
 Valuations as at 7-June-2012

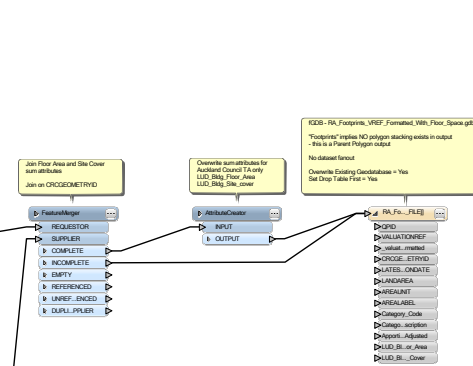
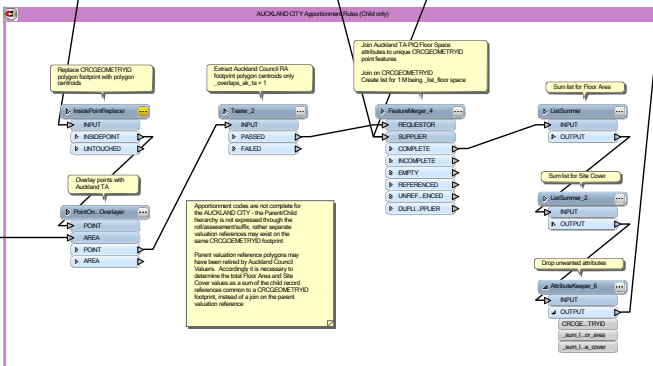
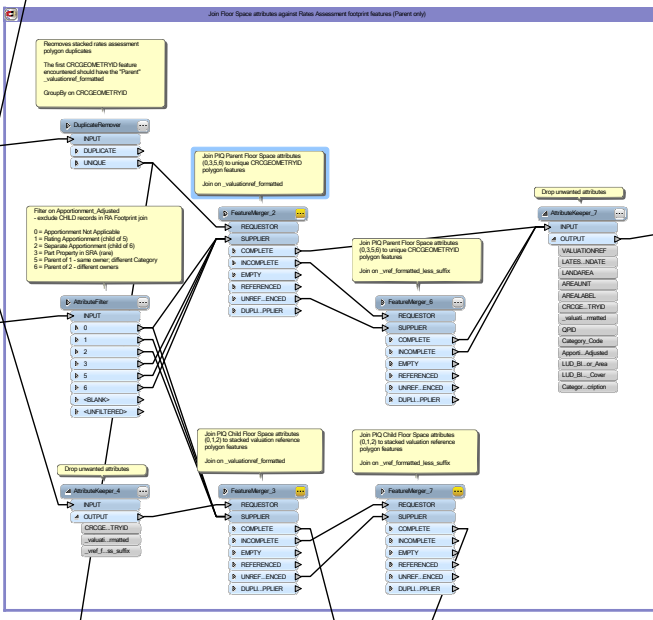
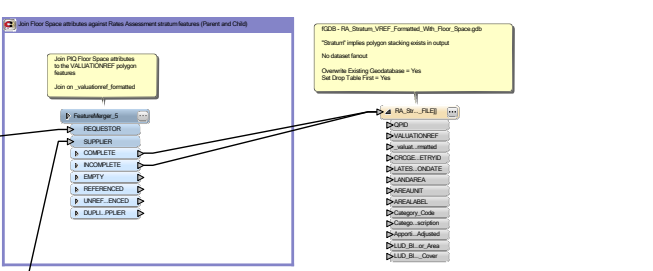
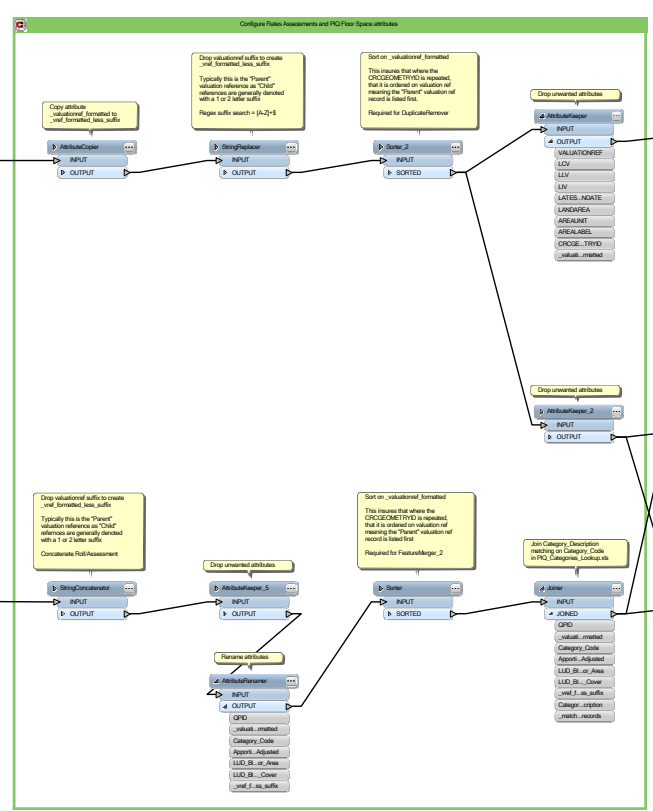
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AREALABEL
CROCE_ETRYID
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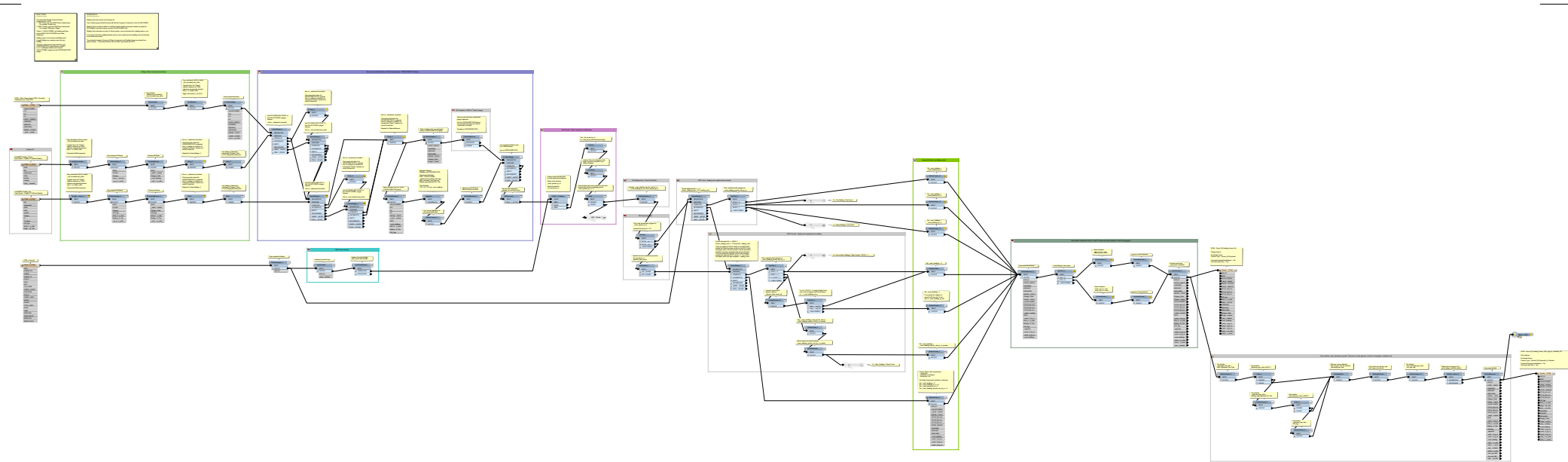
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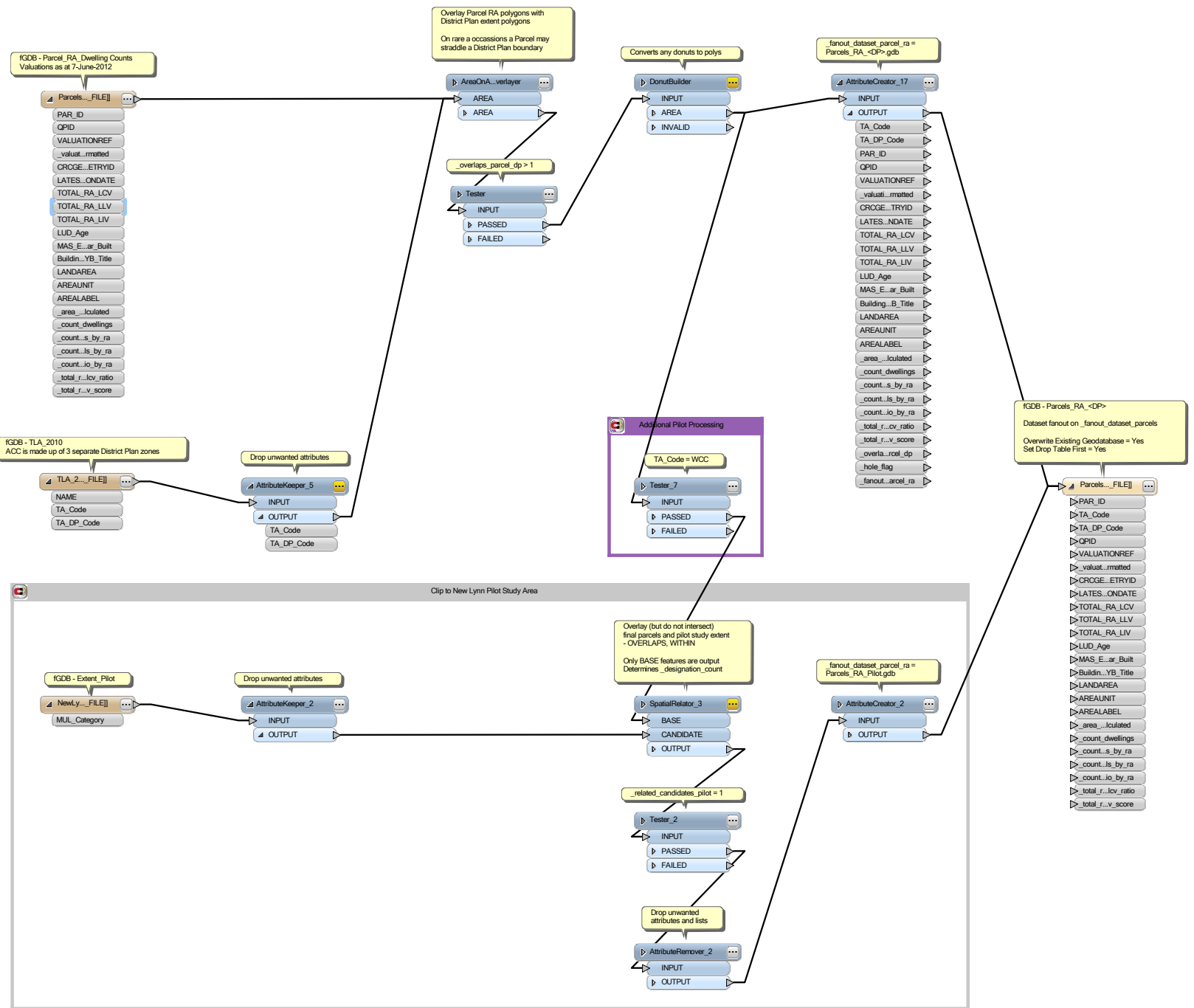
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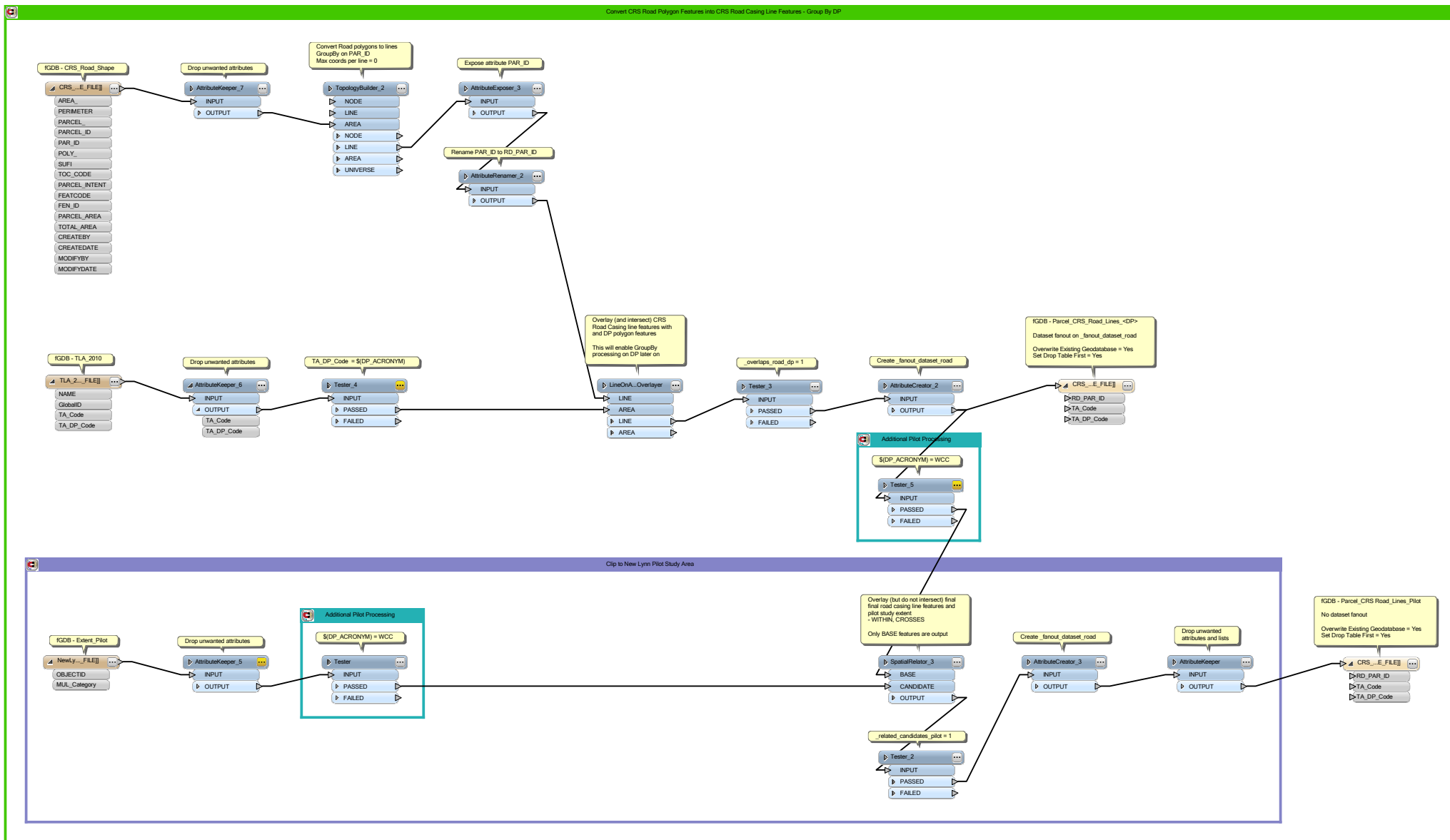
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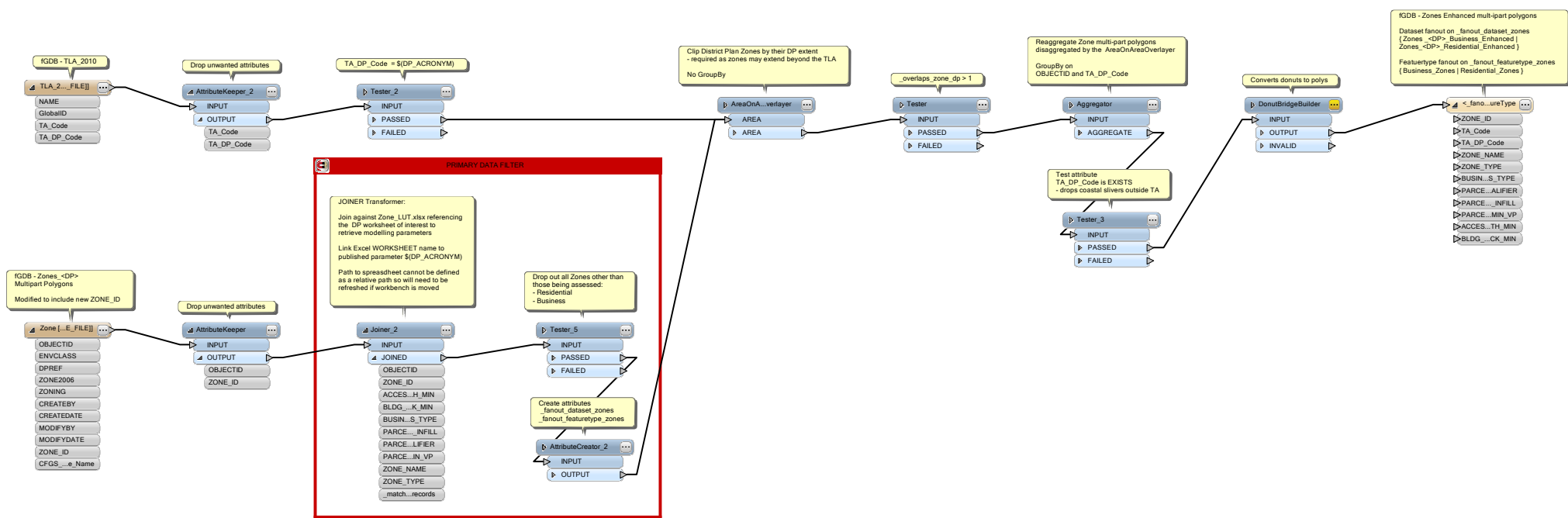
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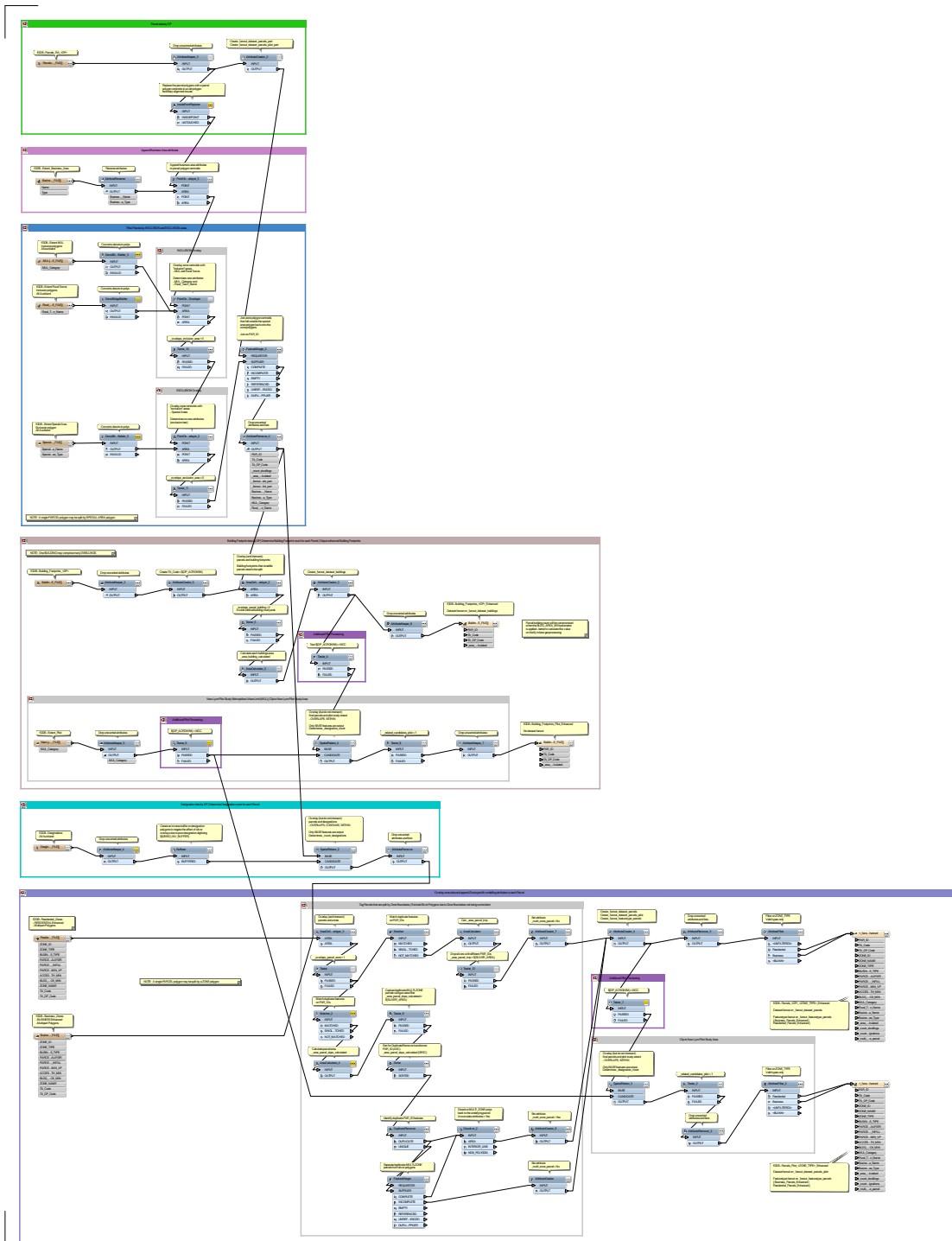












OPTIONAL Processing that allows you to run "what-if" planning scenarios by referencing an alternative excel Zone Lookup Table called Zone_Resample_LUT.xlsx
NOTE: Parcel data KIDB outputs are overwriting parcel data KIDB inputs

JOINER Transformer:
Join against Zone_Resample_LUT.xlsx referencing the DP worksheet of interest to retrieve modelling parameters
Link Excel FILE name to published parameter \$EXCEL_LOOKUP
Link Excel WORKSHEET name to published parameter \$DP_ACRONYM
Path to spreadsheet cannot be defined as a relative path so will need to be referenced if workbook is moved

Drop out all zone types other than those being assessed:
- Residential
- Business

Create _farout_dataset_parcels
Create _farout_dataset_parcels_pilot
Create _farout_featuretype_parcels

Only Pilot Processing
Test \$DP_ACRONYM = WCC AND \$PILOT_ONLY = No

Additional Pilot Processing
Test \$DP_ACRONYM = WCC

Filter on ZONE_TYPE
Valid types only

KIDB - Parcels <DP> -<ZONE_TYPE> -Enhanced
Dataset farout on _farout_dataset_parcels
Featuretype farout on _farout_featuretype_parcels (Business_Parcels_Enhanced) (Residential_Parcels_Enhanced)

- Reside_FILE
- PAR_ID
- TA_Code
- TA_DP_Code
- ZONE_ID
- ZONE_NAME
- ZONE_TYPE
- BUSIN_S_TYPE
- PARCE_ALFIER
- PARCE_INFILL
- PARCE_MN_VP
- ACCES_TH_MIN
- BLDG_CHK_MIN
- MUL_Category
- Rural_T_n_Name
- count_dwelling
- count_ignations
- area_isolated
- multi_e_parcel

- Business_FILE
- PAR_ID
- TA_Code
- TA_DP_Code
- ZONE_ID
- ZONE_NAME
- ZONE_TYPE
- BUSIN_S_TYPE
- PARCE_ALFIER
- PARCE_INFILL
- PARCE_MN_VP
- ACCES_TH_MIN
- BLDG_CHK_MIN
- MUL_Category
- Rural_T_n_Name
- count_dwelling
- count_ignations
- area_isolated
- multi_e_parcel

- AttributeKeeper
- INPUT
- OUTPUT
- PAR_ID
- TA_Code
- TA_DP_Code
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- Rural_n_Name
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- count_ignations
- area_isolated
- multi_e_parcel

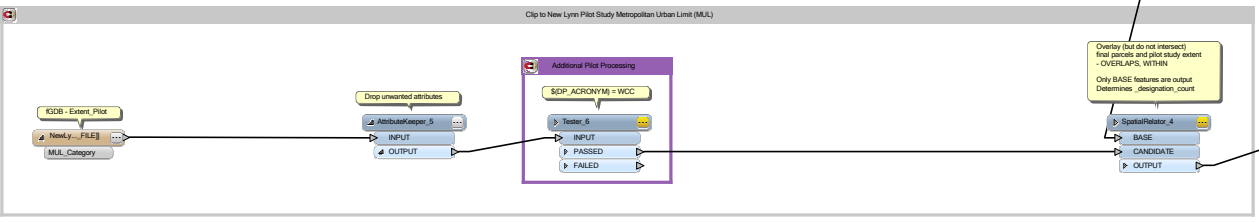
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- count_ignations
- area_isolated
- multi_e_parcel
- BLDG_CHK_MIN
- BUSIN_S_TYPE
- PARCE_ALFIER
- PARCE_INFILL
- ZONE_NAME
- ZONE_TYPE
- match_records

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- PASSED
- FAILED

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- TA_Code
- TA_DP_Code
- ZONE_ID
- ZONE_NAME
- ZONE_TYPE
- BUSIN_S_TYPE
- PARCE_ALFIER
- PARCE_INFILL
- PARCE_MN_VP
- ACCES_TH_MIN
- BLDG_CHK_MIN
- MUL_Category
- Rural_T_n_Name
- area_isolated
- count_dwelling
- count_ignations
- multi_e_parcel

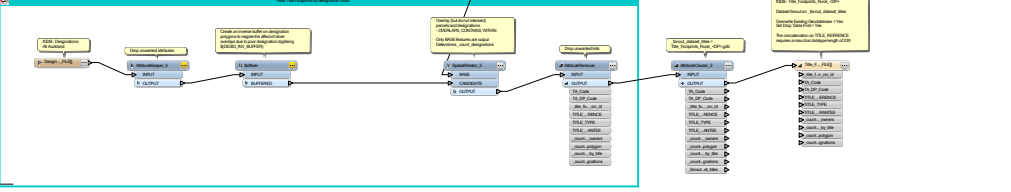
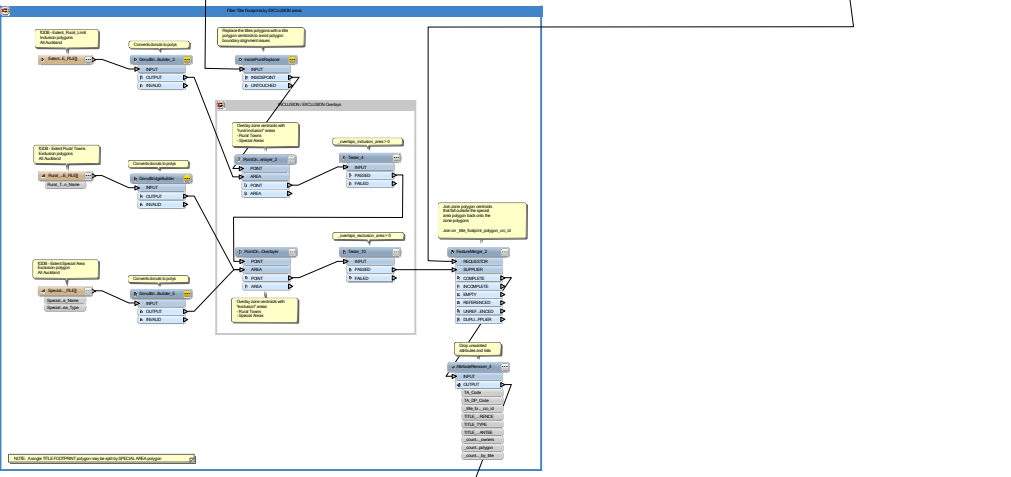
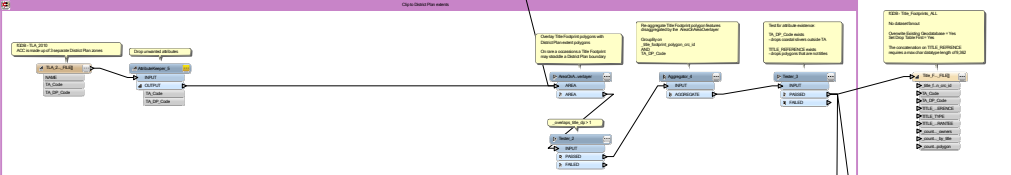
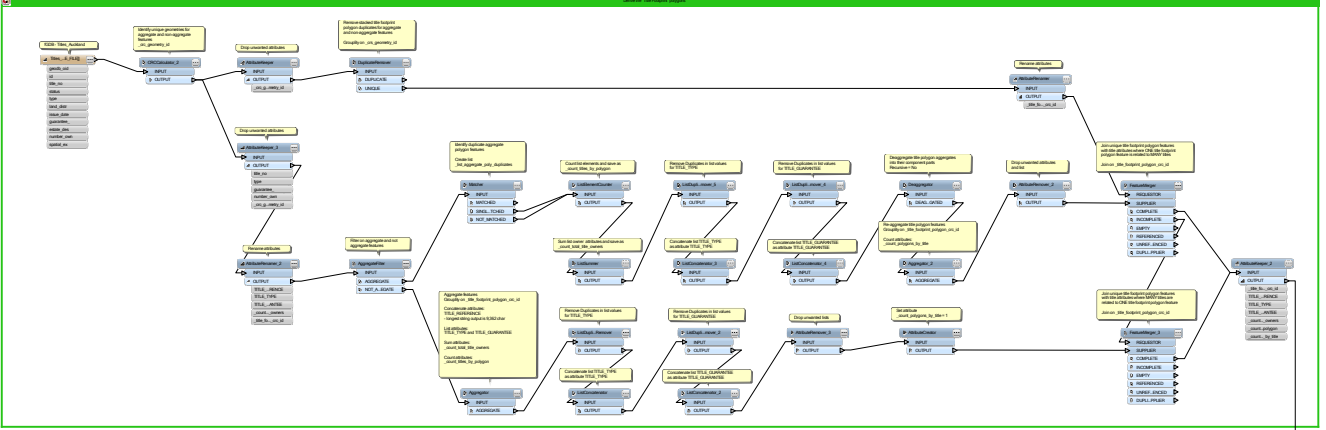


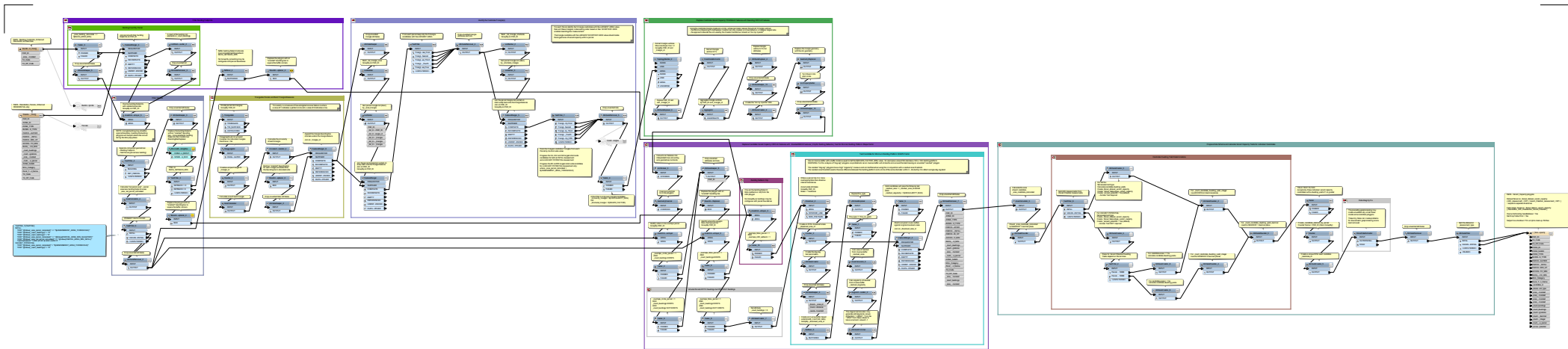
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Only BASE features are output
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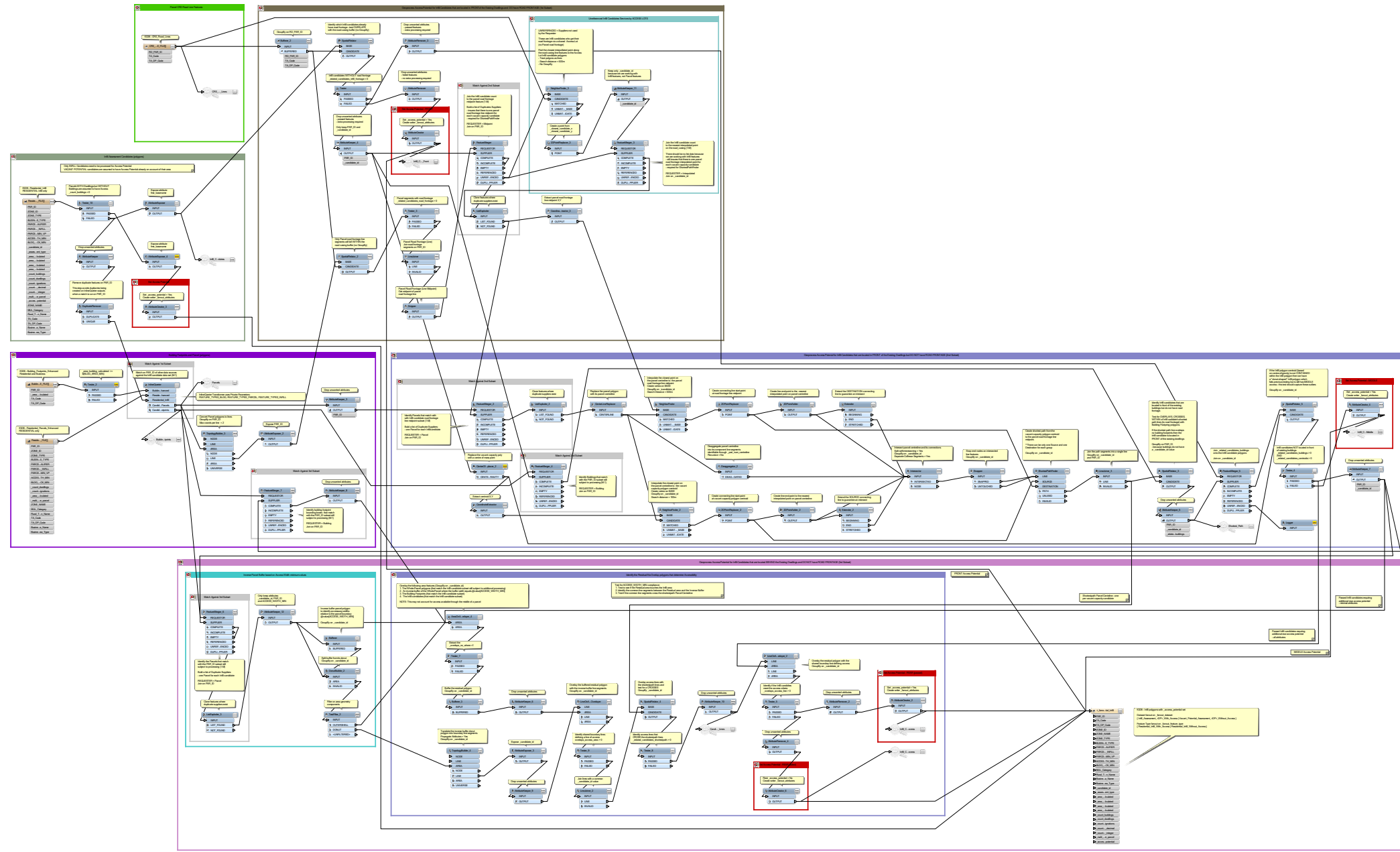
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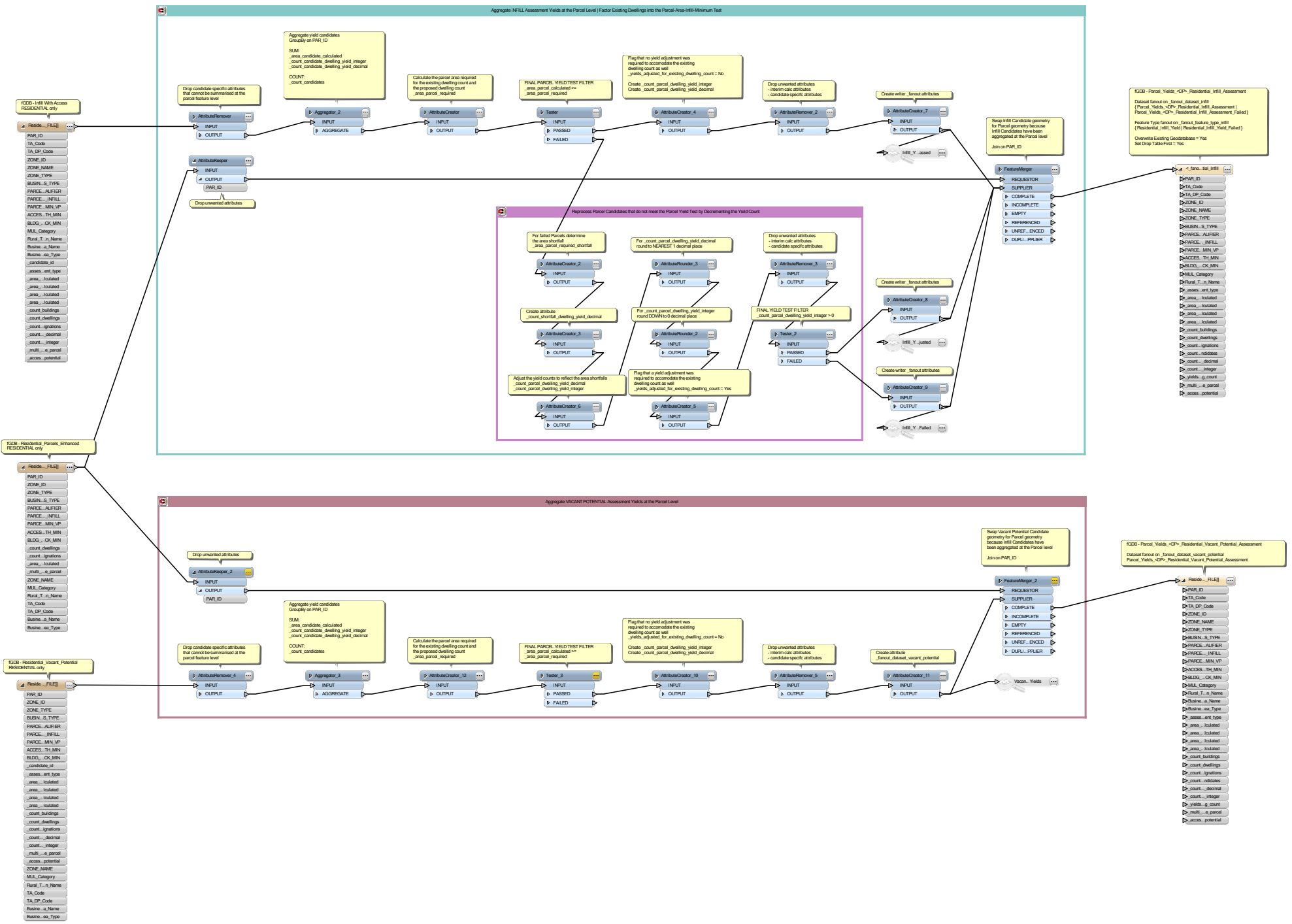
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- BUSIN_S_TYPE
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- PARCE_INFILL
- PARCE_MN_VP
- ACCES_TH_MIN
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- MUL_Category
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- count_dwelling
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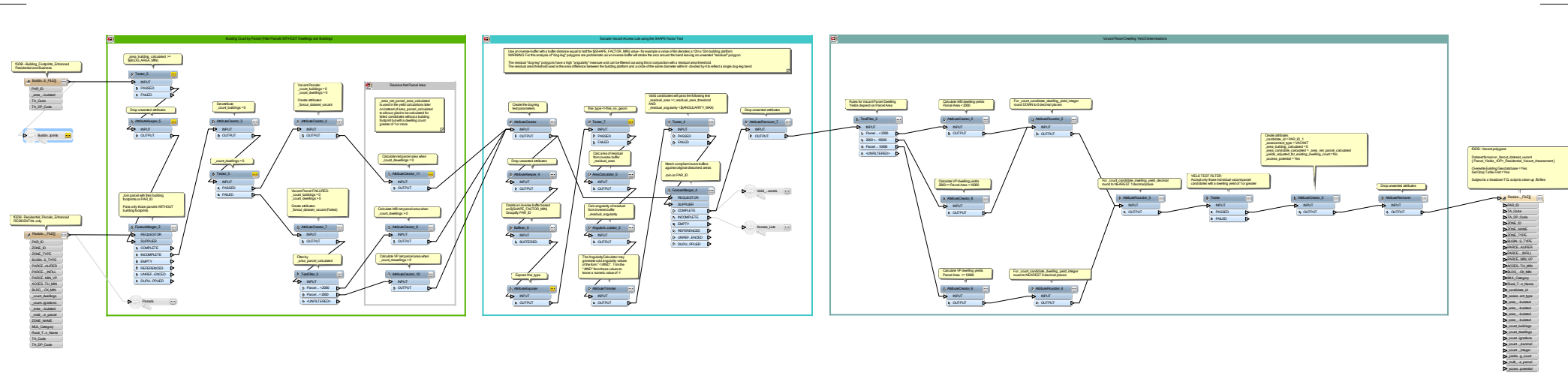
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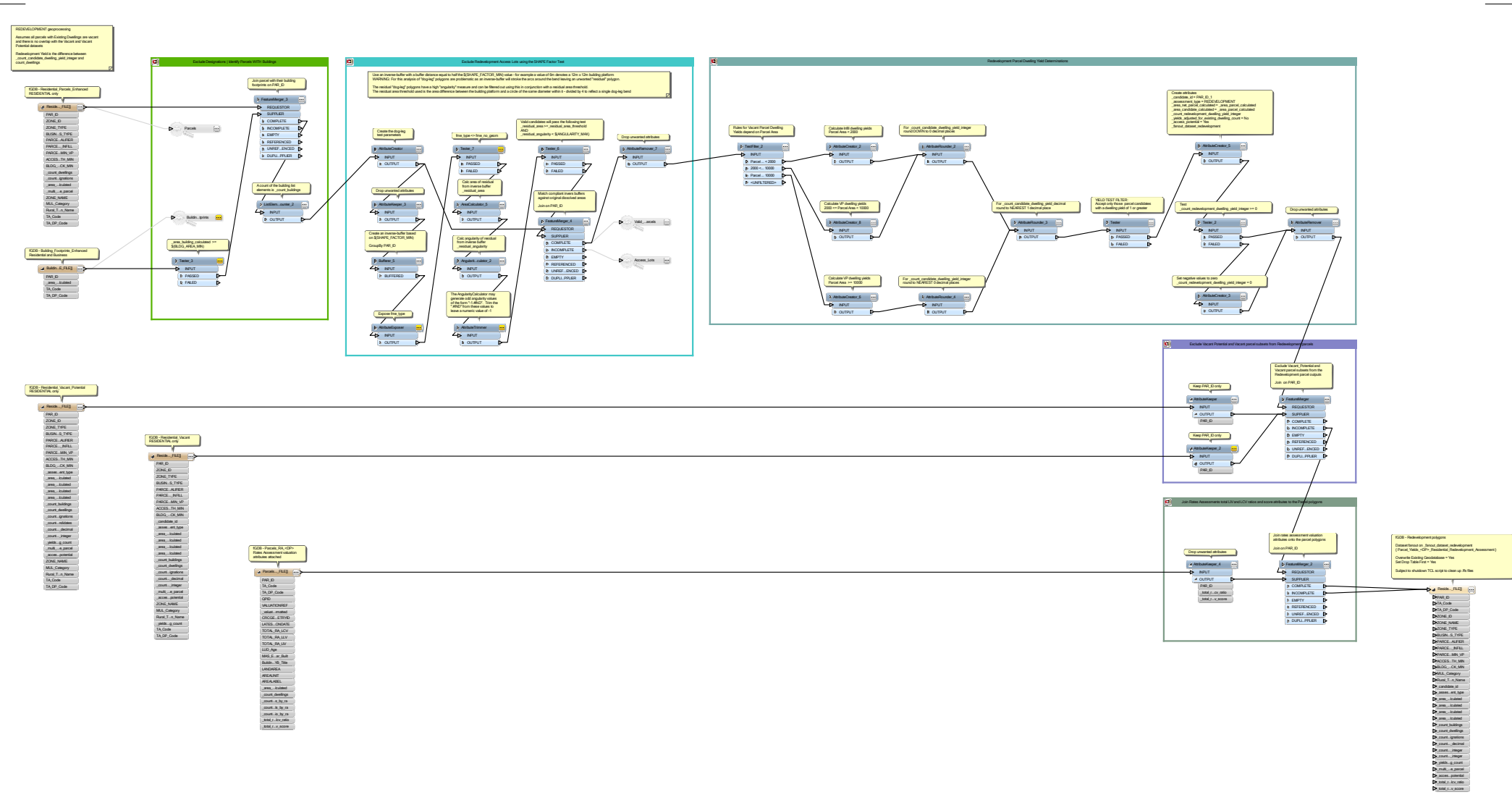


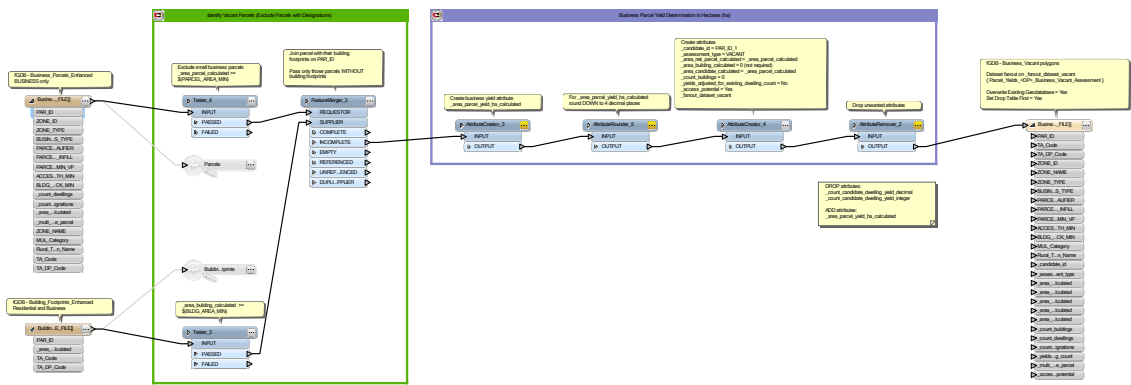


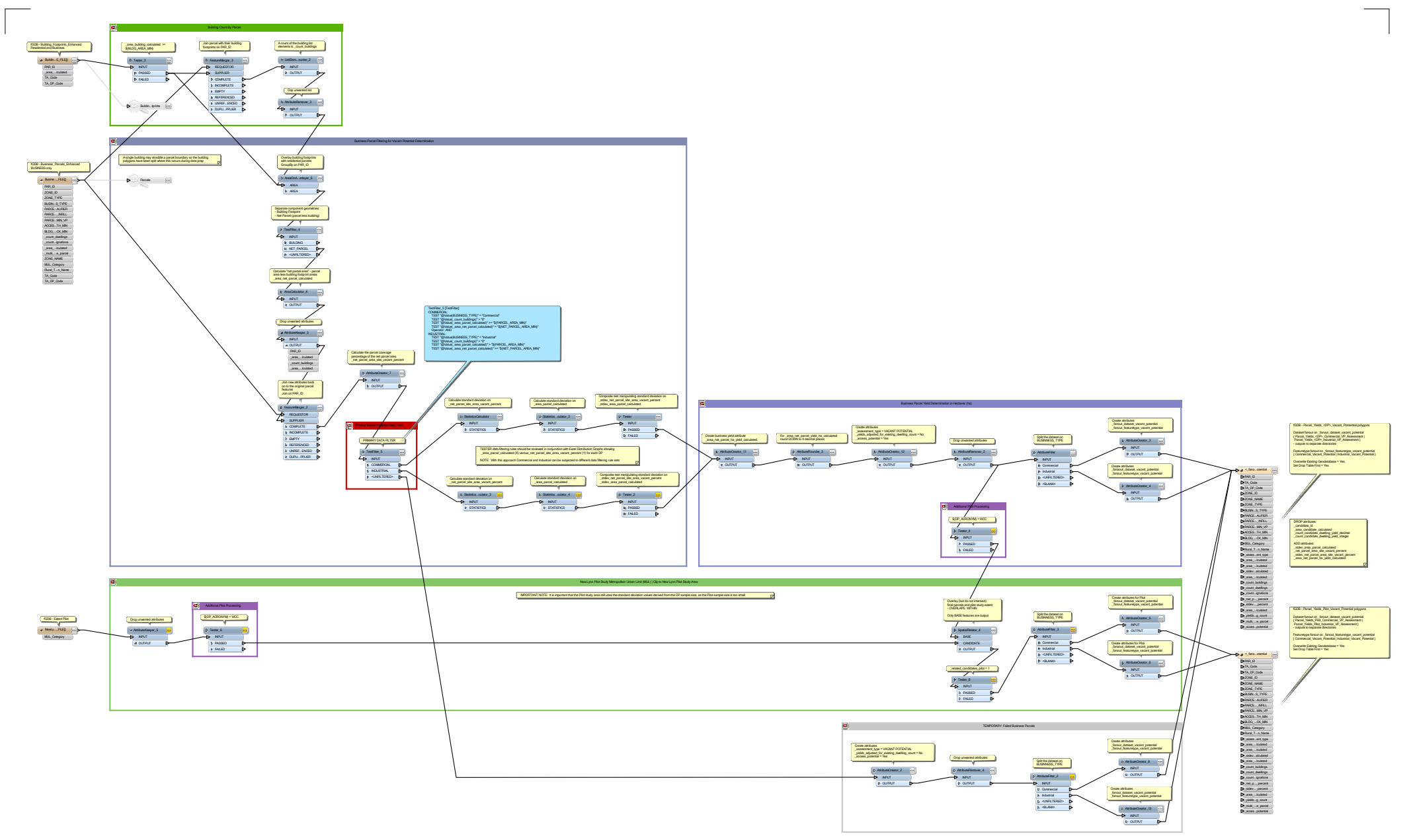


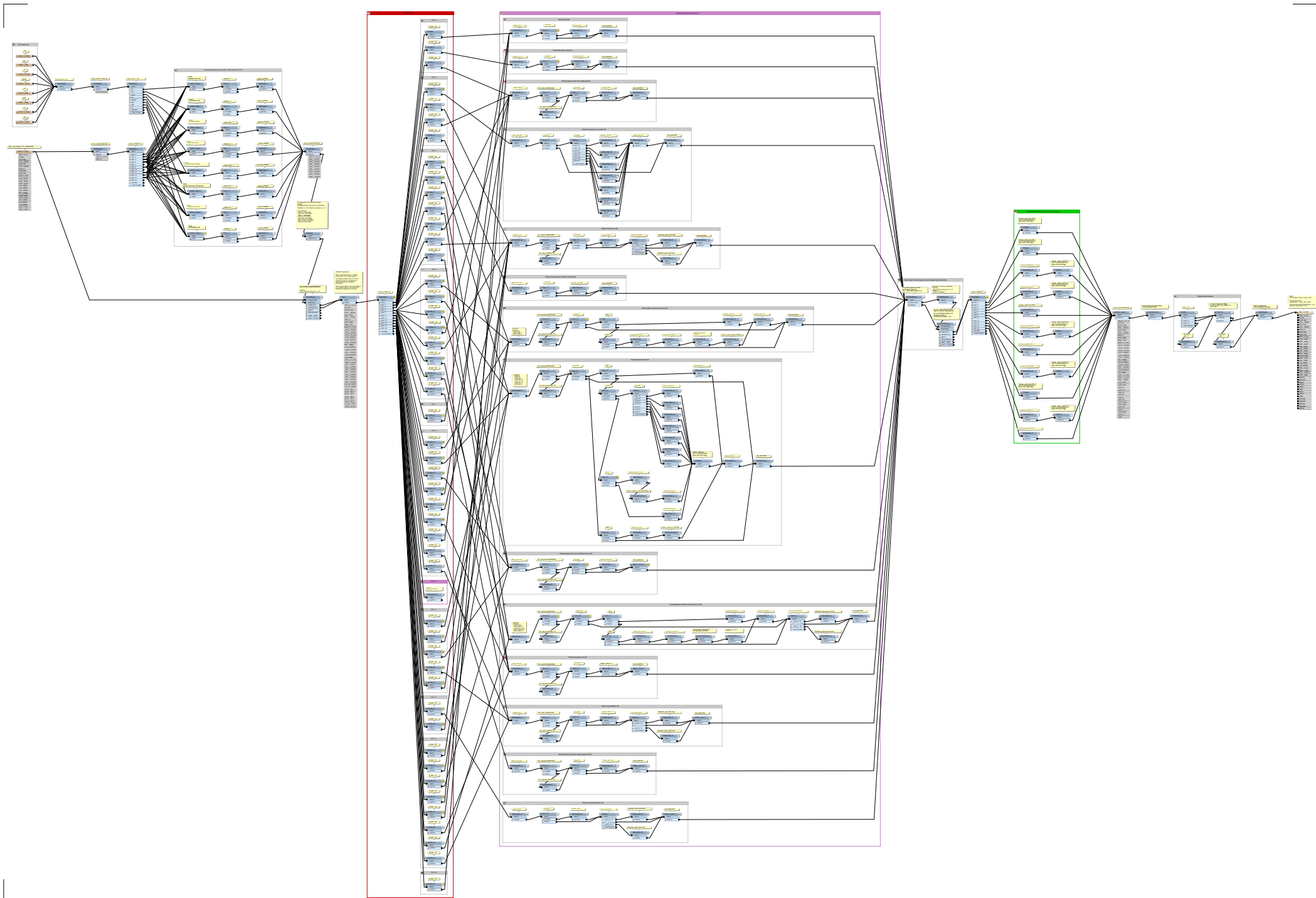


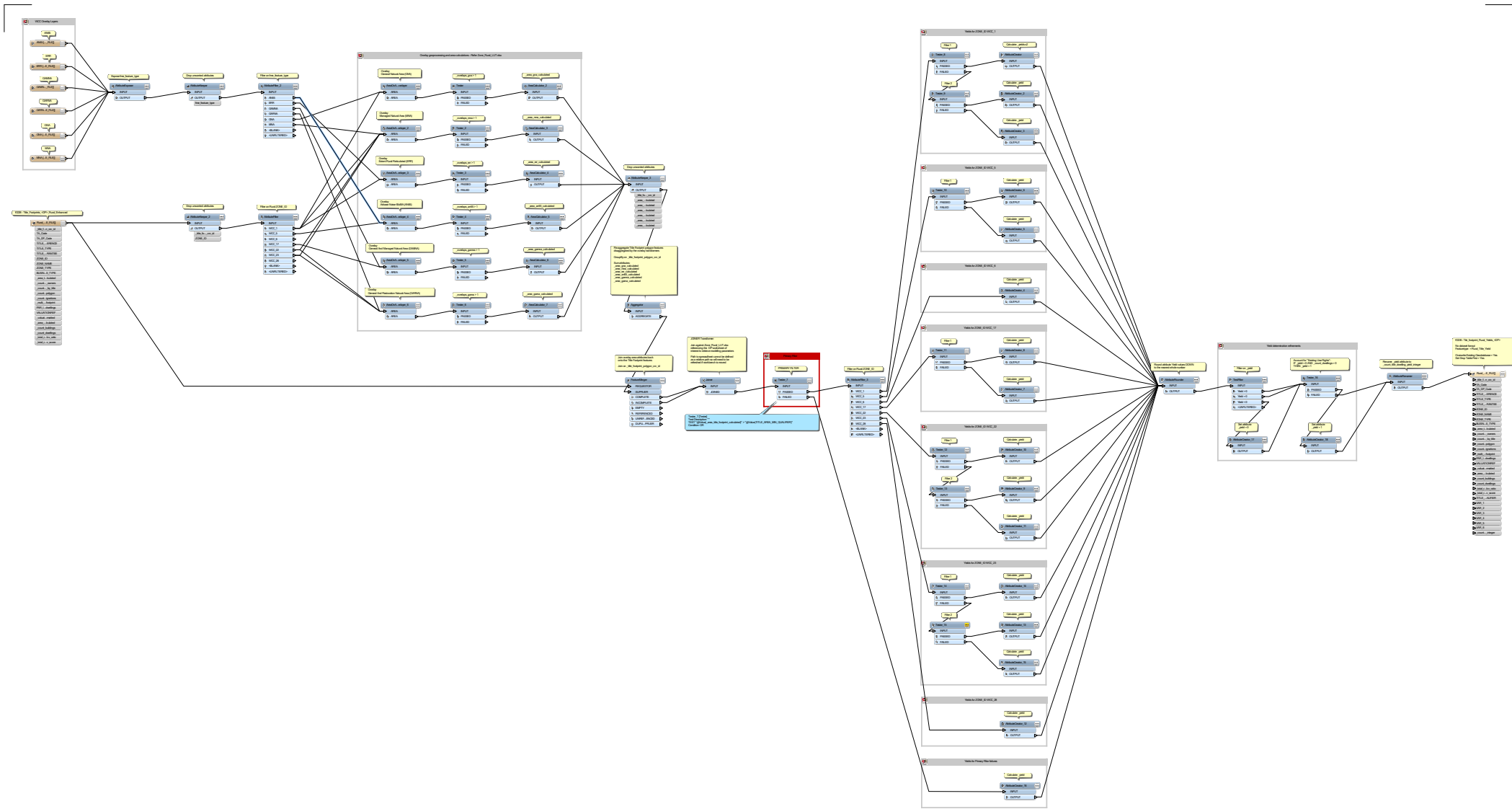


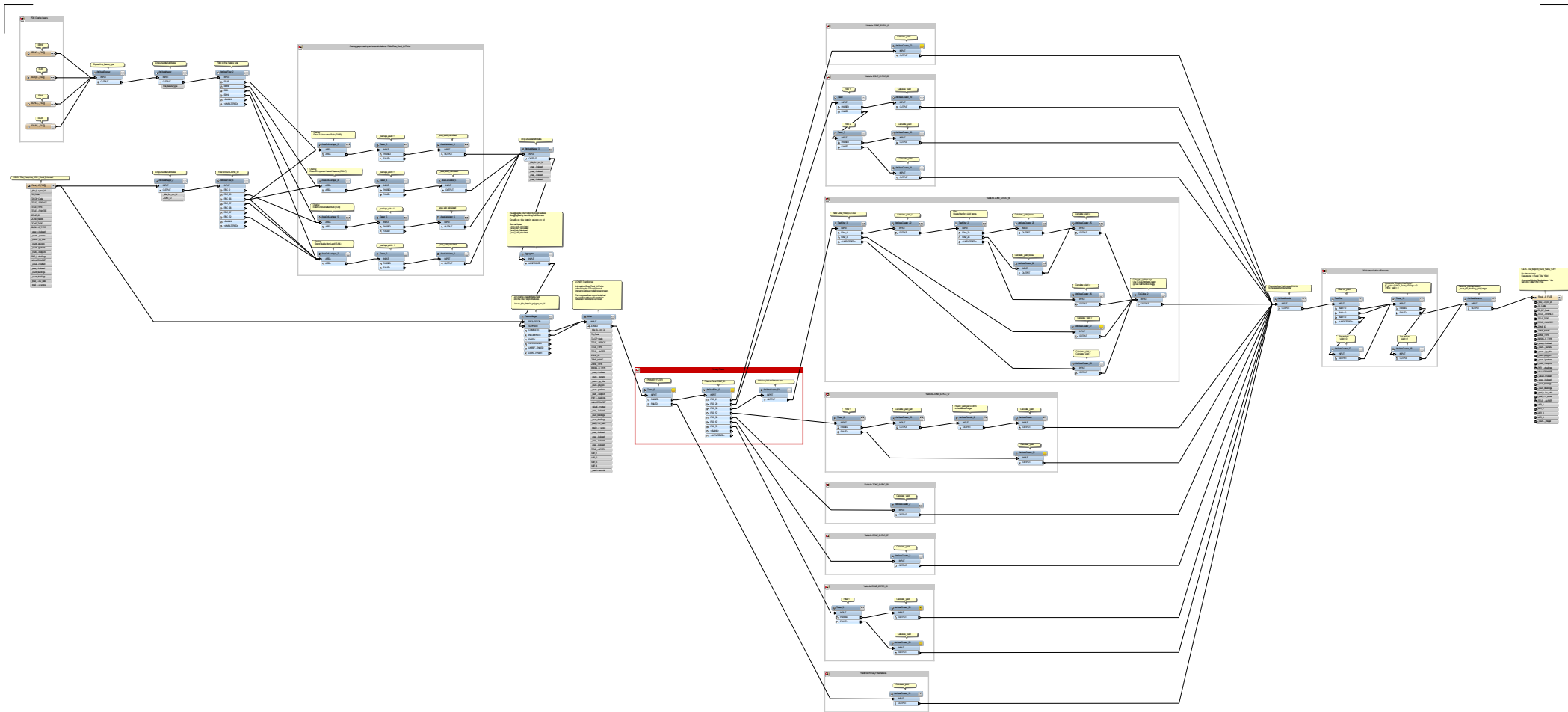


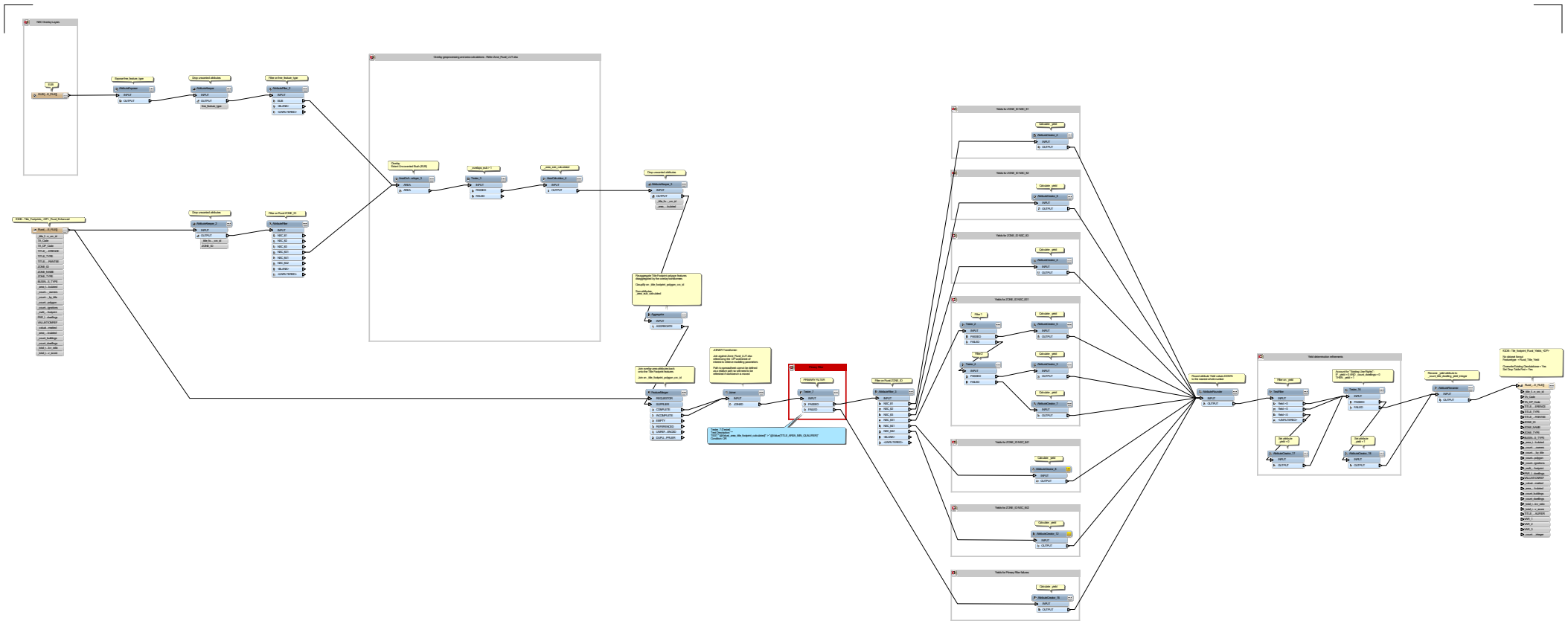


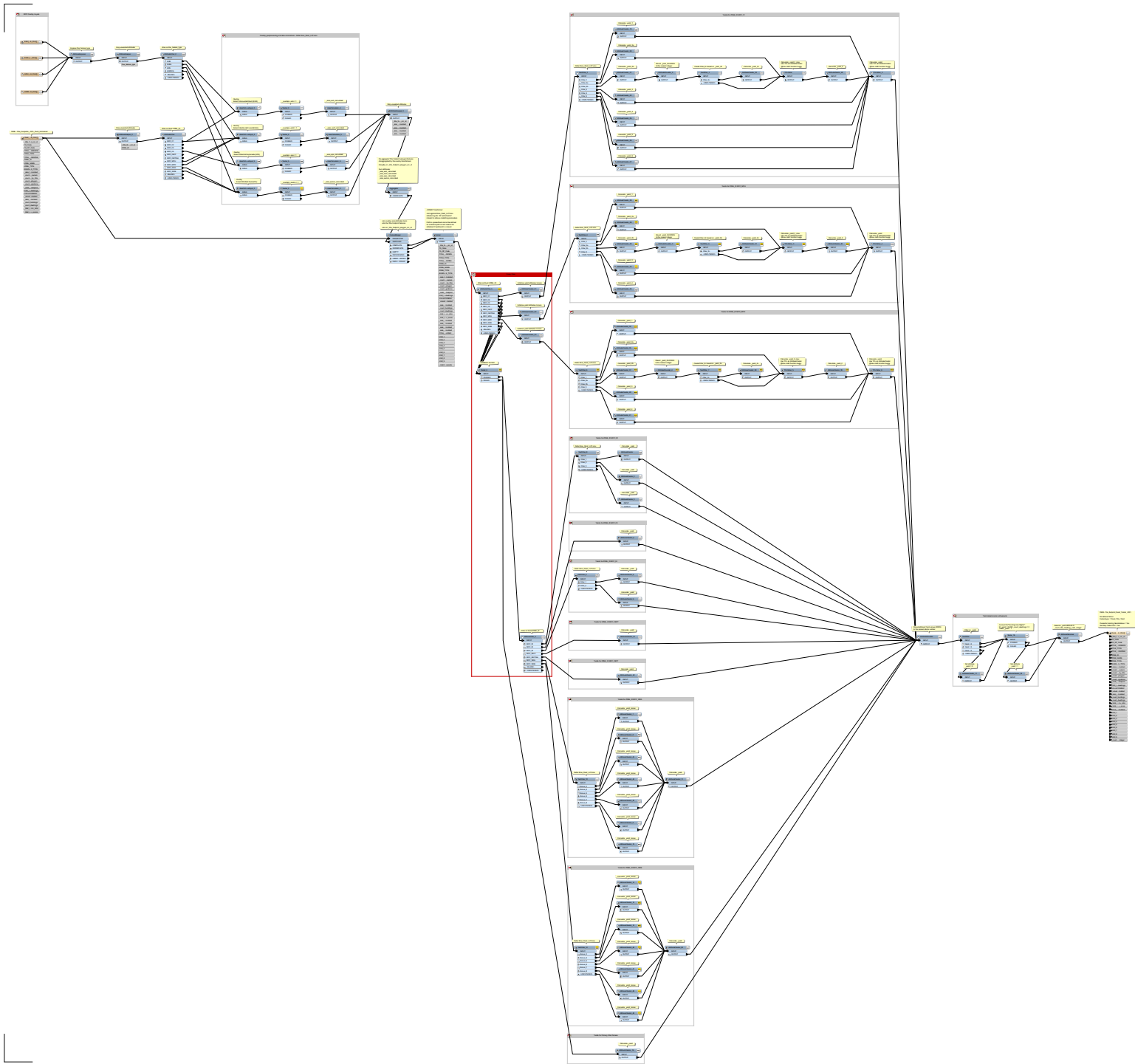


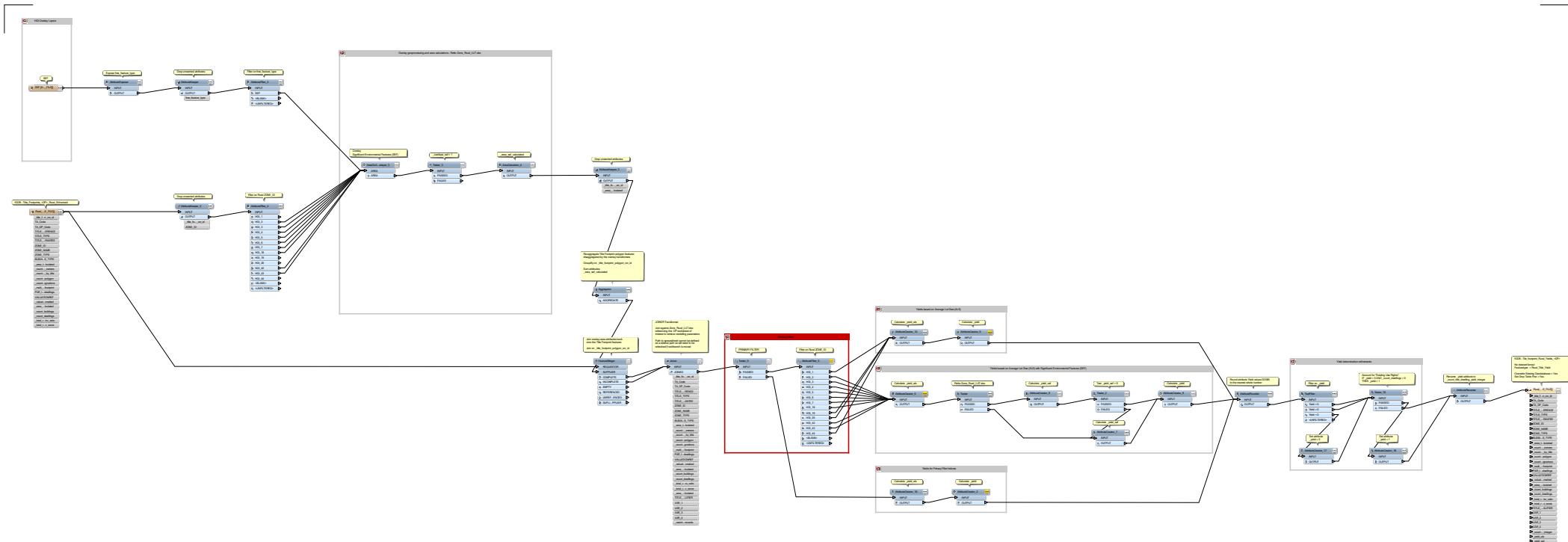


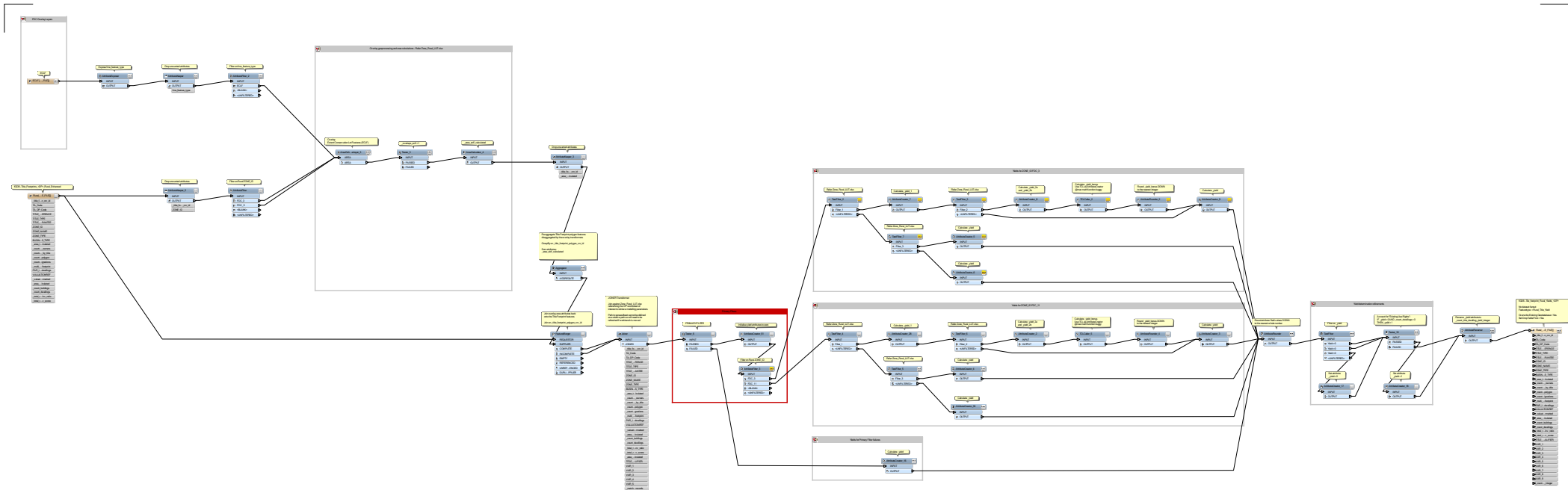












Appendix I: District plan zones and residential zone assumptions

Table 19: Residential zoning list (including assumptions) for residential zones: Auckland City District Plan – Isthmus Section (1999)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential 1	Built (Victorian/Edwardian)	Residential	800	400	400	3	1.2
Residential 4	Flora Dominant	Residential	8000	4000	4000	3	1.2
Residential 5	Low Intensity	Residential	1000	500	500	3	1.2
Residential 2a	Low Density Built/Flora (Garden Suburbs)	Residential	2000	1000	1000	3	1.2
Residential 2b	Higher Density Built/Flora (Garden Suburbs)	Residential	1200	600	600	3	1.2
Residential 2c	Low Density Built/Flora (Garden Suburbs)	Residential	2000	1000	1000	3	1.2
Residential 3a	Built/Landform (Mt Eden)	Residential	800	400	400	3	1.2
Residential 3b	Built/Landform (Others)	Residential	1200	600	600	3	1.2
Residential 6a	Medium Intensity (1 per 375m ²)	Residential	750	375	400	3	0
Residential 6b	Medium Intensity (1 per 300m ²)	Residential	600	300	400	3	0
Residential 7a	High Intensity (3-4 Level)	Residential	400	200	400	3	0
Residential 7b	High Intensity (3-4 Level)	Residential	400	200	400	3	0
Residential 7c	High Intensity (4 level +)	Residential	400	200	400	3	0
Residential 8a	Strategic Growth Management Areas (10 min walk of TC or Transport Node, Max 3 levels)	Residential	300	150	400	3	0
Residential 8b	Strategic Growth Management Areas (5 min walk of TC or Transport Node, Max 4 Levels)	Residential	200	100	400	3	0
Residential 8c	Strategic Growth Management Areas (<2km of CDB, Apartments, 40m ² min floor area per DU, max 5 levels)	Residential	80	40	400	3	0

Table 20: Zoning list for non-residential zones: Auckland City District Plan – Isthmus Section (1999)

Zone name	Zone description	Zone type	Business zone sub-type
Business 1	Local Business Centres	Business	Commercial
Business 2	Suburban Business Centres	Business	Commercial
Business 3	Significant Business Centres	Business	Commercial
Business 4	Medium Intensity Business and Light Industry (high amenity)	Business	Commercial
Business 5	Traditional Light - Medium Industrial (lower amenity. Res Discretionary)	Business	Industrial
Business 5a	Port Activities (Onehunga and Tamaki) No Residential	Business	Industrial
Business 6	Heavy/Noxious Industry (No Residential)	Business	Industrial
Business 7	Mineral Extraction/Quarry (No Residential other than by Special)	Business	Industrial
Business 8	Comprehensively Planned Business Centres (requires Concept Plan)	Business	Commercial
Business MU	Mixed Use (esp. Residential)	Business	Commercial
Open Space 1	Conservation	Other	
Open Space 2	Informal Recreation	Other	
Open Space 3	Organised Recreation	Other	
Open Space 4	Community	Other	
Open Space 5	Leisure Activities	Other	
Special Purpose 1	Health	Special	

Zone name	Zone description	Zone type	Business zone sub-type
Special Purpose 2	Education	Special	
Special Purpose 3	Transport Corridor	Other	
Special Purpose 4	Orakei	Special	
Special Purpose 4a	Orakei Papakainga	Special	
Special Purpose 4b	Whenua Ranatira	Special	
Special Purpose 5	Overlay Zone, Transportation Link	Other	

Table 21: Residential zoning list (including assumptions) for residential zones: Auckland City District Plan – Proposed Hauraki Guild Islands Section (Decision Version) (2009)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Island Residential 1	Traditional Residential	Residential	4000	2000	2000	2.5	1.5
Island Residential 2	Bush Residential	Residential	4000	2000	2000	2.5	1.5
Tryphena Headland Protection	GBI Settlement Area	Residential	14000	7000	7000	2.5	3
Tryphena Residential	GBI Settlement Area	Residential	4000	2000	2000	2.5	3
Medlands Residential	GBI Settlement Area	Residential	4000	2000	2000	2.5	3
Claris Residential	GBI Settlement Area	Residential	3000	1500	1500	2.5	3
Okupu Residential	GBI Settlement Area	Residential	4000	2000	2000	2.5	3
Whangaparapara Residential	GBI Settlement Area	Residential	4000	2000	2000	2.5	3
Awana Residential	GBI Settlement Area	Residential	4000	2000	2000	2.5	3
Okiwi Residential	GBI Settlement Area	Residential	8000	4000	4000	2.5	3
Port Fitzroy Residential	GBI Settlement Area	Residential	14000	7000	7000	2.5	3

Table 22: Zoning list for non-residential zones: Auckland City District Plan – Proposed Hauraki Guild Islands Section (Decision Version) (2009)

Zone name	Zone description	Zone type	Business zone sub-type
Commercial 1	Oneroa Village	Business	Commercial
Commercial 2	Ostend Village	Business	Commercial
Commercial 3	Local Shops	Business	Commercial
Commercial 4	Visitor Facilities	Business	Commercial
Matiatia	Gateway (Mixed Use)	Business	Commercial
Tryphena Retail	GBI Settlement Area	Business	Commercial
Claris Retail	GBI Settlement Area	Business	Commercial
Claris Light Industrial	GBI Settlement Area	Business	Commercial
Okiwi Retail	GBI Settlement Area	Business	Commercial
Port Fitzroy Retail	GBI Settlement Area	Business	Commercial

Zone name	Zone description	Zone type	Business zone sub-type
Commercial 5	Industrial	Business	Industrial
Commercial 6	Quarry	Business	Industrial
Commercial 7	Wharf	Business	Industrial
Landform 1	Coastal Cliffs and Slopes	Rural	
Landform 2	Dune Systems and Sand Flats	Rural	
Landform 3	Alluvial Flats	Rural	
Landform 4	Wetland Systems	Rural	
Landform 5	Productive Land	Rural	
Landform 6	Regenerating Slopes	Rural	
Landform 7	Forest and Bush Areas	Rural	
Rural 1	Landscape Amenity	Rural	
Rural 1 Onetangi Rd	Landscape Amenity (Onetangi Rd)	Rural	
Rural 1 73 Onetangi Rd	Landscape Amenity (73 Onetangi Rd)	Rural	
Rural 2	Western Landscape	Rural	
Rural 2 (Thompsons Point)	Western Landscape (Thompsons Point)	Rural	
Rural 3	Rakino Amenity	Rural	
Open Space 1	Ecology and Landscape	Other	
Open Space 2	Recreation and Community Facilities	Other	
Open Space 3	Rangihoua Park	Other	
Open Space 4	Marae	Other	
Conservation	Conservation	Other	
Pakatoa	Pakatoa Is (Max 50 DUs or Visitor Units @ Discretionary)	Special	
Rotoroa	Rotoroa Is (All Subdivision is Non-Complying)	Special	

Table 23: Zoning list for non-residential zones: Auckland City District Plan – Central Area Section (2005)

Zone name	Zone description	Zone type	Business zone sub-type
Central Area A	BFAR 6:1 and MTFAR 13:1	Business	Commercial
Central Area B	BFAR 6:1 and MTFAR 10:1	Business	Commercial
Central Area C	BFAR 6:1 and MTFAR 8:1	Business	Commercial
Central Area D	BFAR 4:1 and MTFAR 6:1 (rule 6.7.3(ii))	Business	Commercial
Central Area E	BFAR 4:1 and MTFAR 6:1	Business	Commercial
Central Area F	BFAR 3.5:1 and MTFAR 5:1 (clause 14.10.8.1)	Business	Commercial
Central Area G	BFAR 3:1 and MTFAR 4.5:1	Business	Commercial
Central Area H	BFAR 3:1 and MTFAR 4:1 (clause 14.10.8.1)	Business	Commercial
Central Area I	BFAR 3:1 and MTFAR 3:1	Business	Commercial
Central Area J	Building in relation to boundary rule	Business	Commercial

Zone name	Zone description	Zone type	Business zone sub-type
Central Area POS	Public Open Space Precinct	Other	
Britomart Precinct A	BFAR 6:1 and MTFAR 13:2	Business	Commercial
Britomart Precinct B	BFAR 6:1 and MTFAR 11:3	Business	Commercial
Britomart Precinct C	FAR 4:1	Business	Commercial
Britomart Precinct D	FAR 7.5:1	Business	Commercial
Britomart Precinct E	FAR limited to current within existing heritage building	Business	Commercial
Britomart Precinct F	FAR 7:1	Business	Commercial
Britomart Precinct G	FAR 11:1	Business	Commercial
Britomart Precinct H	FAR 8:1	Business	Commercial
Britomart Precinct I	FAR 9:1	Business	Commercial
Viaduct Harbour A	FAR 1:1	Business	Commercial
Viaduct Harbour B	FAR 2:1	Business	Commercial
Viaduct Harbour C	FAR 2.5:1	Business	Commercial
Viaduct Harbour D	FAR 3:2	Business	Commercial
Viaduct Harbour E	FAR 3.5:3	Business	Commercial
Victoria Quarter A	BFAR 3:1 MTFAR 3:1	Business	Commercial
Victoria Quarter B	BFAR 3:1 MTFAR 4:1 (clause 14.10.8.1)	Business	Commercial
Victoria Quarter C	BFAR 3.5:1 MTFAR 5:1 (clause 14.10.8.1)	Business	Commercial
Victoria Quarter D	BFAR 4:1 MTFAR 6:1	Business	Commercial
Victoria Quarter E	BFAR 4:1 MTFAR 6:1 (clause 6.7.3)	Business	Commercial
Victoria Quarter F	Victoria Park Market (Quarter Plan E)	Business	Commercial
Quay Park Precinct 1	Quay Park Precinct 1 (rule 14.13.8.3)	Business	Commercial
Quay Park Precinct 1A	Quay Park Precinct 1A (rule 14.13.8.3a)	Business	Commercial
Wynyard Quarter A	MPFAR 1.5:1	Business	Commercial
Wynyard Quarter B	MPFAR 3:1	Business	Commercial
Wynyard Quarter C	MPFAR 4.6:1	Business	Commercial
Wynyard Quarter D	MPFAR 3.75:1	Business	Commercial
Wynyard Quarter E	MPFAR 3.5:1	Business	Commercial
Wynyard Quarter F	MPFAR 4:1	Business	Commercial
Wynyard Quarter G	MPFAR 4.5:1	Business	Commercial
Wynyard Quarter H	MPFAR 8:1	Business	Commercial
Wynyard Quarter I	MPFAR 5.5:1	Business	Commercial
Wynyard Quarter J	MPFAR 2.5:1	Business	Commercial
Wynyard Quarter K	MPFAR 2:1	Business	Commercial
Wynyard Quarter L	MPFAR 2.7:1	Business	Commercial
Wynyard Quarter M	MPFAR 9.7:1	Business	Commercial
Wynyard Quarter N	MPFAR 6.1:1	Business	Commercial
Wynyard Quarter O	MPFAR 4.1:1	Business	Commercial

Zone name	Zone description	Zone type	Business zone sub-type
Wynyard Quarter P	MPFAR 3.6:1	Business	Commercial
Wynyard Quarter Presumed POS	Public Open Space Precinct	Other	
Learning Quarter	Learning Quarter	Other	
Port Precinct	Port Precinct	Other	

Table 24: Residential zoning list (including assumptions) for residential zones: Franklin District Plan (2000)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential		Residential	1000	425	300	3	1.5
Residential 2		Residential	1000	500	500	3	2.0
Rural-Residential		Residential	6000	3000	3000	3	3.0
Village (Reticulated)		Residential	1600	800	800	3	2.0
Village (Unreticulated)		Residential	5000	2500	2500	3	2.0
Village Growth Area A		Residential	20000	10000	10000	3	1.5
Village Growth Area B		Residential	10000	5000	5000	3	10.0
Village Growth Area C (Reticulated)		Residential	1600	800	800	3	1.5
Village Growth Area C (Unreticulated)		Residential	5000	2500	2500	3	1.5
Village Growth Area D		Residential	5000	2500	2500	3	10.0
Village Growth Area E		Residential	10000	5000	5000	3	1.5

Table 25: Zoning list for non-residential zones: Franklin District Plan (2000)

Zone name	Zone description	Zone type	Business zone sub-type
Business		Business	Commercial
Industrial Services		Business	Commercial
Village Business		Business	Commercial
Aggregate Extraction and Processing		Business	Industrial
Industrial		Business	Industrial
Forest Conservation		Rural	
No Zone		Other	
Rail		Other	
Recreation		Other	
Road		Other	
Rural		Rural	
Special Zone - Iron and Steel Production Zone		Special	

Zone name	Zone description	Zone type	Business zone sub-type
Special Zone - Kingseat Special Zone		Special	
Special Zone - Maioro Mining Zone		Special	
Special Zone - Motorway Service Zone		Special	
Special Zone - Timber Processing Zone		Special	
Wetland Conservation		Rural	

Table 26: Residential zoning list (including assumptions) for residential zones: Manukau District Plan (2002)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Integrated Intensive Housing		Residential	400	400	300	0	0
Main Residential	Standard residential zone	Residential	800	400	300	2.7	1.5
Residential Heritage 1	Built Form (Rosella Rd, Mangere)	Residential	1000	500	500	2.7	3
Residential Heritage 2	Built Form (Teo and Tioro Lanes, Mangere)	Residential	800	400	400	2.7	3
Residential Heritage 3	Built Form (Station Rd, Papatoetoe)	Residential	1400	700	700	2.7	5
Residential Heritage 4	Flora	Residential	1500	750	750	2.7	3
Residential Heritage 6	Traditional Suburban (Mangere Bridge)	Residential	1200	600	600	2.7	2.5
Residential Heritage 7	Traditional Suburban (Eastern Howick)	Residential	1400	700	700	2.7	3
Residential Heritage 8	Traditional Suburban (Hill Rd, Manurewa)	Residential	1500	750	750	2.7	3
Residential Settlement Serviced	Rural Settlements	Residential	1400	700	700	2.7	2
Residential Settlement Unserviced	Rural Settlements	Residential	3000	1500	1500	2.7	2
Main Residential Special Policy Area 1	Adjacent to MUL (formerly outside) – see Policy Maps	Residential	2400	1200	1200	2.7	3
Main Residential Special Policy Area 2	Adjacent to MUL (formerly outside) – see Policy Maps	Residential	1500	750	750	2.7	3

Table 27: Zoning list for non-residential zones: Manukau District Plan (2002)

Zone name	Zone description	Zone type	Business zone sub-type
Business 1	Local Shops	Business	Commercial
Business 2	Suburban Centres	Business	Commercial
Business 3	City Centre	Business	Commercial
Business 4	Centre Periphery	Business	Commercial
Business 5	Mixed	Business	Commercial
Business 6	Industry	Business	Industrial
Business 6 (Ihumato)	Industry	Business	Industrial
Business 6 (Kirkbride)	Industry	Business	Industrial
Business 6 (Oruarangi)	Industry	Business	Industrial

Zone name	Zone description	Zone type	Business zone sub-type
Boat Harbour		Other	
Community Health Facility Zone		Other	
Community Health Support Zone		Other	
Coastal Marine Area		Other	
Designation Airport		Other	
Designation Business 1		Other	
Designation Business 2		Other	
Designation Business 3		Other	
Designation Business 4		Other	
Designation Business 5		Other	
Designation Business 6		Other	
Designation Boat Harbour		Other	
Designation Rural 1		Other	
Designation Rural 3		Other	
Designation Rural 4		Other	
Designation Flat Bush Countryside Transition		Other	
Designation Flat Bush Residential 1		Other	
Designation Flat Bush Residential 2		Other	
Designation Flat Bush Town Centre		Other	
Designation Flood Protection		Other	
Designation Hospital Zone		Other	
Designation Puhinui Rural Zone		Other	
Designation Main Residential		Other	
Designation Motorway Business 5		Other	
Designation Motorway Business 5		Other	
Designation Motorway Main Residential		Other	
Designation Puhinui Special Culture And Natural Heritage Zone		Other	
Designation Public Open Space 1		Other	
Designation Public Open Space 2		Other	
Designation Public Open Space 3		Other	
Designation Public Open Space 4		Other	
Designation Public Open Space 5		Other	
Designation Public Open Space 6		Other	
Designation Public Open Space 6 Overlay Area		Other	
Designation Primary Road Zone		Other	
Designation Quarry Zone		Other	
Designation Rail Zone		Other	
Designation Residential Heritage 7		Other	

Zone name	Zone description	Zone type	Business zone sub-type
Designation Residential Heritage 8		Other	
Designation Secondary Road		Other	
Designation Residential Settlement Serviced		Other	
Designation Residential Settlement Unserviced		Other	
Designation Future Development Stage 1		Other	
Designation Stormwater Management Area Pond		Other	
Designation Surface Of River		Other	
Designation Whitford Rural A		Other	
Manukau Polytechnic		Other	
Explosive		Other	
Flood Management Business 5		Other	
Flood Management Business 6		Other	
Flood Management Community Health Support Zone		Other	
Flood Management Puhinui Rural Zone		Other	
Flood Management Main Residential		Other	
Flood Management Public Open Space 1		Other	
Flood Management Public Open Space 2		Other	
Flood Management Public Open Space 3		Other	
Flood Management Public Open Space 5		Other	
Flood Management Public Open Space 6		Other	
Flood Management Quarry Zone		Other	
Flood Management Residential Heritage 7		Other	
Flood Management Residential Settlement Unserviced		Other	
Flood Management Future Development Stage 1		Other	
Hospital Zone		Other	
Mooring Management Area		Other	
Non MCC		Other	
Not Zoned		Other	
Public Open Space 1		Other	
Public Open Space 2		Other	
Public Open Space 3		Other	
Public Open Space 4		Other	
Public Open Space 5		Other	
Public Open Space 6		Other	
Public Open Space 6 Overlay Area		Other	
Primary Road Zone		Other	
Quarry Zone		Other	
Rail Zone		Other	

Zone name	Zone description	Zone type	Business zone sub-type
Secondary Road		Other	
Stream		Other	
Stormwater Management Area Pond		Other	
Surface Of Rivers		Other	
Rural 1	General Rural	Rural	
Rural 2	Countryside Living Concentration	Rural	
Rural 3	Countryside Living transition	Rural	
Rural 4	Mangemangeroa Catchment (Landscape)	Rural	
Flat Bush Countryside Transition		Rural	
Flat Bush Countryside Transition - Gracechurch Heights		Rural	
Puhinui Special Culture And Natural Heritage Zone		Rural	
Puhinui Rural Zone		Rural	
Whitford Rural A		Rural	
Whitford Rural B		Rural	
Animal Village Zone	SPCA Animal Village, Mangere	Special	
Flat Bush Neighbourhood Centre		Special	
Flat Bush Residential 1		Special	
Flat Bush Residential 2		Special	
Flat Bush Town Centre		Special	
Maori Purpose Zone	Cultural Institutions and Activities	Special	
Papakaianga Zone	Papakaianga - Ancestral Land	Special	
Future Development Stage 1		Special	
Special Rural 1		Special	

Table 28: Residential zoning list (including assumptions) for residential zones: North Shore City District Plan (2002)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential 1	Semi Rural communities	Residential	2400	1200	1200	3	3
Residential 2A	Natural Heritage Protection	Residential	1600	800	800	3	3
Residential 2A1	Good Quality Bush	Residential	10000	5000	5000	3	3
Residential 2B	Larger sites with trees or Coast	Residential	1200	600	600	3	3
Residential 2C	Eadys Bush	Residential	700	350	350	3	3
Residential 3A	Built Heritage	Residential	900	450	450	3	2.1
Residential 3B	Built Heritage	Residential	1000	500	500	3	2.1
Residential 3C	Built Heritage	Residential	1200	600	600	3	2.1
Residential 4A	Main Residential Area	Residential	900	450	450	3	2.1
Residential 4B	Main Residential Area	Residential	900	450	450	3	2.1
Residential 5	New Development	Residential	700	350	350	3	1.2
Residential 6A	Intensive Housing	Residential	700	350	350	3	2.1
Residential 6A1	Intensive Housing	Residential	700	350	350	3	2.1
Residential 6B1	Intensive Housing	Residential	800	400	400	3	2.1
Residential 6C	Intensive Housing	Residential	500	250	250	3	2.1
Residential 6C1	Intensive Housing	Residential	500	250	250	3	2.1

Table 29: Zoning list for non-residential zones: North Shore City District Plan (2002)

Zone name	Zone description	Zone type	Business zone sub-type
Business 1	Local Shops	Business	Commercial
Business 1G	Service Station (Single Site)	Business	Commercial
Business 2	Suburban Centres	Business	Commercial
Business 3	Takapuna Centre	Business	Commercial
Business 4	Albany Centre (Mixed Intensive)	Business	Commercial
Business 5	Albany Centre (Large Format Retail)	Business	Commercial
Business 6	Albany Centre (Commercial)	Business	Commercial
Business 7A	Albany Centre (Commercial)	Business	Commercial
Business 7B	Albany Centre (Commercial)	Business	Commercial
Business 7C	Albany Centre (Business Park)	Business	Commercial
Business 7D	Albany Centre (Business Park)	Business	Commercial
Business 7E	Albany Centre (Business Park)	Business	Commercial
Business 7G	Albany Centre (Business Park)	Business	Commercial
Business 8	Wairau Valley Retail	Business	Commercial
Business 11A	Albany Business (Main Street)	Business	Commercial

Zone name	Zone description	Zone type	Business zone sub-type
Business 11B	Albany Business (Office, Limited retail)	Business	Commercial
Business 11C	Albany Business (High Density Residential w Convenience Retail)	Business	Commercial
Business 11D	Albany Business (LFR no Residential)	Business	Commercial
Business 12(A)	Mixed Use Business	Business	Commercial
Business 12(B)	Mixed Use Business	Business	Commercial
Business 12(C)	Mixed Use Business	Business	Commercial
Residential 7	Office Residential	Business	Commercial
Business 9	General Business	Business	Industrial
Business 9B	Enterprise St, Birkenhead (Bush Protection)	Business	Industrial
Business 9D	Wynyard St, Devonport (Special Character)	Business	Industrial
Business 10	General Business	Business	Industrial
Road	Road	Other	
Other TLA	Other TA	Other	
Recreation 1	Reserve	Other	
Recreation 2	Reserve	Other	
Recreation 3	Reserve	Other	
Recreation 4	Reserve	Other	
SP-Health		Special	
SP-Centrepoint Community Growth Trust		Special	
SP-Albany Centre Amenity Area		Special	
SP-North Shore Domain & Stadium		Special	
SP-Chelsea Sugar Refinery Disposal Area		Special	
Special Purpose 13 Chelsea Sugar Refinery (water)		Special	
SP Naval Base Health	Defence	Special	
SP Naval Base Philomel	Defence	Special	
SP Naval Base Dockyard	Defence	Special	
SP-Education		Special	
SP-Wastewater Treatment Plant		Special	
SP-Cemetery & Crematorium		Special	
SP-Transitional Quarry		Special	
SP-Boat Building		Special	
SP-Marinas		Special	
SP-Awataha Marae		Special	
SP-Community Use		Special	
Sea outside NSCC		Other	
Residential 2A (Chelsea Special)	Good Quality Bush	Special	
Residential Expansion Zone		Special	
Area A: Environmental Protection (Albany	Albany SP	Special	

Zone name	Zone description	Zone type	Business zone sub-type
Area A: Mixed Environmental (Greenhithe)	Greenhithe SP	Special	
Area B: Large Lot Residential (Albany)	Albany SP	Special	
Area B: Large Lot Residential (Greenhithe)	Greenhithe SP	Special	
Area C: Standard Residential	Albany and Greenhithe	Special	
Area C1	Albany SP	Special	
Area D: Varied Residential	Albany and Greenhithe	Special	
Mixed Use Overlay Area (Albany & Greenhithe)	Albany and Greenhithe	Special	
Long Bay 1A (large lot residential 2500m2)	Long Bay SP Area	Special	
Long Bay 1B (large lot residential 5000m2)	Long Bay SP Area	Special	
Structure Plan Area (Long Bay 1C)	Long Bay SP Area	Special	
Long Bay 2 (suburban neighbourhood)	Long Bay SP Area	Special	
Long Bay 3A (urban neighbourhood)	Long Bay SP Area	Special	
Long Bay 3B (urban neighbourhood)	Long Bay SP Area	Special	
Long Bay 4 (urban village)	Long Bay SP Area	Special	
Long Bay 5A (village centre)	Long Bay SP Area	Special	
Long Bay 5B (village centre)	Long Bay SP Area	Special	
Long Bay 6 (stormwater management)	Long Bay SP Area	Special	
Long Bay 7 (heritage protection)	Long Bay SP Area	Special	
Chelsea Wharf		Special	
Rural 1		Rural	
Rural 2		Rural	
Rural 3		Rural	
Rural 3A		Rural	
Rural 4(i)	West Okura	Rural	
Rural 4(ii)	East Okura	Rural	

Table 30: Residential zoning list (including assumptions) for residential zones: Papakura District Plan (1999)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential 1	Standard Residential	Residential	800	400	400	3	1.2
Residential 2	Intensive Residential	Residential	700	350	350	3	1.5
Residential 3	Keri Hill Geotech Zone	Residential	700	350	350	3	1.5
Residential 3 / Residential 1	Keri Hill Geotech Zone	Residential	700	350	350	3	1.5
Residential 3 / Residential 3 Ridgeline	Keri Hill Geotech Zone	Residential	700	350	350	3	1.5
Residential 3 / Rural Residential	Keri Hill Geotech Zone	Residential	700	350	350	3	1.5
Residential 3 Ridgeline	Keri Hill Geotech Zone	Residential	700	350	350	3	6

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential 4	Natural Amenity Values Protection	Residential	800	400	400	3	3
Residential 6	Low Density Residential (Urban/Rural Transition)	Residential	8000	4000	4000	3	1.5

Table 31: Zoning list for non-residential zones: Papakura District Plan (1999)

Zone name	Zone description	Zone type	Business zone sub-type
Commercial 1	Small Neighbourhood Centres (Res Discretionary)	Business	Commercial
Commercial 2	Papakura CBD Periphery and Takanini (res Non-Complying in Takanini)	Business	Commercial
Commercial 3	Papakura CBD (Res Permitted)	Business	Commercial
Commercial 4	Site Specific Non-Retail Commercial (Res Discretionary)	Business	Commercial
Industrial 1	Light Industrial	Business	Industrial
Industrial 2	Light Industrial/Centre Fringe (Res Enabled)	Business	Industrial
Industrial 3	Medium Industrial (No Res)	Business	Industrial
Industrial 4	Heavy Industrial (No Res)	Business	Industrial
Industrial 4 / Industrial 3	Medium Industrial (no Res)	Business	Industrial
Community Services		Other	
Esplanade Reserve		Other	
Esplanade Reserve		Other	
Hingaia Education Zone		Other	
Industrial 1 / Reserve		Other	
Motorway		Other	
Not Allocated		Other	
Not Allocated / Residential 1		Other	
Not Allocated / Residential 3 / Residential 1		Other	
Quarry		Other	
Rail Area		Other	
Rail Area / Reserve		Other	
Railarea		Other	
Reserve		Other	
Reserve / Industrial 3		Other	
Residential 1 / Not Allocated		Other	
Residential 1 / Not Allocated		Other	
Residential 1 / Reserve		Other	
Residential 3 / Not Allocated		Other	
Residential 3 / Not Allocated		Other	
Residential 3 / Not Allocated / Residential 3		Other	
Residential 3 / Residential 1 / Not Allocated		Other	

Zone name	Zone description	Zone type	Business zone sub-type
Rural Papakura / Motorway		Other	
Rural Papakura / Not Allocated		Other	
Rural Papakura / Residential 9		Other	
Rural Papakura / Water Body		Other	
Rural Papakura / Water Body / Reserve		Other	
Special Purpose 1		Other	
Special Purpose 2		Other	
Special Purpose and Recreation Zone		Other	
Water		Other	
Water Body		Other	
Ardmore Protection Area	Policy Overlay on Ardmore Approaches re height controls and noise related issues	Rural	
Nature Conservation Area	One lot if 2-15Ha of bush protected, additional lot if bush is >15Ha	Rural	
Nature Conservation Area / Rural Papakura (Hill Subdivision Area)	One lot if 2-15Ha of bush protected, additional lot if bush is >15Ha	Rural	
Nature Conservation Area / Rural Residential	One lot if 2-15Ha of bush protected, additional lot if bush is >15Ha	Rural	
Rural Papakura	14Ha to get 1 additional Lot, and then 1 lot for every 2Ha	Rural	
Rural Papakura (Drury Subdivision Area)	16Ha to get 1 additional Lot, and then 1 lot per 3Ha	Rural	
Rural Papakura (Hill Subdivision Area)	16Ha to get 1 additional Lot, and then 1 lot per 3Ha	Rural	
Rural Papakura (Hill Subdivision Area) / Rural Papakura	16Ha to get 1 additional Lot, and then 1 lot per 3Ha	Rural	
Rural Papakura / Ardmore Protection Area	16Ha to get 1 additional Lot, and then 1 lot per 3Ha	Rural	
Rural Papakura / Nature Conservation Area	16Ha to get 1 additional Lot, and then 1 lot per 3Ha	Rural	
Rural Residential	1Ha Average	Rural	
Rural Residential / Residential 3 Ridgeline / Residential 3		Rural	
Rural Residential / Nature Conservation Area		Rural	
Rural Residential / Residential 3 Ridgeline / Residential 3		Rural	
Rural Residential Ridgeline		Rural	
Rural Takanini - Drury	4Ha to get 1 lot only	Rural	
Rural Takanini - Drury / Residential 1	4Ha to get 1 lot only	Rural	
Ardmore	Ardmore Airport Zone	Special	
Karaka Centre	Karaka Bloodstock Centre	Special	
Mixed Use 1	Applies in Hingaia SP Area 1A	Special	
Residential 5	Large Lot Development (Structure Plan Required)	Special	
Residential 5 / Reserve	Large Lot Development (Structure Plan Required)	Special	
Residential 7	Ex-Papakura Army Camp (Structure Plan Required)	Special	
Residential 8	Takanini SP Areas	Special	
Residential 8A	Takanini SP Areas	Special	
Residential 8B	Takanini SP Areas	Special	
Residential 9	Hingaia SP Areas	Special	

Zone name	Zone description	Zone type	Business zone sub-type
Residential 9 / Rural Papakura	Hingaia SP Areas	Special	

Table 32: Residential zoning list (including assumptions) for residential zones: Rodney District Plan (2011)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Residential Eastern Peninsula		Residential	1200	600	600	2.7	2.1
Residential High Intensity		Residential	550	275	275	2.7	2.1
Residential Landscape Protection		Residential	16000	8000	8000	2.7	2.1
Residential Low Intensity		Residential	16000	8000	8000	2.7	2.1
Residential Medium Intensity		Residential	1200	600	600	2.7	2.1
Residential Medium Intensity (Township Policy Area)		Residential	1600	800	800	2.7	2.1
Residential Physical Limitations		Residential	8000	4000	4000	2.7	2.1
Residential Medium Intensity (Unsewered)		Residential	3000	1500	1500	2.7	2.1
Orewa Beach Front Residential		Residential	1200	600	600	2.7	2.1
Residential Eastern Peninsular (Unsewered)		Residential	3000	1500	1500	2.7	2.1

Table 33: Zoning list for non-residential zones: Rodney District Plan (2011)

Zone name	Zone description	Zone type	Business zone sub-type
Future Business		Business	Commercial
Mixed Business		Business	Commercial
Retail Service		Business	Commercial
Industrial		Business	Industrial
Accessways		Other	
Countryside Living Rural		Rural	
Countryside Living Town		Rural	
Dune Lakes		Rural	
East Coast Rural		Rural	
Future Urban		Rural	
General Rural		Rural	
Inland Water General		Other	
Inland Water Protection		Other	
Islands General		Rural	
Kawau Bush Policy Area		Rural	
Kawau Settlement Policy Area		Rural	

Zone name	Zone description	Zone type	Business zone sub-type
Landscape Protection Rural		Rural	
None		Other	
Open Space 1		Other	
Open Space 2		Other	
Open Space 3		Other	
Open Space 4		Other	
Open Space 5		Other	
Road		Other	
Sea		Other	
Special 1	Orewa Craft Village	Special	
Special 10	Goldsworth Bay Marine Recreation	Special	
Special 11	Hall Farm	Special	
Special 12	Boat Building	Special	
Special 13	Leigh Marine Lab	Special	
Special 14	Puhi Historic Village	Special	
Special 15	Kaipara Flats Airfield	Special	
Special 16	Omaha South Development	Special	
Special 17	North Shore Aero Park	Special	
Special 18	Gulf Harbour	Special	
Special 19	Silverdale North	Special	
Special 2	Bus Depot	Special	
Special 20	Mahurangi East Seaside Village Centre Zone	Special	
Special 21	Silverdale North Large Format Retailing Zone	Special	
Special 22	Point Wells Omaha Flats Zone	Special	
Special 27	Rodney District Thermal Energy Generation Rural Zone	Special	
Special 28	Kelly Park Film Village	Special	
Special 3	Gulf Harbour Marina Services	Special	
Special 30	Riverhead South Zone	Special	
Special 4	North Shore Airfield	Special	
Special 5	Particle Board	Special	
Special 6	Warkworth Marina, Recreational and Marine Industrial	Special	
Special 7	Former Warkworth Saleyards Sites	Special	
Special 8	Weiti Forest Park	Special	
Special 9	Waiwera Tourist and Entertainment	Special	
Okura Policy Area		Rural	

Table 34: Residential zoning list (including assumptions) for residential zones: Waitakere District Plan (2003)

Zone name	Zone description	Zone type	Parcel area minimum qualifier	Parcel area minimum infill	Parcel area minimum vacant potential	Access width minimum	Building setback minimum
Coastal Village	Subdivision Rules Section , Rule #9	Residential	8000	4000	4000	3	3
Living	Subdivision Rules Section , Living Environment Rule #2	Residential	700	350	350	3	1.2
Living 1	Subdivision Rules Section , Living Environment Rule #2	Residential	800	400	400	3	1.2
Living 2	Subdivision Rules Section , Living Environment Rule #2	Residential	900	450	450	3	1.2
Living 3	Subdivision Rules Section , Living Environment Rule #2	Residential	1600	800	800	3	1.2
Living 4		Residential	2500	1250	1250	3	1.2
Living 5		Residential	1500	200	200	3	0
Living 6		Residential	1500	100	100	3	0
Rural Village Unsewered	Unsewered	Residential	8000	4000	4000	3	1.2
Rural Village Sewered	Sewered	Residential	1600	800	800	3	1.2

Table 35: Zoning list for non-residential zones: Waitakere City District Plan (2003)

Zone name	Zone description	Zone type	Business zone sub-type
Community		Business	Commercial
Community Periphery		Business	Commercial
Working		Business	Industrial
Working (Lincoln)		Business	Industrial
Bush Living		Rural	
Countryside		Rural	
Foothills		Rural	
Open Space		Other	
Special Area		Special	
Waitakere Ranges		Rural	
TLSA 1	Titirangi/Laingholm Subdivision Area 1, Sub Rules 10A, Maps Appendix XI	Rural	
TLSA 2	Titirangi/Laingholm Subdivision Area 2, Sub Rules 10B, Maps Appendix XI	Rural	
Oratia Structure Plan	Operative	Special	
Swanson Structure Plan	Nearly Operative	Special	
Birdwood Structure Plan	Operative	Special	
Penihana North		Special	
Penihana South		Rural	
Unknown		Other	

Appendix J: List of rural towns

Table 36: List of rural towns

Rural town name	Local board	District plan area
Awana	Great Barrier	Auckland City
Awhitu	Franklin	Franklin District
Beachlands-Pine Harbour	Franklin	Manukau City
Big Bay	Franklin	Franklin District
Bombay	Franklin	Franklin District
Bradleys Beach	Rodney	Rodney District
Buckland	Franklin	Franklin District
Buckleton Beach	Rodney	Rodney District
Campbells Beach	Rodney	Rodney District
Claris	Great Barrier	Auckland City
Clarks Beach	Franklin	Franklin District
Clevedon	Franklin	Manukau City
Coatsville	Rodney	Rodney District
Cornwallis	Waitakere Ranges	Waitakere City
Glenbrook Beach	Franklin	Franklin District
Grahams Beach	Franklin	Franklin District
Helensville	Rodney	Rodney District
Herald Island	Upper Harbour	Waitakere City
Huia	Waitakere Ranges	Waitakere City
Hunua	Franklin	Franklin District
Kaipara Flats	Rodney	Rodney District
Karaka South	Franklin	Franklin District
Karekare	Waitakere Ranges	Waitakere City
Kaukapakapa	Rodney	Rodney District
Kawakawa Bay	Franklin	Manukau City
Kingseat	Franklin	Franklin District
Kumeu-Huapai	Rodney	Rodney District
Leigh	Rodney	Rodney District
Little Huia	Waitakere Ranges	Waitakere City
Mahurangi West (Pukapuka)	Rodney	Rodney District
Maraetai	Franklin	Manukau City
Matakana	Rodney	Rodney District
Matakawau	Franklin	Franklin District
Matakawau Point	Franklin	Franklin District
Medlands	Great Barrier	Auckland City
Muriwai	Rodney	Rodney District
Okiwi	Great Barrier	Auckland City
Okupu	Great Barrier	Auckland City

Rural town name	Local board	District plan area
Omaha	Rodney	Rodney District
Orapiu	Waiheke	Auckland City
Orere Point	Franklin	Manukau City
Orua Bay	Franklin	Franklin District
Paerata	Franklin	Franklin District
Pakiri	Rodney	Rodney District
Paparimu	Franklin	Franklin District
Parakai	Rodney	Rodney District
Parau	Waitakere Ranges	Waitakere City
Paremoremo	Upper Harbour	North Shore City
Patumahoe	Franklin	Franklin District
Piha	Waitakere Ranges	Waitakere City
Point Wells	Rodney	Rodney District
Pollock	Franklin	Franklin District
Port Albert	Rodney	Rodney District
Port Fitzroy	Great Barrier	Auckland City
Puhoi	Rodney	Rodney District
Pukekohe	Franklin	Franklin District
Rainbows End	Rodney	Rodney District
Riverhead	Rodney	Rodney District
Sandspit	Rodney	Rodney District
Scotts Landing	Rodney	Rodney District
Shelly Beach	Rodney	Rodney District
Snells Beach-Algies Bay	Rodney	Rodney District
Stillwater	Hibiscus and Bays	Rodney District
Taparoa	Rodney	Rodney District
Te Hana	Rodney	Rodney District
Te Hihi	Franklin	Franklin District
Te Toro	Franklin	Franklin District
Ti Point	Rodney	Rodney District
Tryphena	Great Barrier	Auckland City
Waiau Beach	Franklin	Franklin District
Waiau Pa	Franklin	Franklin District
Waimauku	Rodney	Rodney District
Waitakere Village	Waitakere Ranges	Waitakere City
Waitoki	Rodney	Rodney District
Waiuku	Franklin	Franklin District
Waiwera	Hibiscus and Bays	Rodney District
Warkworth	Rodney	Rodney District

Rural town name	Local board	District plan area
Wattle Bay	Franklin	Franklin District
Wellsford	Rodney	Rodney District
Whagnaparapara	Great Barrier	Auckland City
Whangateau	Rodney	Rodney District
Whenuapai Coastal	Upper Harbour	Waitakere City
Whenuapai Village	Upper Harbour	Waitakere City
Whitford	Franklin	Manukau City

Appendix K: Structure plan areas with type, location and expected future development yields and list of special areas and their locations

Notes on the information contained in Table 37:

- Due to the nature of structure plans and special areas and their contribution to longer-term supply of capacity, figures published in this table are likely to change. It must be remembered that dwelling and business land yields for each structure plan is not fixed and may change over time depending in the nature of the plan(s) and where the plan(s) are in the council planning pipeline.
- Data in the 'assumed start date', 'expected dwelling yield' and the 'expected business land yield' fields has been sourced from either relevant published structure plan or growth concept documentation, or where more up to date information is available, this has been provided from Auckland Council's Operative Plan teams.
- The data in this table has been updated in February 2013
- Current dwelling count data sourced from information supplied from PropertyIQ Ltd., based on valuation assessments undertaken in 2011. 'Current dwelling counts' are generated from parcels that fell within the bounds of the structure plan or special area at the time of the study.
- Current business zoned land is sourced from Auckland Council's district plan information and has been generated as part of this study (refer section 6.2 of this report) from parcels that fell within the bounds of the structure plan or special area at the time of the study.
- It should be noted that while structure plans are reasonably explicit on the number of future dwellings that they will contain, many do not have any published information on the amount of land that will be available for business use.
- The 'calculated remaining dwellings' and 'calculated remaining business land' fields have been calculated by subtracting the number of existing dwellings (2011) from a structure plan areas expected yield.

Table 37: Structure plan areas, with type, location and expected future development yields

Structure plan name	Location type	Local board	Assumed start date	Current dwelling count (2011)	Expected dwelling yield from structure plan	Calculated remaining dwellings from structure plan	Current zoned business land (ha)	Expected business land yield from structure plan	Calculated remaining business land from structure plan	Notes
Albany Structure Plan (North-East)	Urban	Upper Harbour	Commenced	614	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable
Albany Structure Plan (South-East)	Urban	Upper Harbour	Commenced	919	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable
Albany Structure Plan (West)	Urban	Upper Harbour	Commenced	202	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable
Beachlands Village - New Avenues	Rural Town	Franklin	2016	4	1466	1462	0	0	0	
Pine Harbour	Rural Town	Franklin	2014	21	500	479	0	0	0	
Birdwood Structure Plan	Rural	Waitakere Ranges	2012	60	121	61	0	0	0	
Clevedon Village	Rural Town	Franklin	2020	8	600	592	0	0	0	
Flat Bush (Stage 1)	Urban	Howick	2012	3207	6461	3254	2	25	27	
Flat Bush (Stage 2)	Urban	Howick	2014	36	3037	3001	0	4	4	
Flat Bush (Stage 3)	Urban	Howick	2018	22	2726	2704	0	1	1	
Greenhithe Structure Plan	Urban	Upper Harbour	Commenced	1864	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable
Gulf Harbour (Special 18)	Urban	Hibiscus and Bays	Commenced	859	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable
Hall Farm (Special 11)	Rural	Rodney	0	0	200	200	0	0	0	
Hatfields Beach	Urban	Hibiscus and Bays	2012	0	60	60	0	0	0	
Helensville	Rural Town	Rodney	2022	24	1000	976	0	14	14	
Hibiscus Gateway	Urban	Hibiscus and Bays	2015	9	0	0	0	45	45	
Hingaia (Stage 1A)	Urban	Papakura	2012	289	1400	1111	0	0	0	

Structure plan name	Location type	Local board	Assumed start date	Current dwelling count (2011)	Expected dwelling yield from structure plan	Calculated remaining dwellings from structure plan	Current zoned business land (ha)	Expected business land yield from structure plan	Calculated remaining business land from structure plan	Notes
Hingaia (Stage 1B)	Urban	Papakura	2012	100	765	665	0	0	0	
Hingaia (Stage 2)	Urban	Papakura	2020	45	1295	1250	0	0	0	
Hingaia (Stage 2 - Town Centre)	Urban	Papakura	2020	2	200	198	0	0	0	
Hobsonville Corridor	Urban	Upper Harbour	2014	8	50	42	0	30	30	
Hobsonville Peninsula	Urban	Upper Harbour	2012	497	2740	2243	0	20	20	
Hobsonville Peninsula Future Development Special Area	Urban	Upper Harbour	2018	0	440	440	0	0	0	
Hobsonville Village	Urban	Upper Harbour	2012	8	180	172	0	28	28	
Huapai North	Rural Town	Rodney	2016	76	1417	1341	0	0	0	
Huapai South (Business)	Rural Town	Rodney	2014	10	0	0	0	53	53	
Huapai South (Residential)	Rural Town	Rodney	2014	43	0	0	0	0	0	
Kellys Cove	Rural Town	Franklin	2012	177	420	243	0	0	0	
Kingseat	Rural Town	Franklin	2020	82	1479	1397	1	0	1	
Lincoln Bulk Retail Centre (The Warehouse etc)	Urban	Henderson - Massey	Commenced	0	0	0	0	0	0	
Lincoln North (Pak n Save/Mitre 10 Mega)	Urban	Henderson - Massey	Commenced	0	0	0	0	0	0	
Long Bay	Urban	Hibiscus and Bays	2013	111	2200	2089	0	0	0	
Mangere Gateway Heritage Area	Urban	Mangere - Otahuhu	2015	32	0	0	85	209	301	
Massey North	Urban	Henderson - Massey	2012	20	3000	2980	0	85	85	
Oratia Structure Plan	Rural	Waitakere Ranges	2012	353	567	214	0	0	0	
Orewa West	Urban	Hibiscus and Bays	2013	11	3100	3089	0	0	0	
Paerata	Rural Town	Franklin	2016	4	0	0	0	70	70	
Parakai	Rural Town	Rodney	2030	75	280	205	0	0	0	
Patumahoe	Rural Town	Franklin	2012	10	170	160	0	0	0	
Penihana	Urban	Waitakere Ranges	2012	3	330	327	0	0	0	
Point Wells/Omaha Flats Special 22	Rural Town	Rodney	2016	105	1714	1609	0	0	0	
Pukekohe A	Rural Town	Franklin	2016	8	0	0	0	0	0	
Pukekohe B	Rural Town	Franklin	2030	12	0	0	0	0	0	
Pukekohe C	Rural Town	Franklin	2030	8	0	0	0	0	0	
Pukekohe D (Belmont)	Rural Town	Franklin	2016	16	0	0	0	0	0	
Pukekohe E	Rural Town	Franklin	2030	31	0	0	0	0	0	
Pukekohe F	Rural Town	Franklin	2016	0	0	0	0	0	0	
Pukekohe North East	Rural Town	Franklin	2016	309	0	0	1	0	1	
Residential 2A (Chelsea Special)	Urban	Kaipatiki	Unknown	0	No Data	No Data	0	0	0	At the time of publication the required information for this area was unavailable

Structure plan name	Location type	Local board	Assumed start date	Current dwelling count (2011)	Expected dwelling yield from structure plan	Calculated remaining dwellings from structure plan	Current zoned business land (ha)	Expected business land yield from structure plan	Calculated remaining business land from structure plan	Notes
Riverhead North	Rural Town	Rodney	2012	14	79	65	0	0	0	
Riverhead South	Rural Town	Rodney	2012	14	601	587	0	0	0	
Rural Hamlet Conservation Subdivision RDC Appx7H	Rural	Rodney	2020	3	44	41	0	0	0	
Silverdale North (Special 19)	Urban	Hibiscus and Bays	2012	431	2880	2449	13	90	103	
Silverdale South	Urban	Hibiscus and Bays	2012	1	0	0	0	8	8	
Silverdale West	Urban	Rodney	2020	28	0	0	0	0	0	
Snells/Algies	Rural Town	Rodney	2018	18	1000	982	0	0	0	
Stonefields (Mt Wellington Quarry)	Urban	Orakei	2012	576	2500	1924	3	3	3	
Swanson Structure Plan	Rural	Waitakere Ranges	2013	295	261	0	3	3	3	
Takanini (Stages 1A & 1B)	Urban	Papakura	2009	217	1581	1364	0	0	0	
Takanini (Stage 2A)	Urban	Papakura	2011	0	775	775	0	0	0	
Takanini (Stage 2B)	Urban	Papakura	2011	8	477	469	0	0	0	
Takanini (Stage 2C)	Urban	Papakura	2010	0	86	86	0	0	0	
Takanini (Stage 3)	Urban	Papakura	2012	0	440	440	0	0	0	
Takanini (Stage 4)	Urban	Franklin	2026	14	0	0	0	0	0	
Takanini (Stage 5)	Urban	Papakura	2026	14	0	0	0	0	0	
Takanini (Stages 6A & 6B)	Urban	Papakura	2012	35	70	35	0	50	0	
Takanini (Stage 7)	Urban	Papakura	2026	74	0	0	0	0	0	
Takanini (Stage 8)	Urban	Papakura	2026	63	0	0	0	0	0	
Takanini (Stage 9)	Urban	Franklin	2026	1	0	0	0	0	0	
Takanini (Stage 10)	Urban	Franklin	2026	25	0	0	0	0	0	
Three Kings Quarry	Urban	Puketapapa	2020	0	2000	2000	15	0	15	
Vuksich & Borich (Clay Pits)	Urban	Whau	2015	0	1800	1800	15	-15	0	
Waimauku	Rural Town	Rodney	2012	13	291	278	0	0	0	
Waiuku Plan Change 14 (Business)	Rural Town	Franklin	2012	13	0	0	87	15	102	
Waiuku Plan Change 14 (Residential)	Rural Town	Franklin	2012	6	0	0	0	87	87	
Warkworth A	Rural Town	Rodney	2020	2	30	28	0	0	0	
Warkworth B	Rural Town	Rodney	2020	6	450	444	0	0	0	
Warkworth B (B)	Rural Town	Rodney	2020	0	225	225	8	8	8	
Warkworth C	Rural Town	Rodney	2020	14	225	211	0	0	0	
Warkworth C (B)	Rural Town	Rodney	2020	0	0	0	27	0	27	
Warkworth F	Rural Town	Rodney	2016	1	820	819	0	0	0	
Warkworth G	Rural Town	Rodney	2016	8	370	362	0	0	0	
Warkworth H	Rural Town	Rodney	2016	34	330	296	0	0	0	

Structure plan name	Location type	Local board	Assumed start date	Current dwelling count (2011)	Expected dwelling yield from structure plan	Calculated remaining dwellings from structure plan	Current zoned business land (ha)	Expected business land yield from structure plan	Calculated remaining business land from structure plan	Notes
Warkworth I	Rural Town	Rodney	2016	6	430	424	0	0	0	
Warkworth Saleyards	Urban	Rodney	Unknown	0	0	0	0	0	0	At the time of publication the required information for this area was unavailable
Weiti Forest Park (Special 8)	Rural	Hibiscus and Bays	2016	0	550	550	0	0	0	
Wellsford	Rural Town	Rodney	2025	7	350	343	0	0	0	
Wellsford South	Rural Town	Rodney	2025	0	0	0	0	21	21	
Westgate Centre (South)	Urban	Henderson - Massey	2012	0	0	0	0	0	0	
Whitford Village	Rural Town	Franklin	2015	4	150	146	0	0	0	

Table 38: List of special areas and their locations

Special area name	Local board	Location type
Auckland International Airport	Otara - Papatoetoe	Urban
Auckland Naturist	Henderson - Massey	Urban
Awatana Marae	Kaipatiki	Urban
Babich Winery	Henderson - Massey	Urban
Bayswater Marina	Devonport - Takapuna	Urban
Birdwood Special (Crows Road)	Waitakere Ranges	Rural
Bombay Motorway Service Zone	Franklin	Rural
Corban Estate Arts Centre	Henderson - Massey	Urban
Glenbrook (Iron and Steel Production Zone)	Franklin	Rural
Goldsworth Bay Marine Recreation	Rodney	Rural Town
Gulf Harbour Marine Services	Hibiscus and Bays	Urban
Harourview Special (Te Atatu Centre)	Henderson - Massey	Urban
Hoane Waititi	Waitakere Ranges	Urban
Kaipara Flats Airfield	Rodney	Rural
Kay Road Balefill	Waitakere Ranges	Rural
Kelley Park Film Village (Special 28)	Rodney	Rural
Leigh Marine Lab	Rodney	Rural
Lincoln Bible College	Henderson - Massey	Urban
Massey University Albany Campus	Upper Harbour	Urban
MCC Maori Purpose Zone	Otara - Papatoetoe	Urban
MCC Papakainga Zone	Mangere - Otahuhu	Urban
MCC Papakainga Zone	Mangere - Otahuhu	Urban
MCC Papakainga Zone	Mangere - Otahuhu	Urban
Milford Boat Building Zone	Devonport - Takapuna	Urban
Monier Brick	Whau	Urban
Monterey Park	Upper Harbour	Urban
North Shore Aero Park (Special 4 and 17)	Rodney	Rural
North Shore Hospital	Devonport - Takapuna	Urban
North Shore Stadium and Domain	Upper Harbour	Urban
Orakei Papakainga (Special 4a)	Orakei	Urban
Orangihina (Te Atatu)	Henderson - Massey	Urban
Pakatoa	Waiheke	Rural
Pinepac Whenuapai	Upper Harbour	Rural Town
Rodney Thermal Generation Zone (Special 27)	Rodney	Rural
Rotoroa	Waiheke	Rural
SPCA Animal Village	Mangere - Otahuhu	Urban
Te Atatu Boating Club	Henderson - Massey	Urban
Te Henga	Waitakere Ranges	Rural

Special area name	Local board	Location type
Te Henga Quarry	Waitakere Ranges	Rural
Te Piringatahi O Te Maunga Rongo (WestHarbour)	Henderson - Massey	Urban
Waitakere Hospital	Henderson - Massey	Urban
Warkworth Marina	Rodney	Rural
WestHarbour Marina	Upper Harbour	Urban

Appendix L: Business areas and centres with classifications including scenario assumptions

Table 39: List of business areas and centres with classifications

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Adams Drive Business Area	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.27	5.44	0.83	2%	105	130.53
Akoranga	Business Area	Business Park	NSC	Kaipatiki	Urban Area	0.40	3.59	1.22	0%	118	13.98
Akoranga AUT	Special Activity Area	Special Activity Area	NSC	Kaipatiki	Urban Area	0.00	3.91	1.04	0%	106	0.00
Albany	Centre	Metropolitan Centre	NSC	Upper Harbour	Urban Area	0.41	11.21	2.83	40%	154	20.40
Apollo Drive	Business Area	Production and Distribution	NSC	Upper Harbour	Urban Area	0.43	5.44	0.83	2%	105	40.64
Ardmore	Special Activity Area	Special Activity Area	PDC	Franklin	Rural	0.00	3.91	1.04	0%	106	0.00
Ascot Park	Business Area	Production and Distribution	MCC	Mangere - Otahuhu	Urban Area	0.31	7.00	0.50	2%	105	91.88
Auckland Airport	Special Activity Area	Special Activity Area	MCC	Mangere - Otahuhu	Rural	0.00	7.00	0.50	0%	106	0.00
Auckland Airport Business District	Business Area	Special Activity Area	MCC	Mangere - Otahuhu	Rural	0.00	7.00	0.50	0%	106	0.00
Auckland Airport Business District (Future)	Business Area	Special Activity Area	MCC	Mangere - Otahuhu	Rural	0.00	7.00	0.50	0%	106	0.00
Avondale	Centre	Town Centre	ACC	Whau	Urban Area	0.48	2.00	2.00	30%	109	41.66
Bairds Road	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.34	12.00	0.50	2%	105	101.64
Balmoral	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.65	2.00	2.00	30%	117	55.06
Banks Road	Centre	Local Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.28	2.00	2.00	30%	117	99.05
Barrys Point	Business Area	Business Park	NSC	Devonport - Takapuna	Urban Area	0.63	2.30	0.50	0%	118	79.59
Bayswater Marina	Special Activity Area	Special Activity Area	NSC	Devonport - Takapuna	Urban Area	0.00	2.30	0.50	0%	106	0.00
Beach Haven	Centre	Local Centre	NSC	Kaipatiki	Urban Area	0.55	3.61	1.60	30%	117	49.28
Belgium Street Business Area	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.08	5.44	0.83	2%	105	270.00
Belmont	Centre	Local Centre	NSC	Devonport - Takapuna	Urban Area	0.51	2.00	2.00	30%	117	24.27
Beverly Road	Business Area	Production and Distribution	RDC	Hibiscus and Bays	Urban Area	0.31	5.44	0.83	2%	105	85.17
Blockhouse Bay	Centre	Local Centre	ACC	Whau	Urban Area	0.42	3.61	1.60	30%	117	37.21
Botany	Centre	Metropolitan Centre	MCC	Howick	Urban Area	0.32	16.00	2.00	40%	154	41.38
Browns Bay	Centre	Town Centre	NSC	Hibiscus and Bays	Urban Area	0.63	2.00	2.00	30%	109	35.30
Browns Bay Industrial 1	Business Area	Production and Distribution	NSC	Hibiscus and Bays	Urban Area	0.44	2.30	0.50	2%	105	118.93
Browns Bay Industrial 2	Business Area	Production and Distribution	NSC	Hibiscus and Bays	Urban Area	0.48	2.30	0.50	2%	105	198.43
Carbine Road	Business Area	Heavy Industry	ACC	Maungakiekie - Tamaki	Urban Area	0.52	2.00	0.50	0%	65	65.37
Carr Road	Business Area	Heavy Industry	ACC	Puketapapa	Urban Area	0.63	2.00	2.00	0%	65	103.69
Cartwright Road	Business Area	Production and Distribution	WCC	Whau	Urban Area	0.45	17.00	0.50	2%	105	97.48
Cascades Road	Business Area	Production and Distribution	MCC	Howick	Urban Area	0.49	7.00	0.50	2%	105	107.47
Central Business District	CBD	CBD	ACC	Waitemata	Urban Area	3.02	7.50	6.30	40%	76	40.19
Chelsea	Special Activity Area	Special Activity Area	NSC	Kaipatiki	Urban Area	0.43	3.91	1.04	0%	106	205.28
Clendon	Centre	Local Centre	MCC	Manurewa	Urban Area	0.31	1.70	1.70	30%	117	46.88
College Hill	Business Area	Business Park	ACC	Waitemata	Urban Area	1.42	2.00	2.00	0%	118	28.97
Constellation Road	Business Area	Production and Distribution	NSC	Upper Harbour	Urban Area	0.39	2.30	0.50	2%	105	81.82
Corban Estate	Special Activity Area	Special Activity Area	WCC	Henderson - Massey	Urban Area	0.00	2.30	0.50	0%	106	0.00

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Crummer Road	Business Area	Production and Distribution	ACC	Waitemata	Urban Area	1.16	2.00	2.00	2%	105	48.94
Dawson Road	Centre	Local Centre	MCC	Otara - Papatoetoe	Urban Area	0.31	3.61	1.60	30%	117	65.81
Devonport	Centre	Town Centre	NSC	Devonport - Takapuna	Urban Area	0.99	2.00	2.00	30%	109	38.58
Devonport Naval Base	Special Activity Area	Special Activity Area	NSC	Devonport - Takapuna	Urban Area	0.00	2.00	2.00	0%	106	0.00
Drury	Centre	Local Centre	PDC	Papakura	Urban Area	0.25	1.50	1.50	30%	117	68.84
Duke Street	Centre	Local Centre	ACC	Puketapapa	Urban Area	0.52	3.61	1.60	30%	117	18.60
East Tamaki	Business Area	Production and Distribution	MCC	Howick	Urban Area	0.38	14.00	0.50	2%	105	77.05
Eastridge	Centre	Local Centre	ACC	Orakei	Urban Area	0.22	2.00	2.00	30%	117	21.39
Eden Terrace	Business Area	Business Park	ACC	Albert - Eden	Urban Area	1.04	2.00	2.00	0%	118	38.09
Ellerslie	Centre	Town Centre	ACC	Orakei	Urban Area	0.86	2.00	2.00	30%	109	37.19
Ellerslie South	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.33	2.00	0.50	2%	105	58.02
Favona	Business Area	Production and Distribution	MCC	Mangere - Otahuhu	Urban Area	0.35	16.00	0.50	2%	105	116.25
Flat Bush	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.40	5.44	0.83	2%	105	93.72
Franklin Road	Business Area	Business Park	ACC	Waitemata	Urban Area	1.44	2.00	2.00	0%	118	11.48
Franklin Road Business Area	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.26	5.44	0.83	2%	105	66.47
Garnet Road	Centre	Local Centre	ACC	Waitemata	Urban Area	0.40	3.61	1.60	30%	117	18.98
Glen Eden	Centre	Town Centre	WCC	Waitakere Ranges	Urban Area	0.54	12.50	1.50	30%	109	60.60
Glenbrook	Business Area	Heavy Industry	FDC	Franklin	Rural	0.00	12.50	1.50	0%	65	0.00
Glendene	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.41	6.00	1.50	30%	117	74.68
Glenfield	Centre	Town Centre	NSC	Kaipatiki	Urban Area	0.53	2.00	2.00	30%	109	31.50
Glenn Innes	Centre	Town Centre	ACC	Orakei	Urban Area	0.38	2.00	2.00	30%	109	71.57
Great North Road	Business Area	Production and Distribution	ACC	Waitemata	Urban Area	0.87	2.00	2.00	2%	105	38.40
Great South Road Retail Park	Business Area	Out of Centre Retail	MCC	Manurewa	Urban Area	0.33	12.00	0.50	0%	106	44.12
Great South Road/Ellerslie	Business Area	Business Park	ACC	Maungakiekie - Tamaki	Urban Area	0.85	2.00	2.00	0%	118	17.81
Greenlane	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.73	2.00	2.00	30%	117	81.22
Greenlane/Manukau Road	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.70	2.00	2.00	30%	117	32.43
Greenwoods Corner	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.39	2.00	2.00	30%	117	26.47
Greville Road	Business Area	Business Park	NSC	Upper Harbour	Urban Area	0.12	2.00	2.00	0%	118	14.61
Grey Lynn	Centre	Local Centre	ACC	Waitemata	Urban Area	0.52	2.00	2.00	30%	117	26.38
Gulf Harbour	Special Activity Area	Special Activity Area	RDC	Hibiscus and Bays	Rural	0.00	2.00	2.00	0%	106	0.00
Half Moon Bay	Special Activity Area	Special Activity Area	MCC	Howick	Urban Area	0.00	3.91	1.04	0%	106	0.00
Hauraki Corner	Centre	Local Centre	NSC	Devonport - Takapuna	Urban Area	0.53	3.61	1.60	30%	117	29.17
Helensville	Centre	Local Centre	RDC	Rodney	Rural Town	0.36	1.50	1.50	30%	117	64.25
Helensville Dairy Factory	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.44	2.00	0.50	2%	105	352.94
Helensville Industrial 1	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.10	2.00	0.50	2%	105	253.82
Helensville Industrial 2	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.33	2.00	0.50	2%	105	353.29
Henderson	Centre	Metropolitan Centre	WCC	Henderson - Massey	Urban Area	0.67	16.00	3.00	40%	154	48.42

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Henderson South	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.36	17.00	0.50	2%	105	83.99
Highbrook	Business Area	Business Park	MCC	Howick	Urban Area	0.23	26.00	0.60	0%	118	82.56
Highbury	Centre	Town Centre	NSC	Kaipatiki	Urban Area	0.51	4.04	1.73	30%	109	33.45
Highland Park	Centre	Town Centre	MCC	Howick	Urban Area	0.33	7.00	1.50	30%	109	49.64
Hinemoa Street	Centre	Local Centre	NSC	Kaipatiki	Urban Area	0.57	3.61	1.60	30%	117	56.56
Hobsonville Corridor Business Stage 1	Business Area	Production and Distribution	WCC	Upper Harbour	Urban Area	0.00	5.44	0.83	2%	105	0.00
Hobsonville Point Marine Precinct	Special Activity Area	Special Activity Area	WCC	Upper Harbour	Urban Area	0.00	3.91	1.04	0%	106	0.00
Hobsonville Village	Centre	Local Centre	WCC	Upper Harbour	Urban Area	0.50	6.00	1.50	30%	117	38.75
Howick	Centre	Town Centre	MCC	Howick	Urban Area	0.60	7.00	1.50	30%	109	36.31
Huapai	Centre	Local Centre	RDC	Rodney	Rural Town	0.19	1.50	1.50	30%	117	76.30
Hudson Road Business Park	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.15	2.00	0.50	2%	105	71.96
Hunters Corner	Centre	Town Centre	MCC	Otara - Papatoetoe	Urban Area	0.57	11.00	1.50	30%	109	65.09
Hunua Road	Business Area	Heavy Industry	PDC	Papakura	Urban Area	0.19	3.30	0.50	0%	65	108.85
Interplex	Business Area	Production and Distribution	NSC	Upper Harbour	Urban Area	0.51	5.44	0.83	2%	105	55.47
Jervois Road	Centre	Local Centre	ACC	Waitemata	Urban Area	0.79	2.00	2.00	30%	117	35.70
K Road/Newton	Business Area	Business Park	ACC	Waitemata	Urban Area	1.62	3.59	1.22	0%	118	36.49
Kahika	Business Area	Production and Distribution	NSC	Kaipatiki	Urban Area	0.42	2.30	0.50	2%	105	144.83
Kawana	Business Area	Production and Distribution	NSC	Kaipatiki	Urban Area	0.53	2.30	0.50	2%	105	54.08
Kelston	Centre	Local Centre	WCC	Whau	Urban Area	0.46	10.00	1.50	30%	117	54.80
Kingsland	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.94	2.00	2.00	30%	117	46.45
Kitchener Road Business Area	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.16	5.44	0.83	2%	105	44.19
Kumeu	Centre	Local Centre	RDC	Rodney	Rural Town	0.15	1.50	1.50	30%	117	77.26
Lincoln Radio	Special Activity Area	Special Activity Area	WCC	Henderson - Massey	Urban Area	0.01	3.91	1.04	0%	106	15.00
Lincoln Road	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.29	22.00	1.50	2%	105	59.43
Lincoln Road (Centre)	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.31	22.00	1.50	30%	117	34.44
Lunn Avenue	Business Area	Out of Centre Retail	ACC	Maungakiekie - Tamaki	Urban Area	0.39	2.00	0.50	0%	106	77.54
Lynfield	Centre	Local Centre	ACC	Puketapapa	Urban Area	0.39	3.61	1.60	30%	117	28.50
Mahunga Drive	Business Area	Production and Distribution	MCC	Mangere - Otahuhu	Urban Area	0.46	10.00	0.50	2%	105	138.59
Mairangi Bay	Centre	Local Centre	NSC	Hibiscus and Bays	Urban Area	0.46	2.00	2.00	30%	117	22.89
Mangere	Centre	Town Centre	MCC	Mangere - Otahuhu	Urban Area	0.39	7.00	1.50	30%	109	50.51
Mangere Bridge	Centre	Local Centre	MCC	Mangere - Otahuhu	Urban Area	0.60	3.61	1.60	30%	117	63.91
Mangere East	Business Area	Production and Distribution	MCC	Mangere - Otahuhu	Urban Area	0.19	10.00	0.50	2%	105	68.59
Manukau	Centre	Metropolitan Centre	MCC	Otara - Papatoetoe	Urban Area	0.48	16.00	6.00	40%	154	37.19
Manukau East	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.33	12.00	0.50	2%	105	69.28
Manukau Road Business Area	Business Area	Business Park	FDC	Franklin	Rural Town	0.30	3.59	1.22	0%	118	83.29
Manukau West	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.40	12.00	0.50	2%	105	59.25

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Manurewa	Centre	Town Centre	MCC	Manurewa	Urban Area	0.40	9.00	1.50	30%	109	45.50
Manurewa Industrial	Business Area	Production and Distribution	MCC	Manurewa	Urban Area	0.45	5.44	0.83	2%	105	268.38
Market Road	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.73	2.00	2.00	30%	117	22.15
Marua Road	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.51	5.44	0.83	2%	105	72.99
Massey North	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.00	5.44	0.83	2%	105	0.00
Massey North (Centre)	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.00	3.61	1.60	30%	117	0.00
Massey University Albany	Special Activity Area	Special Activity Area	NSC	Upper Harbour	Urban Area	0.00	3.91	1.04	0%	106	0.00
McLeod Road	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.34	16.50	0.50	2%	105	138.59
Meadowbank	Centre	Local Centre	ACC	Orakei	Urban Area	0.37	3.61	1.60	30%	117	28.13
Meadowlands	Centre	Local Centre	MCC	Howick	Urban Area	0.33	1.20	1.20	30%	117	40.64
Middlemore Hospital	Special Activity Area	Special Activity Area	MCC	Otara - Papatoetoe	Urban Area	0.00	1.20	1.20	0%	106	0.00
Milford	Centre	Town Centre	NSC	Devonport - Takapuna	Urban Area	0.57	2.00	2.00	30%	109	39.02
Mission Bay	Centre	Local Centre	ACC	Orakei	Urban Area	0.60	3.61	1.60	30%	117	18.72
Mokoia Road	Business Area	Other	NSC	Kaipatiki	Urban Area	0.33	4.33	2.60	0%	106	22.38
Moore Street	Business Area	Production and Distribution	MCC	Howick	Urban Area	0.57	6.00	0.50	2%	105	111.77
Morin Road	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.35	2.00	2.00	2%	105	149.37
Morningside	Business Area	Production and Distribution	ACC	Albert - Eden	Urban Area	0.76	2.00	2.00	2%	105	65.95
Mt Albert	Centre	Town Centre	ACC	Albert - Eden	Urban Area	0.64	2.00	2.00	30%	109	44.06
Mt Eden	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.62	2.00	2.00	30%	117	19.54
Mt Roskill	Centre	Local Centre	ACC	Puketapapa	Urban Area	0.64	1.00	1.00	30%	117	53.55
Mt Wellington	Centre	Local Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.47	2.00	2.00	30%	117	63.22
Mt Wellington Highway	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.47	2.00	2.00	2%	105	67.86
Mt Wellington North	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.42	2.00	2.00	2%	105	110.55
New Lynn	Centre	Metropolitan Centre	WCC	Whau	Urban Area	0.47	23.00	3.00	40%	154	45.23
New Lynn Industrial	Business Area	Production and Distribution	WCC	Whau	Urban Area	0.52	23.00	0.50	2%	105	113.05
New North Road	Business Area	Production and Distribution	ACC	Albert - Eden	Urban Area	0.95	5.44	0.83	2%	105	50.82
Newmarket	Centre	Metropolitan Centre	ACC	Waitemata	Urban Area	1.20	3.50	2.00	40%	154	35.33
Newton/Grafton	Business Area	Business Park	ACC	Waitemata	Urban Area	1.16	3.59	1.22	0%	118	44.95
North Harbour Industrial Estate	Business Area	Production and Distribution	NSC	Upper Harbour	Urban Area	0.42	2.30	0.50	2%	105	58.20
North Harbour Stadium	Special Activity Area	Special Activity Area	NSC	Upper Harbour	Urban Area	0.00	2.30	0.50	0%	106	0.00
North Shore Hospital	Special Activity Area	Special Activity Area	NSC	Devonport - Takapuna	Urban Area	0.00	2.30	0.50	0%	106	0.00
Northcote	Centre	Town Centre	NSC	Kaipatiki	Urban Area	0.46	2.00	2.00	30%	109	51.01
Northcote Road/Akoranga	Business Area	Other	NSC	Kaipatiki	Urban Area	0.30	4.33	2.60	0%	106	52.16
Onehunga	Centre	Town Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.60	2.00	2.00	30%	109	78.84
Onehunga Industrial	Business Area	Heavy Industry	ACC	Maungakiekie - Tamaki	Urban Area	0.40	2.00	2.00	0%	65	104.31
Onewa Road	Business Area	Business Park	NSC	Kaipatiki	Urban Area	0.59	3.59	1.22	0%	118	77.42
Orakei	Centre	Local Centre	ACC	Orakei	Urban Area	0.30	3.61	1.60	30%	117	323.32

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Orewa	Centre	Town Centre	RDC	Hibiscus and Bays	Urban Area	0.59	1.50	1.50	30%	109	32.46
Ormiston	Centre	Town Centre	MCC	Howick	Urban Area	0.00	1.50	1.50	30%	109	0.00
Ormiston Road	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.28	5.44	0.83	2%	105	96.31
Ormiston Road (Centre)	Centre	Local Centre	MCC	Otara - Papatoetoe	Urban Area	0.33	3.61	1.60	30%	117	23.97
Otahuhu	Centre	Town Centre	ACC	Mangere - Otahuhu	Urban Area	0.53	2.00	0.50	30%	109	69.14
Otahuhu East	Business Area	Heavy Industry	MCC	Otara - Papatoetoe	Urban Area	0.01	2.00	0.50	0%	65	1236.33
Otahuhu Industrial	Business Area	Production and Distribution	ACC	Mangere - Otahuhu	Urban Area	0.92	2.00	0.50	2%	105	106.96
Otahuhu Substation	Special Activity Area	Special Activity Area	MCC	Otara - Papatoetoe	Urban Area	0.00	2.00	0.50	0%	106	0.00
Otahuhu West	Business Area	Heavy Industry	MCC	Mangere - Otahuhu	Urban Area	0.32	16.00	0.50	0%	65	189.90
Otara	Centre	Town Centre	MCC	Otara - Papatoetoe	Urban Area	0.53	8.00	1.50	30%	109	87.01
Paerata	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.14	8.00	1.50	2%	105	215.91
Pah Road	Business Area	Production and Distribution	ACC	Puketapapa	Urban Area	0.41	2.00	2.00	2%	105	55.65
Pakuranga	Centre	Town Centre	MCC	Howick	Urban Area	0.60	10.00	1.50	30%	109	60.42
Panmure	Centre	Town Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.50	2.00	2.00	30%	109	87.74
Papakura	Centre	Metropolitan Centre	PDC	Papakura	Urban Area	0.54	14.00	3.00	40%	154	57.57
Papatoetoe	Centre	Town Centre	MCC	Otara - Papatoetoe	Urban Area	0.44	9.00	1.50	30%	109	76.59
Parnell	Centre	Town Centre	ACC	Waitemata	Urban Area	1.36	2.00	2.00	30%	109	31.20
Parnell Business	Business Area	Business Park	ACC	Waitemata	Urban Area	1.25	2.00	0.50	0%	118	45.86
Parnell Rise/Stanley Street	Business Area	Business Park	ACC	Waitemata	Urban Area	0.62	2.00	0.50	0%	118	18.50
Penrose	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.45	2.00	0.50	2%	105	69.25
Pilkington Road	Business Area	Production and Distribution	ACC	Orakei	Urban Area	0.54	2.00	2.00	2%	105	161.49
Plunket Avenue	Business Area	Production and Distribution	MCC	Otara - Papatoetoe	Urban Area	0.30	5.44	0.83	2%	105	94.28
Ponsonby Road	Centre	Town Centre	ACC	Waitemata	Urban Area	0.89	2.00	2.00	30%	109	30.55
Port of Auckland	Special Activity Area	Special Activity Area	ACC	Waitemata	Urban Area	0.00	2.00	2.00	0%	106	0.00
Portage Road	Business Area	Heavy Industry	ACC	Mangere - Otahuhu	Urban Area	0.86	5.95	0.90	0%	65	120.98
Pt Chevalier	Centre	Town Centre	ACC	Albert - Eden	Urban Area	0.44	2.00	2.00	30%	109	46.70
Puhinui	Business Area	Production and Distribution	MCC	Manurewa	Urban Area	0.19	5.44	0.83	2%	105	87.90
Pukekohe	Centre	Local Centre	FDC	Franklin	Rural Town	0.53	2.60	2.60	30%	117	38.95
Pukekohe Pak n Save	Business Area	Other	FDC	Franklin	Rural Town	0.23	2.60	2.60	0%	106	35.39
Ranfurlly Road	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.79	3.61	1.60	30%	117	44.23
Ranui	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.24	6.00	1.50	30%	117	120.00
Remuera	Centre	Town Centre	ACC	Orakei	Urban Area	0.88	2.00	2.00	30%	109	27.26
Richmond Road	Business Area	Production and Distribution	ACC	Waitemata	Urban Area	0.79	2.00	0.50	2%	105	25.83
Richmond Road (Centre)	Business Area	Local Centre	ACC	Waitemata	Urban Area	0.82	2.00	0.50	30%	117	15.98
Rosebank Road	Business Area	Production and Distribution	ACC	Whau	Urban Area	0.45	2.00	0.50	2%	105	74.07
Rosedale Road/Tawa Drive	Business Area	Production and Distribution	NSC	Upper Harbour	Urban Area	0.34	2.30	0.50	2%	105	62.78
Roskill South	Centre	Local Centre	ACC	Puketapapa	Urban Area	0.58	3.61	1.60	30%	117	42.10

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Royal Heights	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.26	6.00	1.50	30%	117	31.06
Royal Oak	Centre	Town Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.58	2.00	2.00	30%	109	34.25
Sandringham	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.50	2.00	2.00	30%	117	60.93
Silverdale	Centre	Town Centre	RDC	Hibiscus and Bays	Urban Area	0.46	1.50	1.50	30%	109	66.09
Silverdale P&D Zone	Business Area	Production and Distribution	RDC	Hibiscus and Bays	Urban Area	0.47	2.00	0.50	2%	105	68.42
Silverdale South	Business Area	Production and Distribution	RDC	Hibiscus and Bays	Urban Area	0.22	2.00	0.50	2%	105	75.20
Smales Farm	Business Area	Business Park	NSC	Devonport - Takapuna	Urban Area	0.33	1.50	1.50	0%	118	18.61
Snells Beach	Centre	Local Centre	RDC	Rodney	Rural Town	0.00	1.50	1.50	30%	117	0.00
Southdown	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.45	2.00	2.00	2%	105	65.89
Span Farm	Business Area	Production and Distribution	WCC	Whau	Urban Area	0.33	17.00	0.50	2%	105	111.12
St Heliers	Centre	Local Centre	ACC	Orakei	Urban Area	0.80	2.00	2.00	30%	117	29.34
St Lukes	Centre	Town Centre	ACC	Albert - Eden	Urban Area	0.72	2.00	2.00	30%	109	43.68
St Lukes Road	Business Area	Production and Distribution	ACC	Albert - Eden	Urban Area	0.51	2.00	2.00	2%	105	131.24
Stoddard Road	Business Area	Production and Distribution	ACC	Puketapapa	Urban Area	0.42	2.00	0.50	2%	105	90.28
Stonefields	Centre	Local Centre	ACC	Orakei	Urban Area	0.00	2.00	0.50	30%	117	0.00
Surrey Crescent	Business Area	Production and Distribution	ACC	Waitemata	Urban Area	1.30	5.44	0.83	2%	105	72.75
Swanson	Centre	Local Centre	WCC	Waitakere Ranges	Urban Area	0.29	6.00	1.50	30%	117	24.36
Swanson-Airdrie	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.15	18.00	0.50	2%	105	128.90
Swanson-Brick Street	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.35	16.00	0.50	2%	105	123.16
Sylvia Park	Centre	Metropolitan Centre	ACC	Maungakiekie - Tamaki	Urban Area	0.42	2.00	0.50	40%	154	41.46
Takanini	Centre	Town Centre	PDC	Papakura	Urban Area	0.22	7.00	1.50	30%	109	21.59
Takanini Industrial 1	Business Area	Production and Distribution	PDC	Papakura	Urban Area	0.40	3.30	0.50	2%	105	64.60
Takanini Industrial 2	Business Area	Production and Distribution	PDC	Papakura	Urban Area	0.37	3.30	0.50	2%	105	113.93
Takanini North	Business Area	Production and Distribution	PDC	Papakura	Urban Area	0.26	3.30	0.50	2%	105	79.36
Takapuna	Centre	Metropolitan Centre	NSC	Devonport - Takapuna	Urban Area	1.41	3.00	3.00	40%	154	28.11
Te Atatu Peninsula	Centre	Town Centre	WCC	Henderson - Massey	Urban Area	0.30	5.00	1.50	30%	109	64.31
Te Atatu South	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.47	6.00	1.50	30%	117	27.83
Te Mahia	Centre	Local Centre	MCC	Manurewa	Urban Area	0.29	10.00	0.50	30%	117	100.51
Te Papapa	Business Area	Heavy Industry	ACC	Maungakiekie - Tamaki	Urban Area	0.39	2.00	0.50	0%	65	82.08
The Concourse	Business Area	Heavy Industry	WCC	Henderson - Massey	Urban Area	0.30	17.00	0.50	0%	65	76.71
The Landing	Centre	Local Centre	WCC	Upper Harbour	Urban Area	0.00	17.00	0.50	30%	117	0.00
The Landing (Airport)	Special Activity Area	Special Activity Area	MCC	Mangere - Otahuhu	Rural	0.00	17.00	0.50	0%	106	0.00
Three Kings	Centre	Town Centre	ACC	Puketapapa	Urban Area	0.56	4.04	1.73	30%	109	27.57
Three Kings Quarry	Business Area	Production and Distribution	ACC	Puketapapa	Urban Area	0.85	2.00	2.00	2%	105	307.68
Three Lamps	Centre	Local Centre	ACC	Waitemata	Urban Area	1.05	3.61	1.60	30%	117	26.27
Titirangi	Centre	Local Centre	WCC	Waitakere Ranges	Urban Area	0.70	6.00	1.50	30%	117	20.36
Triangle Road	Centre	Local Centre	WCC	Henderson - Massey	Urban Area	0.43	6.00	1.50	30%	117	29.35

Name	Group	Classification	Former territorial authority	Local board	Location	Assumptions					
						Floor area ratio			Residential allocation factor	Average dwelling size (m ²)	Average floor space per employee (m ²)
						Contemporary	Maximum	Modified			
Unitec	Special Activity Area	Special Activity Area	ACC	Albert - Eden	Urban Area	0.00	6.00	1.50	0%	106	0.00
Upland Road	Centre	Local Centre	ACC	Orakei	Urban Area	0.69	3.61	1.60	30%	117	26.64
Valley Road	Centre	Local Centre	ACC	Albert - Eden	Urban Area	0.63	1.00	1.00	30%	117	33.96
Verrans Corner	Centre	Local Centre	NSC	Kaipatiki	Urban Area	0.38	3.61	1.60	30%	117	46.26
Waikaukau Road	Business Area	Production and Distribution	WCC	Waitakere Ranges	Urban Area	0.26	17.00	0.50	2%	105	180.02
Waikuku	Centre	Local Centre	FDC	Franklin	Rural Town	0.36	1.70	1.70	30%	117	67.54
Waikumete	Business Area	Production and Distribution	WCC	Waitakere Ranges	Urban Area	0.28	17.00	0.50	2%	105	107.79
Wairau Valley	Business Area	Production and Distribution	NSC	Kaipatiki	Urban Area	0.47	2.30	0.50	2%	105	1121.62
Waitakere Hospital	Special Activity Area	Special Activity Area	WCC	Henderson - Massey	Urban Area	0.00	2.30	0.50	0%	106	0.00
Waiuku Industrial	Business Area	Production and Distribution	FDC	Franklin	Rural Town	0.20	13.00	0.50	2%	105	170.04
Warkworth	Centre	Local Centre	RDC	Rodney	Rural Town	0.38	1.50	1.50	30%	117	37.92
Warkworth Industrial	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.00	1.50	1.50	2%	105	0.00
Warkworth Retail	Special Activity Area	Special Activity Area	RDC	Rodney	Rural Town	0.01	1.50	1.50	0%	106	47.78
Warkworth Retail Park	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.00	2.00	0.50	2%	105	0.00
Wellsford	Centre	Local Centre	RDC	Rodney	Rural Town	0.33	1.50	1.50	30%	117	76.13
Wellsford Industrial 1	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.41	2.00	0.50	2%	105	95.86
Wellsford Industrial 2	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.19	2.00	0.50	2%	105	47.11
Wellsford Industrial 3	Business Area	Production and Distribution	RDC	Rodney	Rural Town	0.30	2.00	0.50	2%	105	245.53
West Lynn	Centre	Local Centre	ACC	Waitemata	Urban Area	1.21	2.00	2.00	30%	117	296.67
Westech Place	Business Area	Production and Distribution	WCC	Waitakere Ranges	Urban Area	0.50	17.00	0.50	2%	105	55.67
Westfield	Business Area	Production and Distribution	ACC	Maungakiekie - Tamaki	Urban Area	0.37	2.00	2.00	2%	105	73.85
Westgate	Centre	Metropolitan Centre	WCC	Henderson - Massey	Urban Area	0.31	13.00	3.00	40%	154	17.65
Westharbour Marina	Special Activity Area	Special Activity Area	WCC	Upper Harbour	Urban Area	0.00	13.00	3.00	0%	106	0.00
Whangaparaoa	Centre	Town Centre	RDC	Hibiscus and Bays	Urban Area	0.61	1.50	1.50	30%	109	59.40
Whangaparaoa Mixed Business	Business Area	Production and Distribution	RDC	Hibiscus and Bays	Urban Area	0.37	1.50	1.50	2%	105	95.62
Wharf Road	Business Area	Production and Distribution	WCC	Henderson - Massey	Urban Area	0.34	4.60	0.50	2%	105	79.64
Whenuapai Airbase	Special Activity Area	Special Activity Area	WCC	Upper Harbour	Rural	0.00	4.60	0.50	0%	106	0.00
Whenuapai Pinepac	Business Area	Heavy Industry	WCC	Upper Harbour	Rural	0.00	4.60	0.50	0%	65	0.00
Whenuapai Village	Centre	Local Centre	WCC	Upper Harbour	Rural Town	0.34	6.00	1.50	30%	117	93.33
White Swan Road	Centre	Local Centre	ACC	Puketapapa	Urban Area	0.70	3.61	1.60	30%	117	22.85
Wiri	Business Area	Production and Distribution	MCC	Manurewa	Urban Area	0.34	12.00	0.50	2%	105	105.84
Wolverton Street	Business Area	Production and Distribution	ACC	Whau	Urban Area	0.52	5.44	0.83	2%	105	120.03

Appendix M: Maps of location and extents of rural component spatial overlays

Appendix N: Rural residential modelling process assumptions

This appendix outlines calculation method use to calculate capacity for titles in the rural area under the various district plan provisions that may apply to a site.

Each calculation is preceded with the input data that has been used for the specific calculation and the assumptions for key components such as minimum size.

The calculations are essentially filters, with titles that pass the filter going onto the next step, those that fail are discarded from further consideration. In this manner, each step essentially reduces the population of candidates. This is for data management reasons as well as practical ones, with each step reducing the amount of data required to be processed at each step, and the rule is generally modelled such that the more computationally intensive calculations are undertaken on the smallest possible number of candidates. We have followed the 'Guess Who?' principle where the trick is to ask questions in increasing specificity that will most quickly eliminate people who are 'obviously' not of interest to leave only those where minor details require discerning.

The initial calculation is always a minimum title area, as this will filter out all titles that are simply too small to qualify for further assessment irrespective of compliance with any other requirements. In most zones this test alone will usually remove more than 90% of titles from further consideration.

Under the simplest rules, this minimum title area test is usually at least twice the minimum site size, as to subdivide in a complying manner both the parent and residual lots will of course need to be equal or greater than the minimum site area requirements.

All rural calculations use **title** boundary information sourced from Land Information New Zealand (LINZ); as this is the primary geography at which the rules operate, unless otherwise specified. Where CRS Parcel is listed as the 'input layer' for the rule, the CRS Parcel data is used instead.

A title is defined as all land contained within a single Certificate of Title and may therefore contain a number of 'parcels', which is a relatively common situation in rural areas (large farms etc).

Conversely in urban areas, 'parcel' is used as the primary geography as it is more common for parcels to contain many titles (cross leases. unit titles etc), however in both locations there is a many to many relationship between titles and parcels.

Rodney District Plan (2011)

The following sub-sections details the assumptions and calculation method for each of the district plan rules; they are grouped around the subdivision method, which is then applied to the relevant zones in accordance with Table 9 in section 8.2.

Rule 7.14.3 Subdivision of Titles for the Protection of Native Bush and Significant Natural Areas

This rule enables subdivision of titles that contain a Significant Natural Area (SNA) either identified in maps in the plan or by way of assessment in accordance with the plan and/or wetlands where those areas are not already protected by covenant¹⁸. Wetland and bush Features not identified as SNAs area also eligible for consideration.

The rule provides for protection of SNAs identified in the Planning Maps (which may be bush and/or wetland) and native bush and/or wetland that is not identified as SNA in the Plan. The rules also have different minimum trigger and area per site requirements depending on whether the feature being protected is native bush or wetland which requires development of two variations and the creation of layers to represent bush and wetland that is not in the SNA maps, and the separation of SNAs into bush and wetland categories.

Input Databases:

- Rodney District Council (RDC) Significant Natural Areas
- Land Cover Database (LCDB)
- QEII Covenants
- Department of Conservation (DOC) Wetlands
- Wetlands

Created Layers:

- Significant Natural Area Protection (SNAP): SNA and other non-SNA Native Bush combined, less DoC Wetlands, Wetlands and QEII Covenants
- Wetland Protection (WP): Wetlands and DOC Wetlands combined, less QEII Covenants
- Significant Natural Area and Wetland Protection (SNAWP): Merged Significant Natural Area Protection and Wetland Protection areas

Variation 1: 7.14.3.2: Subdivision for the Protection of Native Bush and SNA

Minimum size for key components:

- Minimum bush size = 2 hectares
- Minimum balance site size = 1 hectare
- Minimum building platform = 1,500m²

Calculation:

1. Remove all titles smaller than 3.15 hectares in area
2. Remove all titles with bush areas smaller than 2 hectares, or building land (land not covered by an SNA) smaller than 0.15 hectares
3. Categorise bush lots by the following table, for potential SNA lots (Part A)

¹⁸ SNAs can be made up of bush and identified SNAs and/or wetlands and SNAs that are wetland. Different ratios of protected area to lot entitlements are applied depending on if the feature is 'bush' or 'wetland'.

Min area of native bush or Significant Natural Area Protected (ha)	Max area of native bush or Significant Natural Area Protected (ha)	Total number of titles permitted
0	1.9999	0
2	11.9999	1
12	21.9999	2
22	31.9999	3
32	41.9999	4
42	51.9999	5
52	61.9999	6
62	71.9999	7
72	81.9999	8
82	91.9999	9
92	101.9999	10
102	111.9999	11
112	121.9999	12
122	131.9999	13
132	141.9999	14
142	151.9999	15
152	No limit	16

4. Calculate available building land by the following formulas, for potential lots (Part B)
 - a) Title area less area of features (SNAWP) equals 'Available Land'
 - b) Available land minus 1 hectare, equals subdividable land
 - c) Subdividable land divided by 1,500 m², equals maximum potential building platforms (Part B)
5. Select the lower number from either Part A (Max SNA titles) or B (Max Building Platforms) (this addresses difference outcomes for titles 100% bush cover or partial cover)

Variation 2: 7.14.3.3: Subdivision of Titles for the Protection of Significant Wetlands

Note: Wetlands that were included as part of the Rodney Distinct Council SNA database were removed from the SNA layer and used in this assessment due to the different area triggers dependent on whether the SNA was a wetland or other terrestrial feature.

Input Databases

- DOC & Regional wetland database

Created Layers:

- Wetland Protection (WP)

Minimum size for key components:

- Minimum wetland size = 5000 m²
- Minimum balance site size = 1 hectare

- Minimum building land = 1,500 m² (clear of SNA or wetland)

Calculation:

1. Remove all titles smaller than 1.2 hectares
2. Remove all titles with wetland areas smaller than 5,000 m², or building land smaller than 0.15 hectares
3. Categorise wetland areas by the following table, for potential SNA lots (Part A)

Min area of wetland protected (ha)	Max area of wetland protected (ha)	Total number of titles permitted
0	0.4999	0
0.5	1.9999	1
2	3.9999	2
4	7.9999	3
8	11.9999	4
12	15.9999	5
16	19.9999	6
20	24.9999	7
25	29.9999	8
30	Plus one additional site for each five hectares of wetland protected above 30 hectares	

4. Calculate available building land by the following formulas, for potential lots (Part B)
 - a) Title area less area of features (SNAWP) equals 'Available Land'
 - b) Available land minus 1 hectare, equals subdividable land
 - c) Subdividable land divided by 1,500 m², equals maximum building platforms (Part B)
5. Select lower number from either Part A (Max SNA Lots) or Part B (Max Building Platforms) This addresses different outcomes for titles 100% wetland cover or partial cover).

Rule 7.14.4: Subdivision for Significant Enhancement Planting

This rule enables subdivision on the basis of an area of new native planting being established and permanently protected on land currently used for pasture or forestry. The rule essentially encourages retirement and replanting of areas back into native bush.

A layer was created to represent rural land that was not presently vegetated, and would be eligible for Significant Enhancement Planting.

A complication with the rule is that the planting required for the first site is either 10 or 6Ha depending if the planting is considered to provide a 'valuable ecological benefit', but the second site requires a total of 12Ha (i.e. another 2 or 6Ha depending). Without undertaking the required fieldwork on each site, we have assumed that all planting will be significant and have therefore used a 6Ha requirement. As this only impacts on the first site, effects of this assumption on the overall yield calculation will be limited to sites which only have potential for subdivision via this rule and have a yield of 1.

Input databases:

- Land Cover Database (LCDB)

- Significant Natural Area Protection (SNAP)
- Wetland Protection (WP)

Created Layers:

- Significant Enhancement Planting (SEP): Indicates land free of native vegetation that could be planted.

Variation 1: General Rural Zone

Calculation:

1. Remove all titles smaller than 7 hectares (6Ha planting + 1ha balance)
2. Remove all titles with less than 6 hectares of non-forested developable land, as defined by SEP layer.

Note: This rule provides for the first site to be 6 hectares or 10 hectares depending on a professional assessment of whether the planting provides: 'valuable ecological benefits' or not, with a second lot enabled on the basis of an extra 6 or 2 hectares respectively (for a total of 12 hectares for the second lot). For the purposes of calculating capacity in this study, it has been assumed that all significant enhancement planting will provide a 'valuable ecological benefit' so the six hectare limit is applied universally as it only impacts on the first site). An additional reason is that converting the assessment criteria for 'valuable ecological benefit' from a field based checklist required to be undertaken by a suitably qualified professional on a site by site basis, to a desktop exercise able to be assessed on-the-fly by a computer poses some challenges.

3. Divide SEP area by 6 hectares to obtain SEP yield.
4. Add 1 (for a balance lot) and subtract existing dwelling count (from 3) to obtain net dwelling yield.
5. The maximum amount of additional lots under this rule is 5 (net dwelling yields greater than 5 are converted to 5).

Variation 2: Other Zones (E.C. Rural, L.P. Rural and Dune Lakes)

The application of the rule is the same as for General Rural but the maximum number of titles enabled is also limited by the parent site area, which increases in 15 hectares intervals from 15 hectares provides for two sites to a maximum of 16 sites at 225 hectares or more.

Calculation:

1. Remove all titles smaller than 7 hectares
2. Remove all titles with less than 6 hectares of non forested developable land, as defined by the LCDB. *(Note the rule provides for the first site to be 6 hectares or 10 hectares depending on an assessment of whether the planting provides valuable ecological benefits or not. For the purposes of this assessment it has been assumed that all planting provides valuable ecological benefits (see above discussion))*
3. Divide SEP Area by 6 hectares to obtain Maximum SEP yield.
4. The maximum amount of additional lots under this rule is controlled by the function:

$$\text{Maximum lots} = \left\{ \left(\frac{\text{Parent Lot Area}}{15 \text{ hectares}} \right) + 1 \right\} \text{ To a maximum of 16 lots}$$

5. Take the lowest number from Step 3 (Maximum SEP Sites) and Step 4 (Maximum Parent Lot Area Sites)
6. Add 1 (for a balance lot) to the result of Step 5, and subtract existing dwelling count (from 3) to obtain net dwelling yield.

Rule 7.15.5: Subdivision for Significant Land Rehabilitation

This rule allows for subdivision on the basis of the native and/or exotic planting and permanent retirement of specified highly erodible pasture land as identified in Appendix 7 to the Rodney District Proposed District Plan 2000 – Planning Maps.

Input Databases:

- Areas as shown in Appendix 7 to Rodney District Proposed District Plan 2000 – Planning Maps

Created Layers:

- Land Rehabilitation (LR)

Minimum size for key components:

- Minimum LR area = 6 hectares
- Minimum balance Site Size = 1 hectare

Calculation:

1. Remove all titles smaller than 7 hectares
2. Remove all titles with less than 6 hectares of LR coverage
3. Divide LR coverage area by 6 hectares to obtain LR based yield
4. Add 1 (for a balance lot) and subtract existing dwelling count (from 3) to obtain net dwelling yield.
5. The maximum amount of additional lots under this rule is 5

Rule 7.14.6: Subdivision for the Creation of Esplanade Reserves

This rule provides for a single 'rural residential lot' subdivision opportunity where the Rodney District Council had identified desirable esplanade reserves to improve public access etc that perhaps would not otherwise be vested or titles perhaps not otherwise subdivided. The Plan provides an Appendix identifying by CT Number the parcels where the esplanades can be created for this opportunity. This CT based list was converted into a spatial overlay for assessment, and where the CT number was not found it is assumed that the esplanade has already been created (the new titles will have a new CT number as the old CT has been superseded).

Input Databases:

- Schedule of Potential Esplanade Reserves (Appendix 23A of the *Rodney District Proposed District Plan 2000*)

Created Layers:

- Esplanade Creation (EC): Those titles listed in Appendix 23A of the Rodney District Proposed District Plan 2000, less those that have already been subdivided and have vested esplanade

Calculation:

1. Identify titles from Appendix 23A of the Rodney District Proposed District Plan 2000
2. Net dwelling yield per title equals 2, minus existing dwelling count.

Rule 7.14.7: Subdivision for the Creation of Additional Public Reserve Land

This rule enables subdivision in return for a minimum four hectares of land to be added to an existing adjacent public reserve. The rule requires that the potential reserve land:

- i. Be suitable for use in regards to the registered purpose of the existing abutting public reserve, and;
- ii. The administering agency of the reserve confirms this in writing.

For the purposes of this assessment it is assumed all potential additional reserve land identified will meet these criteria and the subdivision proceeds. (This assumption can be considered generous).

Input Databases:

- Rodney District Proposed District Plan 2000 open space (open space zones 1 to 5)

Created Layers:

- Public Reserves (PR): Identify non-reserve land adjacent to existing reserves

Minimum size for key components:

- Minimum additional reserve land size = 4 hectares.
- Minimum balance site size = 1 hectare.
- Minimum subdivided site size = 1 hectare.

Calculation:

1. Identify any titles adjacent to open space zoning 1 to 5 (PR)
2. Remove all titles smaller than 6 hectares (being 4Ha to vest and 2x 1Ha sites)
3. Divide PR area (after removing an area for the existing dwelling count, multiplied by 1 hectare) by 5 hectares (being 4 hectares to vest, plus 1 hectare for new site)
4. The maximum number of additional titles possible under this rule is 3.

Rule 7.14.8: Subdivision for Household Unit Titles on Maori Land

This rule enables subdivision of Maori Freehold Land, as defined by the Te Ture Whenua Maori Land Act 1993. The rules do not specify any limitations on development or density and reflect the intention of the TTWMLA to enable the use of communally owned land for papakainga and marae use, as well as general rural productive purposes, or whatever purpose the owners of the land and trustees see fit, within reasonable limits.

Note: No objective or consistent or repeatable parameters are provided for this subdivision approach, so a yield cannot be modelled. The rule essentially leaves it open to the trustees to put forward a resource consent proposal for the development of that land, and a subsequent subdivision to follow to allow each consented (or otherwise permitted) dwelling to be on its own site. Effectively the yield will be a function of the vision of the trustees for the land, reflecting the desires of the beneficiary owners, and of course the availability or otherwise of funding for that vision. However MFL has been assessed against the other rules applying to the land based on its underlying zoning, and MFL parcels are also tagged as being so, for future assessment purposes.

Input Databases:

- Tangata Whenua Maori Land layer

Created Layers:

- Housing Maori Land (HML)

Calculation:

No calculation under the HML provisions undertaken (i.e. HML Yield = 0).

Rule 7.14.9 Subdivision of Standard Countryside Living Rural Titles (except Okura Policy Area)

This rule provides for subdivision of land into two hectare sites in the Countryside Living Rural Zone. No layers other than cadastre and zoning are required.

Minimum size for key components:

- Minimum parent size = 4 hectares
- Minimum balance site size = 2 hectares
- Minimum subdivided site size = 2 hectares

Calculation:

1. Select titles with an area greater than 4 hectares
2. Divide site area by 2 hectares
3. Subtract existing dwelling count from (2) to obtain net dwelling yield.

Rule 7.14.10: Subdivision of Countryside Living Rural Cluster Housing Titles (except Okura Policy Area)

This rule provides for the subdivision of Countryside Living Rural Zone in a cluster fashion, at 1.5 hectares average if the parent site is greater than 25 hectares in area. No layers other than cadastre and zoning are required.

Note: While the rule allows for sites much smaller than 1.5 hectare average (down to 2000 m² minimum to enable the clustering the rule envisions) it is not necessary for the model to actually consider this as the maximum dwelling yield is controlled by the one site per 1.5 hectares parent provision, not the minimum. The minimum is only relevant for designing the eventual layout of the lots, not calculating the maximum number of them.

Minimum size for key components:

- Minimum parent size = 25 hectares
- Maximum yield of one per 1.5 hectares of parent lot.

Calculation:

1. Select titles with an area greater than 25 hectares
2. Divide site area by 1.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 7.14.11: Subdivision Standards Okura Policy Area

This rule provides for subdivision in the Okura Policy Area.

The rule contains a lot of requirements for planting and protection, retirement of steep land, stormwater management, placement of buildings etc, and also additional design and layout requirements for titles greater than 15 hectares.

However the defining parameter for yield is one lot per two hectares, irrespective of these other details. Therefore no layers other than cadastre and zoning are required to calculate capacity in this zone.

The design criteria are only relevant for designing the eventual layout of the lots, not calculating the maximum potential number of them

Minimum size for key components:

- Minimum parent size = 4 hectares
- Minimum average site area = 2 hectares

Calculation:

1. Select titles with an area greater than 4 hectare
2. Divide site area by 2 hectare
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 7.14.12: Subdivision of Countryside Living Town Titles

This rule provides for subdivision in the Countryside Living Town zone. This zone is also the receiving environment for Transferable Title Rights (TTR) from donor zones elsewhere in the district.

There are two options provided, one where TTR are not used, and the other where they are. We have calculated the TTR option in addition to the non-TTR option, but to avoid double counting (i.e. donor lots in other zones, plus TTR) at the macro-level only the non-TTR yields are counted in the final district plan area and local board yield calculation.

For other purposes such as local service provision demand forecasts and consideration of maximum growth potential in more specific defined geographic areas, the TTR based yield should perhaps be considered as it is considerably more intensive than the non-TTR and provides a better indication of the maximum possible dwelling numbers in the zone/study area.

Variation 1: Transferable Title Rights Not Utilised

Minimum size for key components:

- Minimum parent size = 3.0 hectares
- Minimum subdivided site size= 1.5 hectares

Calculation:

1. Select titles greater than 3 hectares in area
2. Number of potential lots equals subdividable parent site, divided by relevant average new site size (excluding any balance lots) calculated in accordance with this table:

Parent Site Size Min (ha)	Parent Site Size Max	Minimum Average Site Size (ha)
3.00	5.2499	1.5
5.25	9.9999	1.75
10.00	13.4999	2
13.50	17.9999	2.25
18.00	21.9999	2.5
22.00	27.4999	2.75
27.50	and over	3

3. Subtract existing dwelling count (from results of assessment in Step 2) to obtain net dwelling yield.

Variation 2: Transferable Title Rights Utilised

Transferable Title Rights can be used to increase the yield beyond the non-TTR approach at a rate of two 'bonus' titles for each TTR received from the donor zone.

Note: The doubling of lot potential is the planning incentive to transfer the title right from the donor zone to the Countryside Living Town Zone at a maximum of one lot per one hectare. Please note the comments above regarding double counts between donor zones and CSL-Town with TTR when considering capacity and maximum dwelling yields. The appropriate figure to use will depend on the end users requirements and should be specified by the end user.

Minimum size for key components:

- Minimum parent size = 2.0 hectares
- Minimum subdivided site size = 1.0 hectare

Calculation:

1. Select titles greater than 2 hectares
2. Divide site area by 1 hectare
3. Subtract existing dwelling count (from 2) to provide net dwelling yield.

Rule 7.14.13: Subdivision of Low Intensity Settlement Titles in the Kawau Island Settlement Policy Area

Rule 7.14.13 provides for subdivision in the Kawau Island Settlement Policy Area, at one site per 4,000 m²

Minimum size for key components:

- Minimum parent size = 0.8 hectares
- Minimum subdivided site size = 0.4 hectares

Calculation:

1. Select titles greater than 0.8 hectares
2. Divide site area by 0.4 hectares
3. Subtract existing dwelling count (from 2) to provide net dwelling yield.

Rule 7.14.14: Subdivision of Rural Hamlet Conservation Subdivision

Rule 7.14.14 allows titles identified in Appendix 7H to the district plan to subdivide as a rural hamlet (small clusters of houses on small titles within a larger common area that maintains the productive potential or landscape of the wider parcel).

Appendix 7H of the district plan contains only a single grouping of seven titles near Waitoki to which this rule applies. Accordingly we have grouped these titles together and treated them as a 'special area' and a single net yield number was calculated and equals 41 additional dwellings. It should be noted that this yield is a function of treating the seven titles as a single development area and represents the maximum dwelling yield possible (i.e. splitting the site into different development areas would generate a cumulatively lower yield due to the way the rule works).

North Shore City District Plan (2002)

Rule 9.4.7.1, Rural 1 Zone

Rural 1 Zone provides for a stepped approach, with the first 10 hectares being divided by 1 site per 2 hectares, and any remainder (over 10Ha) at a rate of 1 site per 3 hectares.

Input Databases:

- CRS Parcels

Minimum size for key components:

- Minimum qualifying site area: 4 hectares
- Minimum site size for titles smaller than 10 hectares = 2 hectares
- Minimum site size for titles larger than 10 hectares = 3 hectares

Calculation:

1. Remove all titles smaller than 4 hectares
2. Calculate lot yield using the follow the following formula:

$$\text{Maximum number of titles} = \left(\frac{10 \text{ hectares}}{2 \text{ hectares}} \right) + \left(\frac{\text{Site size (ha)} - 10 \text{ ha}}{3 \text{ ha}} \right)$$

3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 9.4.7.2, Rural 2 Zone

This zone provides for a simple 2Ha lot size approach.

Input Databases:

- CRS Parcels,

Minimum size for key components:

- Minimum site size = 2 hectares

Calculation:

1. Remove all titles smaller than 4 hectares
2. Divide by the minimum site size (2 hectares)
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 9.4.7.3.1 Rural 3 Zone

This zone provides for a simple 2 hectare lot size approach.

Input Databases:

- CRS Parcels

Minimum size for key components:

- Minimum site size = 2 hectares

Calculation:

1. Remove all titles smaller than 4 hectares
2. Divide by the minimum site size (2 hectares)
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 9.4.7.3.2 Rural 3A Zone

This rule enables titles to be subdivided smaller if all native bush on the property is covenanted. The sites can be subdivided to 1 hectare in size, otherwise a 2 hectare rule applies.

Note: It is assumed that if any un-covenanted bush is present then it would be covenanted in order to gain the additional subdivision potential provided for in the district plan.

There is no minimum area of bush required to qualify for this incentive. The bush to be protected will need to be registered with QEII Trust who do have guidelines, based on bush quality. Data for different bush classes is sourced from the LCDB. This ensures that the coverage used to check for 'native bush' is of 'high quality', therefore ensuring few false positives in this zone.

Input Databases:

- CRS Parcels
- LCDB
- QEII Covenants

Created Layers:

- Uncovenanted Native Bush (UNB)

Minimum size for key components:

- Minimum site size (no bush) = 2 hectares
- Minimum site size (bush present) = 1 hectare

Calculation:

1. Remove all titles smaller than 2ha.
2. Check for Presence of bush, if present divide by 1ha, if not present divide by 2Ha
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 9.4.7.4.1.(i): Rural 4(i) West Okura Zone

This rule provides for a simple 2 hectare minimum lot size approach.

Input Databases:

- CRS Parcels

Minimum size for key components:

- Minimum site size = 2 hectares

Calculation:

1. Remove all titles smaller than 4 hectares
2. Divide by the minimum site size (2 hectares)
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield

Rule 9.4.7.4.1.(ii): Rural 4(ii) East Okura Zone

This rule provides for a simple 4 hectare minimum lot size approach

Input Databases:

- CRS Parcels,

Minimum size for key components:

- Minimum site size = 4 hectares

Calculation:

1. Remove all titles smaller than 8 hectares
2. Divide by the minimum site size (4 hectares)
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Waitakere City District Plan (2003)

Rule 6: Countryside Environment Subdivision

This rule provides for subdivision in the Countryside Environment (the rural area in the northern part of the City).

The Rule is a simple 4 hectare minimum, but new dwellings (and minor household units) are prohibited in the 65dBA noise contour from Whenuapai Airbase.

Input Databases:

- CRS Parcels
- 65dBA Noise Contour

Minimum size for key components:

- Minimum site size = 4 hectares

Calculation:

1. Remove all titles smaller than 8 hectares and sites that intersect with the 65dBA Noise Contour.
2. Divide all titles by 4 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 7: Foothills Subdivision (but not in Penihana South or Structure Plan Areas)

This rule provides for subdivision in the Foothills Environment, excepting operative structure plan areas (captured as Special Areas) and Penihana South (see Rule 7.1aa below).

This rule is a simple 4 hectare minimum lot size approach.

Input Databases:

- CRS Parcels

Minimum size for key components:

- Minimum site size = 4 hectares

Calculation:

1. Remove all titles smaller than 8 hectares
2. Divide all titles by 4 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 7.1.(aa): Penihana South Land Subdivision

This rule provides for subdivision in the Penihana South Land area, adjacent to Swanson Village and between the metropolitan limits and the Swanson Structure Plan Area. This rule is a simple 1 hectare minimum lot size approach.

Input Databases:

- CRS Parcels

Minimum size for key components:

- Minimum site size = 1 hectare

Calculation:

1. Remove all titles smaller than 2 hectares
2. Divide all titles by 1 hectare
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rule 10: Bush Living Subdivision

Rule 10 provides for subdivision in the Bush Living Zones outside of the Titirangi/Laingholm Subdivision Area (see Rule 10A and 10B), covering much of the smaller bush dominated titles not in the Coastal Villages zone.

A stepped density approach is provided depending on bush quality and the presence of reticulated infrastructure.

Input Databases:

- CRS Parcels
- WCC Natural Areas: General Natural Area (GNA), Restoration Natural Area (RNA) and Managed Natural Area (MNA)
- Reticulated waste water network, buffered by 50 metres (to allow for future reasonable connection distance and data errors).

Minimum size for key components:

- Minimum site size = 0.4 hectares; if minimum building platform 500 m² of General Natural Area or Restoration Natural Area
- Minimum site area = 8,000 m²; if minimum building platform of 500 m² of Managed Natural Area AND connection to reticulated wastewater is available, otherwise 4 hectare minimum site area provided 500 m² building platform is available in Managed Natural.

Calculation:

1. Remove all titles smaller than 0.8 hectares and with less than 0.0225 hectares of GNA/RNA or 0.05 hectares of MNA (for building platforms and development areas).
2. Check site coverage of GNA/RNA and MNA and reticulated waste water network.

General Natural Area/Restoration Natural Area Titles

3. Select sites that contain more than 0.0225 hectares of GNA/RNA AND are larger than 0.8 hectares, then divide site area by 0.4 hectares to give a Maximum Sites Yield
4. Divide the amount of GNA and/or RNA by 225 m² to give a maximum number of potential Building Platforms.
5. Select the smaller figure from Steps (3) or (4).
6. Subtract existing dwelling count from (5) to obtain net dwelling yield.

Managed Natural Area Titles with reticulated waste water

7. Select sites that contain more than 0.05 hectares of MNA AND fall within a reticulated waste water buffer area AND are larger than 1.6 hectares
8. Divide site area by 0.8 hectares to give a Maximum number of Sites
9. Divide MNA area by 0.05 hectares to calculate the maximum number of Development Areas
10. Select the smaller figure from Steps (8) or (9)
11. Subtract existing dwelling count from Step (10) to obtain net dwelling yield

Managed Natural Area Titles without reticulated waste water

12. Select sites that contain more than 0.05 hectares of MNA AND fall outside a reticulated waste water buffer area AND are larger than 8.0 hectares
13. Divide site area by 4.0 hectares give a Maximum number of Sites
14. Divide MNA area by 0.05 hectares to give the Maximum number of Development Areas
15. Select the smaller figure from Steps (13) or (14)
16. Subtract existing dwelling count from Step (15) to obtain net dwelling yield

Final Check

17. Select the highest yield (dwellings) from either steps (6), (11) OR (16).

Rule 10A: Titirangi/Laingholm Subdivision Area 1

Rule10A provides for subdivision in the Titirangi/Laingholm Subdivision Area (located on the city/northern side of the Titirangi Rd ridgeline), with the yield depending on the presence and quality of any bush. The rules provide for a stepped density depending on the bush quality as determined by the Natural Areas maps in the district plan.

Input Databases:

- CRS Parcels
- WCC Natural Areas: General Natural Area (GNA), Restoration Natural Area (RNA) and Managed Natural Area (MNA)

Minimum size for key components:

- Minimum site size = 0.2 hectares if GNA and/or RNA
- Minimum site size = 0.4 hectares for new titles if site contains MNA (allowing 0.2 hectares for existing dwellings); minimum building platform 500 m² of General Natural Area and/or Restoration Natural Area, or Managed Natural Area.

Calculation:

1. Remove all titles smaller than 0.4 hectares that have than 0.05 hectares of GNA/RNA or MNA
2. Check coverage of GNA/RNA and MNA

Titles containing General Natural Area/Restoration Natural Area

3. Select sites that contain more than 0.05 hectares of GNA/RNA
4. Divide site area by 0.2 hectares to give a maximum sites figure.
5. Divide the amount of GNA and/or RNA by 500 m² to give a maximum number of Development Areas.
6. Select the smaller figure from Steps (4) or (5)
7. Subtract existing dwelling count from result of Step (6) to obtain net dwelling yield.

Titles containing Managed Natural Area

8. Select sites that contain more than 0.05 hectares of MNA
9. Subtract 0.2 hectares per existing dwelling from the site area (for the first or existing dwelling) divide remaining area by 0.4 hectares to give a maximum number of sites.
10. Divide MNA area by 0.5 hectares to calculate maximum number of development areas.
11. Select the smaller of (9) or (10) to obtain net dwelling yield

Final Check

12. Select the higher yield (dwellings) from either step (7) and (11).

Rule 10B: Titirangi/Laingholm Subdivision Area 2

This rule provides for subdivision in the Titirangi/Laingholm area (located on the Waitakere Ranges side of the Titirangi Rd ridgeline). The rules provide for a stepped density depending on the bush quality present on the site and provide larger lot sizes (i.e. lower density) than those permitted under rules set out for the more urban character of Titirangi/Laingholm Subdivision Area 1.

Input Databases:

- CRS Parcels
- WCC Natural Areas: General Natural Area (GNA), Restoration Natural Area (RNA) and Managed Natural Area (MNA)

Minimum size for key components:

- Minimum site size = 0.4 hectares if GNA and/or RNA area per site is greater than 0.1 hectares
- Minimum site size = 1.0 hectare for new titles, if site contains MNA (0.4 hectares around existing dwelling/s); minimum building platform 1000 m² of GNA and/or RNA, or MNA.

Calculation:

1. Remove all titles smaller than 0.4 hectares, and sites with less than 0.1 hectares of GNA/RNA or MNA
2. Check Coverage of GNA/RNA and MNA

Titles containing General Natural Area/Restoration Natural Area:

3. Select sites that contain more than 0.1 hectares of GNA/RNA, divide site area by 0.4 hectares
4. Divide the amount of GNA and/or RNA by 1,000 m²
5. Select the smaller figure of (3) or (4)
6. Subtract existing dwelling count to obtain net dwelling yield.

Titles containing Managed Natural Area:

7. Select sites that contain more than 0.05 hectares of MNA
8. Subtract 0.4 hectares per existing dwelling from the site area, divide the remaining area by 1.0 hectares
9. Divide MNA Area by 0.05 hectares
10. Select the smaller figure out of (8) or (9) to obtain net dwelling yield

Final Check:

11. Select the higher yield (dwellings) from either step (6) and (10).

Rule 11: Waitakere Ranges Subdivision (Not in Titirangi/Laingholm Subdivision Area)

Rule 11 provides for subdivision in the Waitakere Ranges Environment (outside of TLSA and any Structure Plan) depending on the presence and quality of vegetation cover.

Input Databases:

- CRS Parcels

- WCC Natural Areas: General Natural Area (GNA), Restoration Natural Area (RNA) and Managed Natural Area (MNA)

Minimum size for key components:

- Minimum site size = 4 hectares; provided a building platform and access of 500 m² of GNA and/or RNA is present.

Calculation:

1. Remove all titles smaller than 8 hectares
2. Remove all titles with less than 500 m² of GNA and/or RNA
3. Divide title area by 4 hectares to give maximum site potential.
4. Divide the amount of GNA and/or RNA by 500 m² to give a maximum Development Area count.
5. Select the smaller figure of the results in Steps (3) or (4).
6. Subtract existing dwelling count from result in Step 5 to obtain net dwelling yield.

Auckland City District Plan - Proposed Hauraki Gulf Islands Section (Decision Version) (2009)

The Hauraki Gulf Islands Plan provides for various subdivision options based on the 'dominant' landform present on the subject title.

Two options for subdivision are provided for in some landforms, the Minimum Lot Size (MLS) and a Significant Environmental Feature (SEF) option. While both have been modelled, only the MLS results are reported as the SEF approach is a higher consent category than MLS.

In the SEF assumptions a minimum size or area the SEF Feature in order to qualify. This is included despite there being no minimum set out in the rules (the presence and protection of any SEF is sufficient to enable the SEF rules to be implemented), but enables variation of this value if required. A potential future improvement to the methodology could be to differentiate between area based features (such as bush) and point features (such as archaeological sites, scheduled trees and historic sites).

Landform 1:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 25 hectares

Calculation:

1. Remove all titles smaller than 50 hectares
2. Divide remaining title areas by 25 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Landform 2:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 25 hectares

Calculation:

1. Remove all titles smaller than 50 hectares
2. Divide remaining title areas by 25 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 7.5 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 15 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 7.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Landform 3:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 3.5 hectares

Calculation:

1. Remove all titles smaller than 7 hectares
2. Divide remaining title areas by 3.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 2 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 4 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 2 hectares
3. Subtract existing dwelling count from (2) to obtain a net dwelling yield.

Landforms 4 to 7:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 25 hectares

Calculation:

1. Remove all titles smaller than 50 hectares
2. Divide remaining title areas by 25 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 7.5 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 15 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 7.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 1:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 3.5 hectares

Calculation:

1. Remove all titles smaller than 7 hectares
2. Divide all remaining title areas by 3.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 2 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 4 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 2 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 1 (Onetangi Rd):

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 5 hectares

Calculation:

1. Remove all titles smaller than 10 hectares
2. Divide all remaining title areas by 5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 2 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 4 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 2 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 1 (73 Onetangi Rd):

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 3.5 hectares

Calculation:

1. Select title(s) located at 73 Onetangi Rd
2. Divide title area by 3.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Significant Environmental Feature Provision

Minimum size for key components:

- Minimum site size = 2 hectares
- Minimum SEF area = 500 m²

Calculation:

1. Remove all titles smaller than 4 hectares, or containing less than 500 m² SEF
2. Divide all remaining title areas by 2 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 2:

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 5 hectares

Calculation:

1. Remove all titles smaller than 10 hectares
2. Divide title areas by 3.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 2 (Thompsons Point)

A 5 hectare Minimum lot size applies to each title individually within this zone, as applied by the minimum lot size provision in Table 12.1 of the district plan (refer Figure 33 of this report).

Note that the Thompsons Point area provides for a comprehensive development option at 7.5 hectares average minimum, applying across all titles within the zone in an application. Thompsons Point Zone covers some 137.8 hectares. At an average minimum of 7.5 hectares this equates to 18 titles maximum, less an existing dwelling count of 3, therefore providing capacity for 15 additional titles across the sub-zone under the comprehensive option.

Only the MLS approach is reported in the results, and also provides for a net yield of 15 across the sub-zone if each site were developed individually.

Minimum Lot Size Provision

Minimum size for key components:

- Minimum site size = 5 hectares

Calculation:

1. Remove all titles smaller than 10 hectares
2. Divide title area by 5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 3 (Rakino)

Under rules in the Rural 3 zone, two options are provided:

- A. 3 hectares minimum if 30% revegetation by area of each new site is achieved, with only general rule limits on building coverage, or
- B. 2 hectares minimum if 50% revegetation by area of each new site is achieved with a covenanted 300 m² building coverage limit. For the model, only the minimum site area is required for calculation as the revegetation percentage is assumed to be achievable on all new lots.

Both approaches are the same consent category and as Method B will produce a greater yield this is the reported result. However, given the quite onerous revegetation requirements and building site coverage restrictions associated with Method B, it is probably unlikely that all future subdivisions would be under this method, despite the potential incentive of the greater yield.

Minimum Lot Size Provision – Method A

Minimum size for key components:

- Minimum site size = 3 hectares

Calculation:

1. Remove all titles smaller than 6 hectares
2. Divide remaining title areas by 3 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Minimum Lot Size Provision – Method B

Minimum size for key components:

- Minimum site size = 2 hectares

Calculation:

1. Remove all titles smaller than 4 hectares
2. Divide remaining title areas by 2 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Manukau City District Plan (2002)

Rural 1 or 'General Rural Zone'

As noted in the Table 13 (refer section 0), the Rural 1 zone provides for four separate subdivision options. All titles in the zone are assessed against all four options, with the highest yielding option being the reported yield for that site¹⁹.

Variation 1: 120 hectare minimum lot size

This approach allows for subdivision at a 120 hectare minimum lot size.

Note: Discussions with Manukau City legacy planners suggested that they could not recall any occasion of this rule being utilised by an applicant, and it is unlikely that this provision would result in a higher yield than one of the other options in the zone particularly on a title larger than 240 hectares.

Minimum size for key components:

- Minimum site size = 120 hectares

Calculation:

1. Select all titles larger than 240 hectares
2. Divide site Area by 120 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Variation 2: Horticultural Lots (lots greater than 12 hectares)

This approach allows for subdivision based on the area of land suitable for horticulture (termed 'net useable area' in the district plan) and parent title size.

Each potential subdivision requires the minimum area of land suitable for horticulture; a 2,000 m² area for each dwelling; a 10 hectare balance area following the subdivision. As an example, this means that a proposed two lot sub-division would require area of 22.2 hectares before considering any of the other criteria.

Planners from the Manukau City Council advise that the 10 hectare balance lot is a compulsory requirement for all Horticultural Lot subdivisions rather than enabling a potential bonus lot in some circumstances. Accordingly this is how the approach has been modelled.

Input Databases:

- Land Use Capability (LUC) and LCDB2 – various classes and categories.

Created Layers:

- Extent Usable Horticultural Land (EUHL): Created from LUC class, slope and other relevant criteria specified in the text of the plan

Minimum size for key components:

- Minimum area for dwelling site = 0.2 hectares
- Minimum area of EUHL for single site = 12 hectares
- Minimum area of EUHL per site if yield is more than one = 16 hectares
- Minimum balance Area = 10 hectares

Calculation:

1. Remove titles smaller than 22.2 hectares

¹⁹ Yield figures for the other options are maintained as attributes in the capacity model output data and are available by request

2. Calculate EUHL coverage, remove titles with less than 12 hectares of EUHL

Single additional lot verification

3. If the title meets criteria (below) then total lots = 2 (Yield A)

$$\text{Title area} \geq (12 \text{ ha EUHL} + 0.2 \text{ ha}) + 10 \text{ ha}$$

Multiple additional Horticultural lots verification (16 hectares EUHL per lot)

4. Remove titles with smaller than 42.4 hectares
5. Select tiles with more than 32 hectares EUHL, divide EUHL area by 16 hectares, round down to nearest whole number (Yield B)
6. Remove 10 hectares from site area; calculate number of multiples of 16.2 hectares (Yield C).
7. Smaller of either Yield B or Yield C becomes Yield D

Final yield

8. Select maximum of either Yield A or Yield D
9. Subtract existing dwelling count (from 8) to obtain net dwelling yield.

Variation 3: Rural Residential Lots

This approach allows for subdivision to create a single rural residential site if the parent title was over 20 hectares as at 5 June 1989.

Note: Planners advise that common practice is also to allow a single rural residential lot to be taken on titles greater than 20 hectares created after 1989, but only if it can be shown by the applicant that the single Rural Residential lot had not previously been taken on the parent lot of the subject title. This has not been able to be practicably assessed in our modelling across all titles in this zone (this would require manual historic title searches to assess). This would also push the application to a higher category of consent also making the practice out of scope for this study.

Minimum size for key components:

- Minimum site size = 20 hectares

Calculation:

1. Remove titles smaller than 20 hectares
2. Remove titles where title issue date is after to 5 June 1989.
3. Yield is equal to two, minus the existing dwelling count.

Variation 4: Native Bush Lots

This approach allows for subdivision of titles that contain a certain amount of 'native bush' meeting definition elsewhere in the plan (Chapter 18 of the district plan) and are over a certain size. Bush must be uncovenanted at time of application and also excludes any required esplanade reserve.

A single Native Bush Lot site is permitted on titles that are between 10 and 40 hectares, with at least 9,000 m² of uncovenanted bush. Two Native Bush Lots can be created if the site is larger than 40 hectares, and have either a single area of more than 20 hectares of bush or two separate areas of 9000 m² is available for protection.

Note: In practice consents will be issued for bush that had been voluntarily covenanted prior to application. The intent of the rule is to avoid 'double dipping' or the use of the same bush to generate multiple bush lot applications. However it is not practicable to investigate the compulsion or otherwise behind a covenant in this modelling exercise across all titles in the zone. An application for additional subdivision would be at a higher category of consent and is out of scope of this study.

Input Layers:

- LCDBII (Native bush Classes)
- QEII Covenants (To identify areas not covenanted)
- CRC Titles

Layers Created:

- Extent Uncovenanted Bush (EUB)

Minimum size for key components:

- Minimum area of qualifying title for single native bush lot = 10 hectares
- Minimum area of EUB for single site = 9000 m² (90% of minimum 1 hectare Native Bush Lot size)
- Minimum area of title to qualify for two native bush lots = 40 hectares
- Minimum area of EUB for second site = Single area of 20 hectares or two areas of 9000 m²

Calculation

Single Native Bush Lot

1. Remove titles smaller than 10 hectares and larger than 40 hectares
2. Select titles with more than 0.9 hectares of EUB
3. Yield is equal to two, minus the existing dwelling count.

Two Native Bush Lots

4. Select titles larger than 40 hectares
5. Select titles with a single polygon area of more than 20 hectares of EUB, or with at least 2 polygons greater than 9000 m² each of EUB
6. Yield is equal to three, minus the existing dwelling count.

Rural 2 Zone or 'Countryside Living Concentration'

This zone provides for a stepped density approach based on the parent titles area.

On titles between 4 and 6 hectares a single additional lot is provided; on titles between 6 and 10 hectares two additional lots are provided for; and where a subdivision would result in more than 3 lots (in total including residue lot) then a 4 hectare average is required (i.e. 16 hectares or more, then divide by 4 hectares).

Note: This rule refers to titles 'up to 10 hectares' in area, but in practice the provisions also apply to sites up to 16 hectares in area as to achieve a 4 hectare average site size; for 3 titles or more 16 hectares or more is required. In this manner each site is captured by the assessment methodology, otherwise sites between 10 and 16 hectares would not be assessed and receive have a yield of zero, when in practice they can be subdivided under the rules.

Minimum size for key components:

- Minimum site size = 4 hectares

Calculation:

Sites between 4 and 6 hectares

1. Select titles between 4 and 6 hectares
2. Yield is equal to two, minus the existing dwelling count.

Sites between 6 and 16 hectares

3. Select titles larger than 6 and smaller than 16 hectares

4. Yield is equal to three, minus the existing dwelling count.

Sites larger than 16 hectares

5. Select titles equal to or greater than 16 hectares
6. Divide title area by 4 hectares
7. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 3 Zone or 'Countryside Transition'

This zone provides for subdivision as a Minimum Lot Size approach. The minimum lot size is 5,000 m²

Calculation:

1. Remove titles less than 1 hectare
2. Divide title area by 0.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Rural 4 Zone or 'Mangemangeroa Catchment'

The 'Mangemangeroa Catchment' zone provides for a stepped density approach based on net parent title area (title area, less 'potential esplanade reserves') and has a title age limit of 1 August 1995.

Planners advise that unlike the Rural 1 – Variation 3 outlined above, titles larger than 2 hectares created after the first of August 1995 are likely to have a restrictive covenant imposed at the time of subdivision to preclude additional subdivision applications. As such the title age limit is much more stringently applied in both practice and rule intent.

Titles between 3 and 6 hectares in net area are provided with a single additional lot option while sites above 6 hectares net can apply a minimum lot size of 2 hectares.

Note: This is the only rule in the plan that explicitly refers to the area of any new title being net of any potentially required esplanade reserve (20m strip adjacent to any coastline, river wider than 3m or lake greater than 4Ha in area on any new site smaller than 4Ha in area). While it is assumed that subdivision in other zones would result in the vesting of Esplanades where required, the area vested is not required to be accounted for in the yield calculations in those zones.

Note: In practice, titles with ages newer than the date limit can be assessed (under a higher consent category) provided documentation is provided to show that the title was not created by way of a subdivision along the same lines (i.e. that the titles age is a result of factors other than subdivision, such as boundary adjustment or amalgamation), but as this is a higher consent category and we are unable to review the title deed for every site in the zone we assume all titles with an age newer than the rule specifies are not candidates.

Input layers:

- CRC Titles
Lakes (<4Ha), Rivers (Category 2 and greater) and DCDB Coastline.

Created layers:

- Extent Potential Esplanade (EPE): 20 metres buffer around coastline and lakes larger than 4 hectares in surface area and rivers and streams higher than Category 2 (as a proxy for width greater than 3 metres)

Minimum size for key components:

- Minimum site size = 3 hectares

Calculation:

Sites between 3 and 6 hectares

1. Select titles between 3 and 6 hectares
2. Yield is equal to two, minus the existing dwelling count

Sites larger than 6 hectares

3. Select titles larger than 6 hectares
4. Divide title area by 2 hectares
5. Subtract existing dwelling count (from 4) to obtain net dwelling yield.

Flatbush Countryside Transition (FBCT)

The Flatbush Countryside Transition zone including the Gracechurch sub-area (refer section 28.5.6 below) is part of the Flat Bush Structure Plan Area. Given the simplicity of the rules, their rural nature and operative nature of them we have calculated them separate from the wider structure plan (see Special Areas section).

A 5,000 m² Average Minimum Lot size approach is provided for.

Minimum size for key components:

- Minimum site size = 1 hectare

Calculation:

1. Select titles larger than 1 hectare
2. Divide title area by 0.5 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Flatbush Countryside Transition (Gracechurch)

This zone and the FBCT area (see above, section 5) is part of the Flat Bush Structure Plan. See section 28.5.5 above.

A 4000 m² Average Minimum Lot size approach is provided for.

Minimum size for key components:

- Minimum site size = 0.8 hectares

Calculation:

1. Select titles larger than 0.8 hectares
2. Divide title area by 0.4 hectares
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Puhinui Special Culture Zone, Puhinui Special Natural Heritage Zone & Puhinui Rural Zone

These three zones are all within the Puhinui Area located between the Manukau Harbour and the developed urban area of the former Manukau City.

While different land uses are enabled for each of the zones, (for example the Puhinui Special Culture Zone specifically enables Marae and associated activities,) but the subdivision provisions are the same they have been grouped together for description in this section.

The subdivision provisions in these zones are also identical to those seen in the Rural 1 'General Rural' zone (but without the 'Native Bush Lot' variation), mainly due to the absence of native bush in these zones.

Puhinui Zones, Variation 1: 120Ha Minimum Lot Size

Refer – Rural 1, Variation 1: 120 hectares Minimum Lot Size

Puhinui Zones, Variation 2: Horticultural Lots (Lots greater than 12Ha)

Refer – Rural 1, Variation 2: Horticultural Lots (lots greater than 12 hectares)

Puhinui Zones, Variation 3: Rural Residential Lots

Refer – Rural 1, Variation 3: Rural Residential Lots

Whitford Rural A and Whitford Rural B

This zone provides for a minimum lots size of 3.5 hectares (Whitford A) or 5 hectares (Whitford B) subdivision based on the parent title size, with the provision for bonus lots based on a combination of the planting of areas specified in the district plan (Indicative Constraint Areas (ICA)²⁰) and the parent title area.

As there is no consent category 'step' between the Minimum Lot Size approach and the Bonus Lots from ICA planting, all reported yields include bonus lots where they are available on the site.

Note: It is also noted that there is a limit of 925 dwellings across the Whitford Rural Area, imposed in order to maintain 'local character and amenity values'.

Total capacity calculated to date (as at 11-09-12, Run 1.0) in the Whitford Rural A and B zones is 814 additional dwellings with 106 estimated existing dwellings totalling 920 dwellings maximum dwelling capacity based on ICA planting bonuses alone. (Note that the Whitford Rural Area extent identified in the Plan includes a number of parcels with capacity that are not zoned Whitford Rural A or B which would impact on the 925 dwelling limit if developed). A potential implication of this is that the granting of ad-hoc Non-Complying activities and/or residential development on the non-Whitford A and B zoned sites inside the Whitford Rural Area could adversely impact on the potential for otherwise compliant planting incentive based A and B type development to gain consent once the 925 dwelling limit is reached.

Input Layers:

- CRC Titles
- MCC DP Chapter 12A,:
 - Figure 12A.1 – Location of Perennial Streams and Slope Constraint Areas
 - Figure 12A.2 – Location of Perennial Streams and Native Vegetation Constraints Areas.
 - These two maps contain information that is combined to create the WRICA layer from the Riparian Margins Planting Area (perennial streams buffered by 10m), Existing Native Bush and Planting on Slopes >15 degrees.

Created Layers:

- Whitford Rural Indicative Constraint Areas (WRICA)

Minimum size for key components:

- Minimum site size Whitford Rural A = 3.5 hectares
- Minimum site size Whitford Rural B = 5 hectares

²⁰ Only the slope greater than 15 degrees (refer Manukau City District Plan, Map 12A.1) and Riparian Management (refer Manukau City District Plan, Map 12A.5) are used to identify the area of planting for the bonus lot provisions. All other ICA (dwelling visibility etc) are assumed to be able to be complied with. Planting in addition to the ICA areas is also able to be utilised to generate bonus lots on sites without identified ICA or to increase yield on sites with ICA. This potential has not been modelled.

Calculation:

Average Lot Size

1. Select titles with an area at least double minimum lot size
2. Divide title area by minimum lot size; 3.5 hectares in Whitford Rural A and 5 hectares in Whitford Rural B
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Bonus Lot(s)

4. Apply bonus lots in accordance with the table below (created from Rules 12A.14.3.1(i) and (ii) and also contained in *Design Guidelines for Rural Subdivision and Development in the Whitford Area, p27*)

Table 40: Bonus lot provisions for Whitford Rural A and Whitford Rural B

Size of parent title		Minimum Area of WRICA required	Maximum bonus lots per parent title
Whitford A	Whitford B		
< 7 ha	< 10 ha	-	-
> 7 ha, < 20 ha	> 10 ha, < 20 ha	12 ha	3
>20Ha, <35Ha		16 ha	4
>35Ha, <55Ha		20 ha	5
>55Ha, <65Ha		24 ha	6
>65Ha, <75Ha		28 ha	7
>75Ha		32 ha	8

Final Yield

5. Add bonus lots (from 4) to average lots (from 3) to obtain net dwelling yield (including bonus lots).

Papakura District Plan (1999)

Rural Papakura Zone

This zone contains three potential options for subdivision:

1. Conservation Lots if the site contains environmental features meeting certain criteria; or
2. Rural Lots if the site contains 'useable land' and is sufficiently large enough; or
3. Horticultural Lots, where intensive horticulture has been established on a permanent basis.

Options 1 (Conservation Lots) and 2 (Rural Lots) are run over all titles that fall within the zone with the highest yielding approach being reported as the titles yield²¹.

Option 3 (See Rule 7.1.5.2.(g)) has not been modelled as there are no repeatable parameters provided in the rule. The provision basically enables the separation of intensive horticulture activities that are 'established on a permanent and sustainable basis' along with an appropriate curtilage can be separated from a parent title in conjunction with a management plan.

Rural Papakura (Variation 1): Conservation Lot

The approach used for Variation 1 allows for an initial site based on a minimum required area of uncovenanted 'native bush' (represented by the EAUB layer, and referred to in the Plan at 7.1.5.2.1.8.2.A) or the simple presence (i.e. no minimum area required) of Areas of Biological or Scientific Importance Features (represented by the EBINF layer, and referred to in the Plan at 7.1.5.2.1.8.2.B)), as well as provision of sufficient area on site clear of these features for any new dwelling to be located without impacting on the feature that is to be protected.

The rule also allows provision for bonus lots (to a maximum of two bonus lots) based on the *combined area* of 'native bush' and Areas of Biological or Scientific Importance features that are able to be protected on the site. (i.e. the distinction between native bush and features of scientific importance is only relevant for the first Conservation Lot).

Input layers:

- CRC Titles
For Uncovenanted Native Bush:
- QEII Covenants
- LCDB2 – Native bush classes
For Areas of Biological or Scientific Importance:
- RPS Maps: High Natural Value and Outstanding Natural Features
- SDE 'Heritage' Layers: Coastal Protection Area, Areas of Ecological Significance, Areas of High Conservation Value, Wetlands, DoC Wetlands, Hunua Ecological District PNA Fauna and PNA Vegetation.

Created layers:

- Extent A Uncovenanted Bush (EAUB)
- Extent B Important Natural Features (EBINF): Bush and non-vegetation features such as wetlands and geological features

Minimum size for key components:

- Minimum site size = 8000 m²

²¹ Yield figures for the other options are maintained as attributes in the capacity model output data and are available by request. 'Cascading' (use of any balance lot for more subdivision) is not provided for in Papakura other than as a Non-Complying Activity, cf Rodney District.

- Minimum area of features (EAUB + EBINF) = 5000 m²
- Minimum area of EBINF > 0
- Minimum building platform area, clear of feature = 1500 m²

Calculation:

First Conservation Lot

1. Remove titles that are smaller than 8000 m² (5000 m² of bush plus 2 x 1500 m² for building platforms)
2. Remove all titles with either less than 5000 m² of (EAUB + EBINF), or have less than 0 m² of EBINF only
3. Net dwelling yield per title equals 2, minus existing dwelling count.

Additional Bonus Lots

4. If the combined area of EAUB + EBINF is greater than 9 hectares, but less than 15 hectares, then bonus lots equals 1
5. If the combined area of EAUB + EBINF is equal to or greater than 15 hectares, then bonus lots equals 2
6. Select the highest figure of either (4) or (5)
7. Final Conservation Lot Yield is (3) + (6)

Final Yield

8. Add bonus lots (from 7) to conservation lots (from 3) to obtain net dwelling yield (with bonus lots).

Rural Papakura (Variation 2): Rural Lot

This approach allows for the creation of a single lot only²² on titles over 14 hectares in size that also contain at least 12 hectares of 'Usable Land', and where the title's age is older than 1 May 1993 (i.e. the site has not been created by way of subdivision after 1 May 1993).

Usable land is defined as being suitable for horticulture by meeting certain criteria in the district plan (soil type, slope etc).

Input layers:

- Land Use Capability (LUC) and LCDB2 – various classes and categories for EUHL

Created layers:

- Extent Usable Horticultural Land (EUHL)

Minimum size for Key Components:

- Minimum site size = 14 hectares
- Minimum EUHL area = 12 hectares

Calculation:

1. Remove all titles smaller than 14 hectares
2. Remove all titles created after 1 May 1993
3. Remove all titles with a EUHL area of less than 14 hectares (or 100% coverage) (note that the minimum 12 hectares balance lot and the new minimum 2 hectare lot are both required to contain at least that amount of 'usable land' each)
4. Net dwelling yield per title equals 2, minus existing dwelling count.

²² More than a single lot is provided for in the 'Rural Papakura (Drury Subdivision Area)'. This is outlined in section 0. It has been treated as a separate zone for the purposes of our modelling.

Rural Papakura (Variation 3)

As noted above, this Intensive Horticultural Use subdivision provision is not able to be spatially modelled as it is based on an economic assessment of established intensive horticultural activities.

Rural Papakura (Drury Subdivision Area)

This area is a subset of the Rural Papakura zone but has been treated as a separate zone for the purposes of the modelling process.

The zone permits subdivision similar to 'Rural Papakura (Variation 2): Rural Lots' but enables the creation of more than a single lot. The minimum site area is however larger than that required in the Rural Papakura Zone.

Input layers:

- Land Use Capability (LUC) and LCDB2 – various classes and categories for EUHL

Created layers:

- Extent Usable Horticultural Land (EUHL)

Minimum size for Key Components:

- Minimum site size = 16 hectares
- Minimum EUHL area = 12 hectares
- Minimum EUHL area for additional lots = 3 hectares

Calculation:

1. Remove titles smaller than 16 hectares
2. Remove all titles created after 1 May 1993
3. Remove titles with less than 12 hectares of EUHL

First Lots

4. Subtract 12 hectares from lot size (as the first site needs 12 hectares of EUHL), this provides a potential yield of 1

Additional Bonus Lots

5. Divide remaining EUHL (after removing the first lot's 12 hectares as per Step 4) by 3 hectares. This is the potential number of bonus lots.

Final Yield

6. Maximum lot yield per parent title equals Step (3) + Step (4)
7. Subtract existing dwelling count from Step (6) to obtain net dwelling yield.

Rural Papakura (Hill Subdivision Area)

This area permits subdivision on the basis of site size if the title is larger than 14 hectares and was not created after 1 May 1993. If a lot meets these criteria then one additional lot is creatable.

Minimum size for key components:

- Minimum site size = 14 hectares

Calculation:

1. Remove titles smaller than 14 hectares
2. Remove titles that were created after 1 May 1993
3. Net dwelling yield per title equals 2, minus existing dwelling count.

Rural Residential (Zones 1 and 2)

This zone provides for subdivision to a 1 hectare average lot size. There are two separate zones identified as having this rule, with the difference in name referring to their location.

Minimum size for key components:

- Minimum site size = 2 hectares

Calculation:

1. Remove titles smaller than 2 hectares
2. Divide site area by 1 hectare
3. Subtract existing dwelling count (from 2) to obtain net dwelling yield.

Nature Conservation Area

This zone controls subdivision in the Ponga Road Forest. The provision of lots is dependent on the area of uncovenanted bush available to be covenanted, and the availability on the title of areas for building platforms for the proposed lots, in addition to the covenanted bush. As the building platform area is not directly specified in the plan (but a 300 m² limit is noted relating to the clearance of bush as a discretionary activity), the modelling has assumed a 1500 m² area as a reasonable assumption for the building platform requirement clear of any protected bush as this is the figure specified in the other bush zone: Rural Papakura (Variation 1): Conservation Lot.

Input layers:

- LCDB2
- QEII Covenants
- CRC Titles

Minimum size for key components:

- Minimum area of bush to be protected for single lot = 2 hectares
- Minimum area of bush to be protected for single bonus lot = 15 hectares
- Minimum area of non-covenanted for building platform per dwelling = 1500 m²

Calculation:

1. Remove titles smaller than 2.3 hectares (2Ha + 2x 0.15Ha)

Single Lot

2. Select titles with more than 2 hectares, but less than 15 hectares of uncovenanted bush (EUB)
3. Lot Yield equals 2

Additional Bonus Lots

4. Select titles with more than 15 hectares of uncovenanted bush (EUB)
5. Lot Yield equals 3

Final Yield

6. Select highest of either Step (3) or (5)
7. Subtract existing dwelling count (from 6) to obtain net dwelling yield.

Rural Takanini – Drury

This area permits subdivision based on a combination of title area and usable horticultural land area. If a title is larger than 4 hectares and the area of 'Usable Horticultural Land' area is greater than 4 hectares then one additional lot is possible.

Input layers:

- Extent Usable Horticultural Land (EUHL)

Minimum size for Key Components:

- Minimum site size = 4 hectares
- Minimum EUHL area = 4 hectares

Calculation:

1. Remove titles small than 4 hectares
2. Select titles with more than 4 hectares of EUHL
3. Net dwelling yield per title equals 2, minus existing dwelling count.

Franklin District Plan (2000)

Similar to Rodney District, the Zone controls the set of subdivision options available from a list of options in the Subdivision section, not subdivision directly. The two operative rural zones within the Auckland Region are the Rural Zone and the Forest Conservation Zone. Both these zones have the same subdivision provisions available so are described here together.

Rural Zone and Forest Conservation Zone

Two Options are provided that have been modelled as part of this study:

1. General Purpose Lots and
2. Conservation Lots

General Purpose Lots can only be undertaken on titles that do not have the potential for Conservation Lots. Accordingly Conservation Lot potential needs to be calculated first.

Rule 22.9: Conservation Lots

This rule provides for the provision of lots on the basis of the protection of a certain area of Native Bush, or other specified Natural Features.

A bonus lot provision is also provided where if the area protected is larger than 9Ha an additional lot is possible and increases at 1 lot per additional 6Ha of Feature Protected.

Input layers:

- Land Cover Database (LCDB)
- Covenant database
- DOC Wetlands
- SNA database

Created Layers:

- Extent Conservation Lot Feature (ECLF)

Minimum sizes for key components:

- Minimum site size = 1 hectare
- Minimum area of ECLF $\geq 5000 \text{ m}^2$
- Minimum balance site size $\geq 2500 \text{ m}^2$

Calculation

1. Remove all titles smaller than 1 hectare (0.5 hectares of ECLF plus 2 x 0.25 hectares for building platforms)

Potential Conservation Lot Feature Lots

2. Remove all titles with less than 5000 m^2 of bush and/or wetland (ECLF)
3. Calculate potential Conservation Lot Feature Lots (refer Table 41 below, copy of as table illustrated in 22.9A.4 of the Franklin District Plan (2000))

Table 41: Bonus lot provisions for Conservation Lot Feature Lots

Total Area of Feature Protected	Number of lots that can be created (excluding balance lots)
0.5 ha to 8.9 ha	1
9.0 ha +	1 lot per 6 ha

Potential area exclusive of protected feature Yield:

4. Calculate the net area of the title, minus the area of ECLF
5. Divide (4) by 0.25 hectares to obtain maximum number of building platforms.

Final Yield Calculation

6. Select the smaller number of the result of either Step (3: ECNF based Yield) or (5: Building Platforms)
7. Add 1 (for balance lot) to the result of Step (6)
8. Subtract existing dwelling count to obtain net dwelling yield.

22.8 General Purpose Lots

If a title is greater than 40 hectares and does not have the potential for a Conservation Lot, one additional lot can be created.

Input Databases

- Titles that qualified for Conservation Lots (per Rule 22.9)

Minimum sizes for key components:

- Minimum site size > 40 hectares

Calculation

1. Remove all titles that qualified for Conservation Lots
2. Remove all titles smaller than 40 hectares
3. Net dwelling yield per title equals 2, minus existing dwelling count.