

The adequacy of Auckland region's residential land supply

Appendix E: Residential Land Supply Update Process, 2006-2008

Having obtained the 2006 ARC residential land datasets and transferred the base data into our own database, it was then necessary to contemporise the dataset by deducting (i.e. removing from the dataset) parcels of land which can no longer be counted as capacity, and adding parcels which have added to capacity since the 2006 datasets were compiled. These two operations are described below:

1. Deduction of Capacity

- Greenfield / Brownfield and Larger Sites
- The deduction of capacity operation was undertaken based on three data sources¹
- Undertaking site visits to areas where there are large areas of capacity identified on the ARC's 2006 capacity maps and identifying (from observation) which properties have been developed, and are now occupied by completed units;
- Utilising in-house HG information (which is in any case publicly available) in respect of developments that are known to be completed;
- Utilising Council consent tracking databases to identify sites for which Code Compliance Certificate units² had been issued.

This site visit / in house HG exercise covered some 881 individual parcels of land plus all of the Special Areas (Structure Plan Areas), out of a total number of vacant or vacant potential sites identified in the ARC database of 8,151. The areas included covered (in land area) the majority of vacant land identified within the MUL (approximately 70%).

Information from Council consent tracking databases covered an additional 1,100 parcels of land (to a total of 2,850 covering a total of 82% of vacant identified land). Sites and land not actually covered by the survey process have been carried through from the 2006 ARC assessment. That is, the capacity that existed on that land is assumed to still be available in 2008 (with a small adjustment downwards). This is likely to lead to a small overstatement of capacity as at 2008. However, the difference is likely to be less than a few percentage points as in total, this group of properties represents less than 18% of total residential land of which

¹ It had been our intention to use the issue of Code Compliance Certificate (CCC) to a completed unit as a proxy for the associated land parcel being available to the market for purchase and occupation and, therefore, removal from capacity. In practical terms CCC would be generally issued when a new house is completed on a subdivided section, or when an apartment building etc is completed. It was intended that the CCC data would be obtained from the TA's consent tracking databases, by using the ARC Parcel Identifier to match with properties in the TA databases. Due to some technical issues, we were initially unable to undertake this matching exercise. Given the reporting timeframe of the research project, we adopted an approach to enable this step of the process to be largely completed based on site visits and utilisation of in house information.

² The term 'unit' is utilised in this report to refer to a finalised product which can be occupied, that is a house, flat, apartment, townhouse, etc.

only a relatively small portion would have been consumed. As it is not possible to accurately determine which of these parcels have been developed, a conservative assumption that some 10% is no longer available.

This has been applied on a pro-rata basis across all remaining parcels regardless of location. Areas covered by site visits or in house information are described below and illustrated on the following maps.

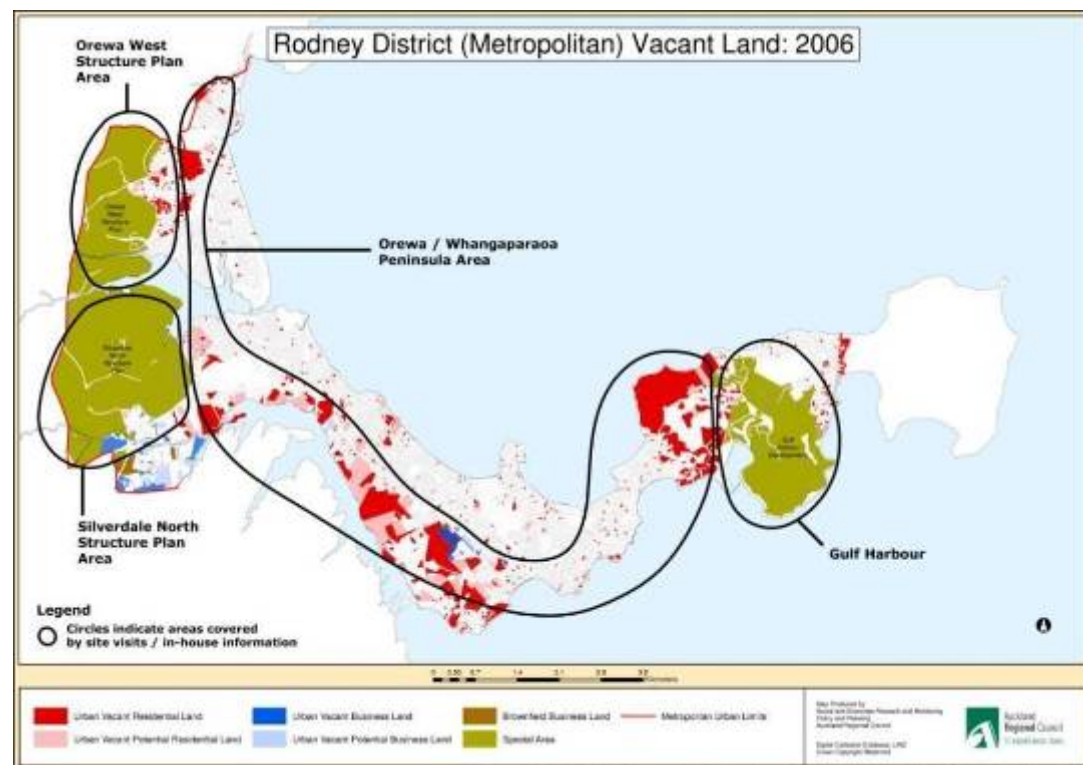
Rodney District

Only a small portion of Rodney District is contained within the MUL. Therefore the land parcel survey was restricted to covering the following areas;

- Orewa West Structure Plan Area;
- Silverdale North Structure Plan Area;
- Gulf Harbour;
- The largest additional 125 sites identified as vacant or vacant potential residential land in the ARC 2006 datasets. These range in size between approximately 25 ha to less than 1 ha in area, and are located in the Orewa/Whangaparaoa Peninsula area.
- Collectively the amount of area covered represents some 87% of estimated residential land capacity.

These areas are shown on Map 1.

Map.1: Key areas covered by Site Visits/In House Information: Rodney District



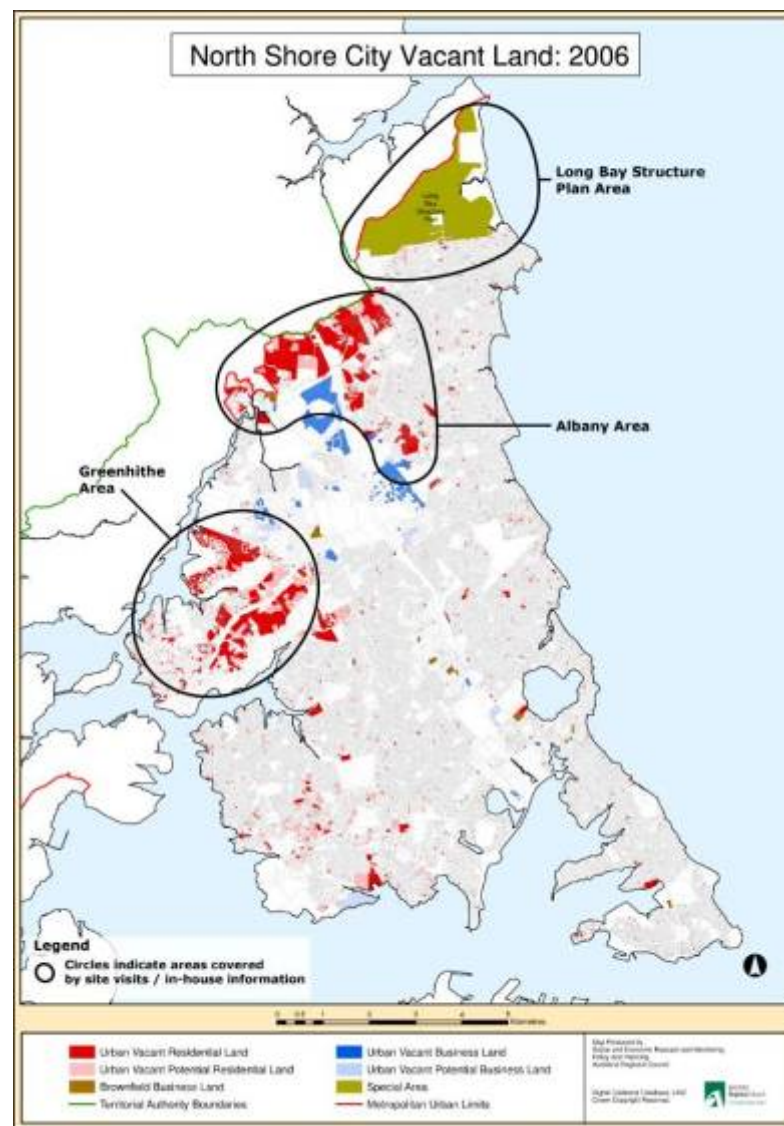
Source: ARC base plan (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC).

North Shore City

The majority of North Shore City's capacity lies in three broad areas on the northern and western flanks of the city. In the initial assessment some 53% of vacant parcels were covered. By the completion of the project some 1,183 properties out of a vacant total of 2,228 were assessed from the North Shore (key areas are shown on Map 2). This represents some 77.4% of land capacity;

- The Albany area (in the vicinity of Oteha Valley Road and Albany Village);
- The Greenhithe area;
- The Long Bay Structure Plan area.

Map 2: Key areas covered by Site Visits/In House Information: North Shore City



Source: ARC base plan, modified (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC



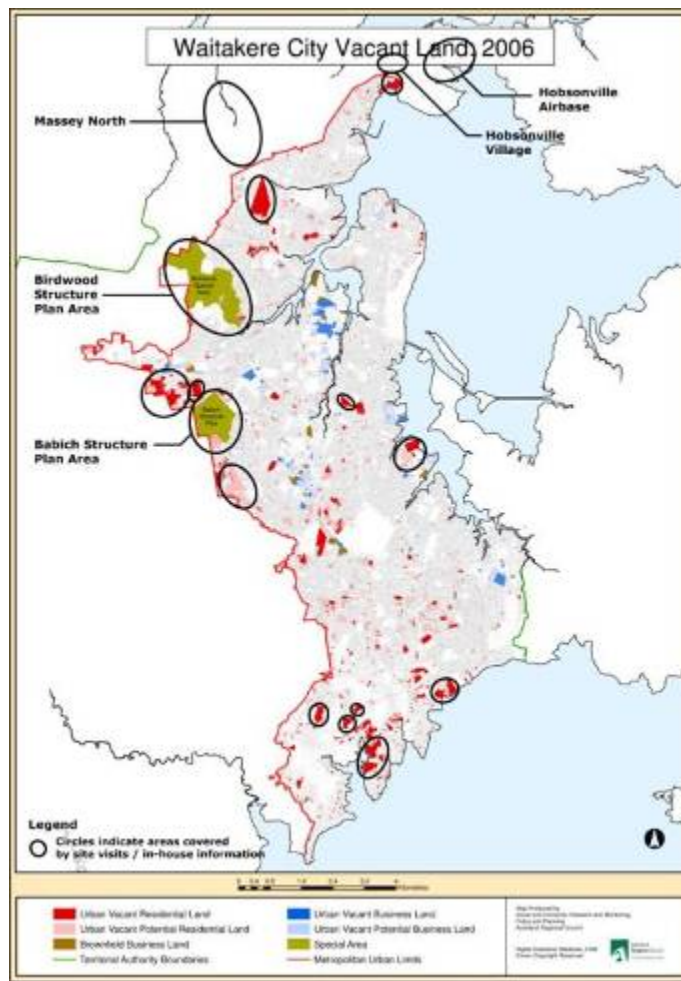
Waitakere City

Vacant capacity within Waitakere City is more evenly distributed across the city, with obvious large concentrations in the Structure Plan areas on the edge of the MUL and associated with the redevelopment of the Hobsonville Airbase by Housing New Zealand through the Hobsonville Land Company. Key capacity areas include;

- Hobsonville Airbase;
- Hobsonville Village;
- Massey North;
- Babich Structure Plan Area;
- Birdwood Structure Plan Area;

In total some 281 sites were assessed (18% of the total) along with the Structure Plan Areas, covering 72% of available capacity. These were generally the largest sites ranging from less than 1ha up to approximately 11ha. These are identified on Map 3 (note the 41 initially assessed sites are circled but not named: each circle contains several sites).

Map 3: Key areas covered by Site Visits/In House Information: Waitakere City



Source: ARC base plan, (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC)

Auckland City

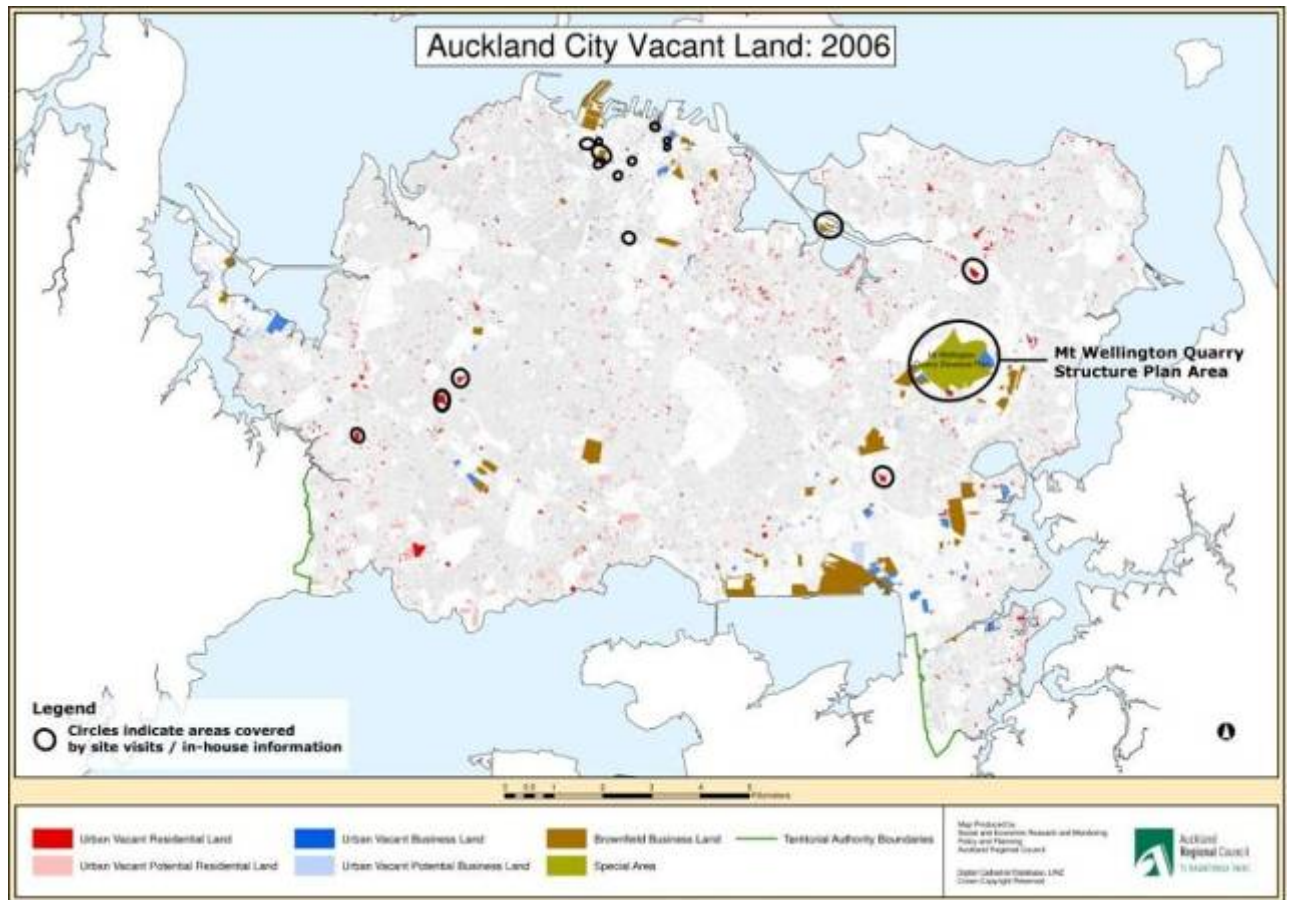
Auckland City has the least available vacant residential land of the local authorities within the region (440ha of which 100ha is located within the Mt Wellington Quarry structure plan area). Key areas include;

- Mt Wellington Quarry Structure Plan area;
- Initially 6 other large sites were assessed. This was increased to some 145 of the largest vacant sites identified in the ARC 2006 datasets (these ranged between approximately 0.5ha and 2.3ha). In total, 47% of available vacant residential land was survey directly
- Twelve other redeveloped sites identified through discussion with Auckland City Council (ACC) officers and reference to TA database. These sites are between 2.8 ha and 0.0483 ha in area. They yielded some 2,500 units.

These areas are identified on Map 4.



Map 4: Key areas covered by Site Visits/In House Information: Auckland City



Source: ARC base plan, (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC)

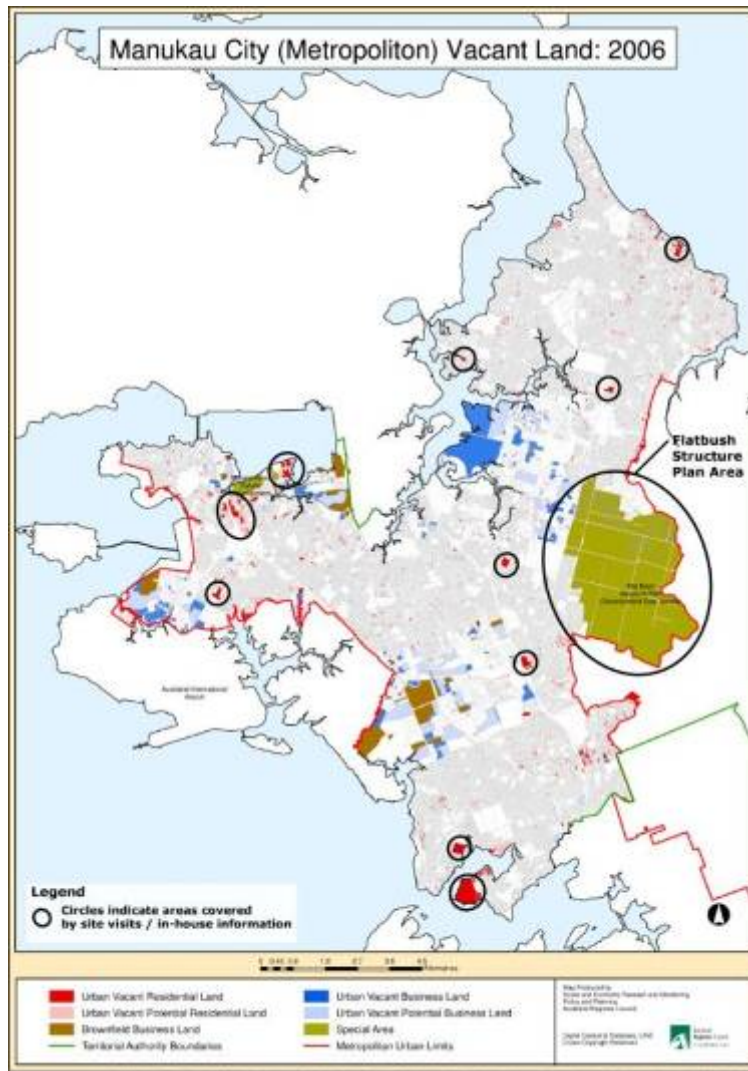
Manukau City

Manukau City has the second largest amount of vacant residential land within the region (behind Rodney District) at 1,408ha. The majority of that is tied up in the Flat Bush Structure Plan Area (more than 1,000ha).

- The Flatbush Structure Plan Area;
- In total some 585 individual properties have been assessed from the ARC 2006 datasets as vacant or vacant potential residential land (these are between approximately 33 ha and 0.2 ha in area).
- Approximately 86% of total vacant or vacant potential land in Manukau City was covered by this assessment

The initial assessments are shown on Map 5.

Map.5: Key areas covered by Site Visits/In House Information: Manukau City



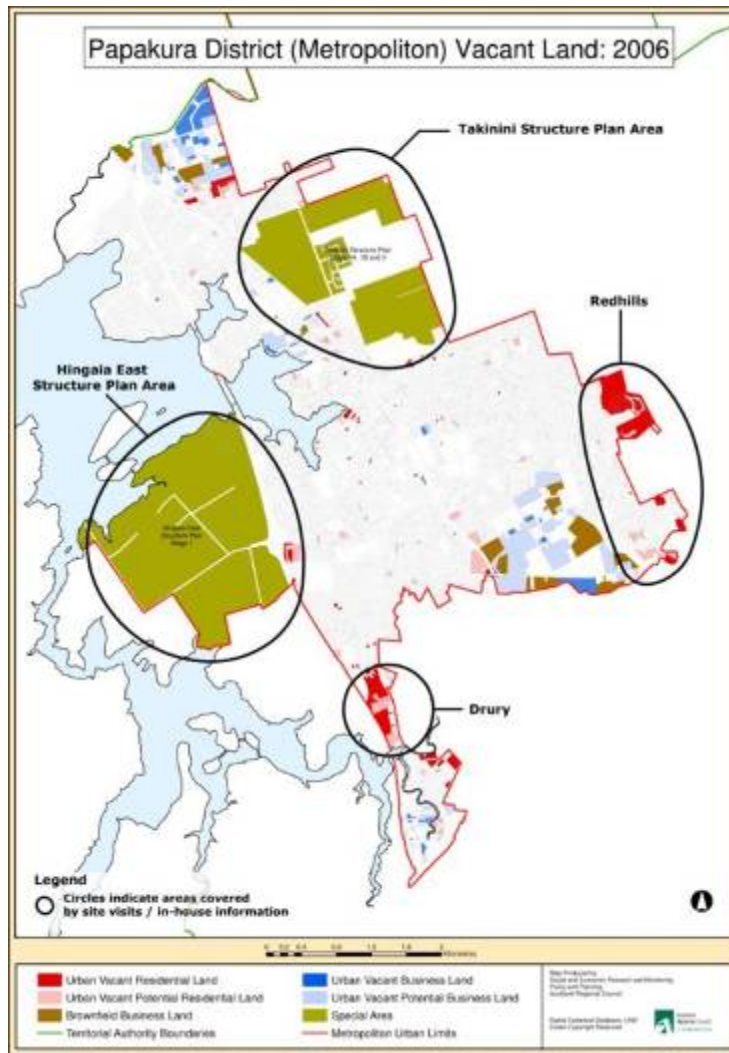
Source: ARC base plan, (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC)

Papakura District

Papakura contains approximately 10% of the regional vacant residential land (according to the ARC 2006 dataset). The majority of this is contained in two structure plan areas with the balance on the fringes of Redhills and Drury and are shown in Map 6.

- The Takanini Structure Plan Area;
- The Hingaia East Structure Plan Area;
- Redhills;
- Drury.
- In total some 183 vacant properties were assessed (out of 220 or so) plus all those anticipated in the structure plan areas (a further 345).
- More than 95% of vacant or vacant potential capacity in Papakura District was covered by this assessment.

Map.6: Key areas covered by Site Visits/In House Information: Papakura District



Source: ARC base plan, (from Regional Growth Forum; Auckland Metropolitan Area: Capacity for Growth 2006, as yet unpublished: ARC)

Franklin District

None of Franklin District falls within the Metropolitan Urban Limits. Therefore it is not included in ARC's dataset. However, it provides a measure of capacity that needs to be incorporated. Areas covered in this assessment include;

- All urban vacant land in Pukekohe and Waiuku.

Note, there is no map attached, as it was not included in the Council's 2007 dataset.

2. Infill Sites in All TAs

Infill capacity is, by definition, residential capacity that is potentially generated when owners of existing residential properties look to add a further residential unit to their existing section. It arises when individual properties have a land area that is 2 or more times the minimum required under the existing zoning regulation. This allows current owners to split their section into smaller lots and build additional dwellings.

District Plan zoning regulations allow for infill in certain areas and the rate at which this capacity is consumed is driven more by demand and individual owner's aspirations than by broader issues of infrastructure provision (with a few exceptions), re-zoning, land banking or other developer and council strategies, the exception being within parts of Auckland City's 'Areas of Change' (19 areas identified around key town centres including the CBD and the Mt Wellington/Lunn Ave Quarry). In these locations, infill is being actively discouraged in order to preserve the ability to drive redevelopment to higher levels of intensity, thereby achieving Council's aims around supporting public transport initiatives and centre redevelopment.

Infill has been treated as though the capacity exists today and will be consumed in much the same way as small parcels of vacant land are. This means that as population comes on line over time it is allocated to vacant capacity and infill capacity in much the same manner. Total supply has been constrained region wide as it is not the case that every property available for infill will be developed. The model framework allows for a number of scenarios to be run. As a base case, an assumption that some 20% of available capacity will not come to market, has been made.

In addition, a portion (20%) of infill capacity has been set to redevelopment infill rather than general infill. Redevelopment provides a higher yield than infill but is not as easy as it often requires aggregation of individual lots to create sufficient footprint to allow redevelopment. As redevelopment usually requires the removal of the existing dwelling, to make it financially viable a higher number of units need to result. For the purposes of this assessment redevelopment forms a smaller share of land use changes. In reality, the actual figure will vary by local area and by district, as councils look to promote or restrict both infill or redevelopment according to policy goals.

The Residential Land Framework model developed to accompany this report allows these proportions to be adjusted at the TA level to model alternative development futures.

3. Capacity in Business Centres

Residential developments in existing business areas (primarily but not exclusively town centres) are seen as a key way to achieve a compact city form, support public transport initiatives and to help ensure Auckland becomes a more sustainable, low energy consumption city. The amount of capacity in residential areas is very significant as it is based primarily on building heights which face few constraints in the main centres. This is especially true for Auckland City, where some 44,500 households are anticipated in business areas according to the ARC 2006 Capacity for growth study.

The difficulty in assessing actual capacity in business areas stems from the ability to build very tall buildings with potentially many floors of residential on many sites. In addition, the proportion of building floorspace that will be developed as residential is not known. Therefore, theoretical capacity is almost limitless (in the CBD in particular). The Regional Council has overcome this by applying building envelopes to each site, then adopting an assumption as to the proportion of the fully developed floorspace that would potentially be residential (30%).

However, while it is possible to trace through building consent information, the development of dwellings in business areas, it is impossible to determine accurately, any reductions in capacity between 2006 and 2008 given the limited height restrictions on new buildings. In light of this, the 2006 estimates have been adopted (with a few alterations) as still being available in 2008.

The ARC figures contain a number of errors and out dated information that have been addressed in this study and result in the 2008 figures being some 4,300 higher than the 2006 figures. In a number of centres the ARC dataset contains negative estimates of residential capacity (probably as a result of an algorithm inconsistency). This means that the 2006 should be 1,460 dwellings higher than reported. In addition, the recent decision in the New Lynn Plan Change has increased residential capacity from 3,100 (as reported in the 2006 figures) to 6,000.

The assessment framework model allows scenario testing to occur by adjusting the percentage of remaining capacity in each TA. This means that assumptions can be relaxed to allow more capacity or restricted to reduce capacity as the starting point.

Households have been split into three density classifications (conventional, medium and high). We have assumed that residential capacity in business centres is all high density, that is, it is all less than 200sqm land area/unit. Household growth and population change over time drives the actual uptake into the future.

4. Rural Capacity

Rural capacity was originally to be excluded from the scope of work for this project as the focus was on the ability of residential land within the MUL to accommodate Auckland's growth to support the Compact City outcome. However, it is important to account for rural capacity as it represents a significant percentage of theoretical capacity.

This raises two key questions; firstly, whether theoretical rural capacity can be converted into actual capacity and secondly, whether it should be given Auckland's focus on a compact city form.

For the purposes of this report, rural capacity is split between its three components; rural townships (with future urban zone areas), rural countryside living (capacity on the MUL edge that is able to be subdivided into lots of 1ha, this includes farm park type developments) and general rural (effectively farm locations able to be occupied and utilised as farms) within each TA.

5. Addition of Capacity

Waitakere City

The ARC 2006 datasets were completed prior to the rezoning (as part of the Local Government (Auckland) Amendment Act (2004) process) of three areas of land in Waitakere City, which together bring significant additional vacant residential capacity to the Region. The three areas are as follows:

- Hobsonville Airbase (Plan Change 13, 3,110 units);
- Hobsonville Village (Plan Change 14, 110 units);
- Massey North (Plan Change 15, 1,330 units).

In addition to these three areas, the rezoning of New Lynn (Plan Change 17) added capacity through redevelopment opportunities for intensive housing (to a total of 6,000 units).

Capacity for each of these four areas was added to the dataset. The Hobsonville Airbase capacity (and staging) was based on an interview with Hobsonville Land Company (HLC) and knowledge of the development process due to previous involvement in this development. Capacity (and staging) for Hobsonville Village and Massey North was based on Waitakere City Council (WCC) projections³. New Lynn projections were based on discussions with Waitakere City Council officers.

Franklin District

The ARC dataset is limited to the Metropolitan Urban Limits (MUL) and does not provide any data for Franklin District, as this falls outside of MUL. The brief, however, requires that the part of the District within the Auckland Region be included, albeit in a more general manner.

A meeting was held with Franklin District Council (FDC) staff who advised that the only areas of current residential capacity are located within Pukekohe and Waiuku.

Further information on capacity in those two areas was obtained by site visits and supplemented through discussions with Council Officers to complete the 2008 assessment of regional capacity.

6. Identification of Current Stage in the Consent/Development Process

In order to understand how close to becoming available residential capacity is, each land parcel has been coded according to the stages identified in Table 3.10. Once average timings are added, this allows a consistent robust way of assessing when land will come on-line. Having established the balance of 2008 capacity, it is then necessary to establish at what stage (if any) the land parcel is at in the consent/development process.

A coding system was developed for the observable (from site visits) or traceable (from the TA's tracking database) milestones that land passes on its way to being fully developed and occupied by completed units. Corresponding periods between stages were also identified and given a coding. This system is summarised in Table 3.2. The function of these codings in our model is to enable us to identify where a parcel of land is currently at in the consent process, and gives us a starting point to model (based on the remaining periods) months to market of completed units.

³ Projections included in "Draft Transport Audit for the Auckland Regional Transport Authority of Waitakere City Council's proposal to develop the Massey North to Hobsonville Corridor" dated March 2006, prepared by WCC.



Table 6.1 Current Stage in Consent/Development Process (Milestones) and Periods between Stages

Current Stage in Consent / Development Process (Milestones) and Periods Between Stages			
Code	Stage in Consent / Development Process (Milestone)	Code	Periods Between Stages
1	Original 2006 Land Parcel		
		1	The preparation of Comprehensive Development Plan (CDP) (or similar) documentation.
2	Comprehensive development plan lodged		
		2	The CDP (or similar) processing period.
3	Comprehensive development plan approved		
		3	Design / documentation for subdivision consent.
4	Subdivision consent lodged		
		4	Subdivision consent processing period.
5	Subdivision consent approved		
		5	Subdivision construction period / associated engineering approvals / tendering up to release Section 224(c) Certificate.
6	224C issued		
		6	Period between release of Section 224(c) Certificate up to issue title.
7	Titles issued		
		7	Design/documentation for land use consent for buildings or combined subdivision/land use consent.
8	Land use / combined consent lodged		
		8	Land use or combined subdivision/land use consent processing to approval.
9	Land use / combined consent approved		
		9	Building design period for 1 st Building Consent (BC) to enable construction to commence.
10	Building Consent lodged		
		10	Building consent processing period to enable construction to commence.
11	Building Consent approved		
		11	Building construction period to first inspection (foundations).
12	First building inspection (foundations)		
		12	Building construction from first foundation inspection to pre-lining inspection (or proxy).
13	Pre-lining inspection		
		13	Building construction from pre-lining inspection (or proxy) to CCC (or proxy).



Current Stage in Consent / Development Process (Milestones) and Periods Between Stages			
Code	Stage in Consent / Development Process (Milestone)	Code	Periods Between Stages
14	Code Compliance Certificate issued and where applicable a subsequent subdivision consent lodged.		
		14	Unit title/cross-lease/fee simple subdivision processing period (if further subdivision required) to release of s224(c).
15	Subsequent subdivision consent approved		
		15	Average time to gain survey plan (LINZ) approval and issue of titles for further subdivision.
16	Subsequent titles issued. 224(c) issued.		

This coding can be (and has been) applied and entered into our model based on four sources of evidence:

- Site visits (observable evidence);
- In-house information (but publicly available)
- TA tracking databases (traceable evidence of building or resource consents issued etc).
- Discussions with developers

There were some instances where site visits were not sufficient to determine what stage the parcel is in the development process (and, therefore, which coding should be applied). In instances where, for example, a site is undeveloped (and no on-site work has commenced), it remained necessary to check whether any unimplemented consents had been applied for or approved by reference to the TA's Pathways databases.

7. Model Months to Market

Having established the 2008 starting point, it is then necessary to forecast the time that it will take that parcel of land to reach the market as completed liveable units. In order to do this, our approach was to expose the parcel of land to the dimensions of influence which determine the duration of this process.

These dimensions are consistent with the factors identified in our literature review as determinants of the land supply process.

- These dimensions of influence are:
- The consent/development process;
- Landowner aspirations;
- Infrastructure constraints;

- Public and private agencies;
- Property cycle;
- Construction season.

In practical terms, this involved populating the framework with codings and time periods (measured in months from 1 June 2008) for each parcel of land. The application of these dimensions is described below.

Consent / Development Process

Each parcel of land has been coded according to its current stage within the consent/development process. All other things being equal, the components and total period that this process takes differs depending on the type of development involved.

The development process, for example, for a greenfield subdivision from paddock to 50 completed homes ready for occupation is quite different to a 2 lot infill subdivision project, or a 30 storey apartment development in Takapuna or Central Auckland. The consent and subdivision processes differ, as do the construction timeframes.

In order to model this consent/development process the following information was required:

1. The current stage that the parcel is in the consent/development process;
2. The remaining steps of the consent/development process that the land will have to pass through to completion of a known or assumed development;
3. The type of development proposed or likely;
4. The expected durations of, and interactions between, the remaining time periods.

Item 1 is covered above. Items 2 to 4 are discussed below.

Periods between Stages in the Consent Process

A series of time periods was developed in consultation with Council officers to represent the periods between development stages or milestones (set out in detail for most areas within TAs in Appendix D). For each of the development types laid out in Table 5.3, different time periods exist for each development stage.

These periods cover the entire consent/development process that a parcel of land could conceivably have to pass through in the Auckland Region, given design, consenting, construction, LINZ and compliance requirements. These stages are not necessarily applicable to all development types, and in many cases are not.

Development Types

A series of development/subdivision types has also been developed. These were developed with the objective that they best enable us to distinguish between different timing characteristics (in terms of design/consenting/construction periods) of different generic types of subdivision and development.



These development types are summarised in the Table 5.3.

Table 6.2 Type of Development Codes

Type of Development Codes	
Code	Type of Development/Subdivision
A	No change
B	Subdivision: 2 lot infill
C	Subdivision: 3 – 4 lots
D	Subdivision: 5 – 15 lots (single stage)
E	Subdivision: 16 – 50 lots (single stage)
F	Subdivision: 51 lots+ (single stage)
G	Integrated: subdivision and volume builder/spec (up to 20 units)
H	Integrated: subdivision and volume/spec builder (20+ units)
I	Single storey detached house (architecturally designed)
J	Single storey detached house (volume/spec builder)
K	Single storey detached house (pre-designed/kit homes)
L	Two storey detached house (architecturally designed)
M	Two storey detached house (volume/spec builder)
N	Two storey detached house (pre-designed/kit homes)
O	Two storey detached house group (up to 8 drawings)
P	Low rise multi-unit apartment (up to 4 storeys, 50 units)
Q	Low rise multi-unit apartment (up to 4 storeys, 51 units +)
R	Mid rise multi-unit apartment complex (up to 6 storeys)
S	High rise multi-unit development (up to 18 storeys)
T	High rise multi-unit development (over 18 storeys)
U	Vacant sections to the market
V	Vacant balance lots
W	Non-residential uses

Duration of, and interactions between, time periods for different types of Development

Having established generic development types and the generic milestones (and associated periods between milestones) it was then possible to create a matrix and to populate the cells of the matrix with the durations (in numbers of months) for each period, for each type of development.

Our model utilises a coding system to reflect whether a consent should be assumed to be notified, non-notified or limited notified (thus applying the appropriate period in months). Information on these processing timeframes was based on our own experience together with information obtained from TAs⁴.

⁴ It had been our initial intention to create at least seven of these matrices, one for each territorial authority, each calibrated (for the resource consent processing timeframes) using the average gross

Longer timeframes have been adopted to reflect larger/more complex subdivision and developments. Longer timeframes are also applied to notified applications than for limited-notified applications, which in turn are longer than non-notified applications. The processing periods are set out in Tables 5.4 and 5.5.

For the purpose of our model, we have assumed that consent applications are processed on a non-notified basis, unless there are already consents in the system, in which case the known process will be applied. This assumption has been applied on the basis that (based on 2005/2006 data⁵) 94.4% of consents are processed on a non-notified basis.

Table 6.3: Subdivision Consent Processing Period to Approval

Subdivision Type	Subdivision Consent Process (Months)		
	Non-Notified	Limited Notified	Fully Notified
Subdivision: 2 lot infill	3	6	8
Subdivision: 3-4 lots	3	6	8
Subdivision: 5-15 lots (single stage)	4	8	12
Subdivision: 16-50 lots (single stage)	10	14	14
Subdivision: 51 lots + (single stage)	11	14	14
Integrated: Subdivision & volume builder/spec (10-20 units)	4	7	9
Integrated: Subdivision & volume builder/spec (20 + units)	4	7	9

timeframes that are achieved by those Councils for non-notified, limited-notified and fully notified consents. For a number of reasons, however, we were unable to usefully utilise the data received from TA's. The main reasons for this were as follows:

- Because the processing data is not routinely collected for the purpose of the exercise we were undertaking, the categories of consent under which it is expressed and not match the categories of development we had adopted for our exercise;
 - The categorisation of data between the TA's was quite inconsistent and did not provide us with a standard model to utilise to reorganise the categories we had adopted;
 - For some of the consent types, the sample numbers of particular types were very small and the average timeframes provided, therefore, not reliable;
 - Some of the processing timeframes were expressed as gross (of weekends/on hold days), others not.
- Having regard to these issues, we have adopted assumed processing timeframes based on our own experience, and in part upon the more reliable data provided. In all cases the timeframes exceed the statutory requirements. These are expressed as elapsed days (i.e. actual days elapsed including weekends and "on hold" days) and exceed the statutory timeframes set out in the Resource Management Act.

⁵ Refer <http://www.mfe.nz/publications/rma/annual-survey/2005-2006/summary/index.html>



Table 6.4: Land Use Consent Processing Period to Approval

Land Use Type	Land Use Consent Process (Months)			
	Non-Notified	Limited Notified	Fully Notified	Building Consent ⁶
Integrated: subdivision & volume builder / spec (10-20 units) (2)	3	6	9	0.8
Integrated: subdivision & volume / spec (10-20 units) (2)	3	6	9	0.8
Single storey detached house (Architecturally designed)	3	6	9	1.2
Single storey detached house (Volume/spec builder)	3	6	9	0.8
Single storey detached house (Pre-designed/kit homes)	3	6	9	0.5
Two storey detached house (Architecturally designed)	3	6	9	1.2
Two storey detached house (Volume/spec builder)	3	6	9	0.8
Two storey detached house (Pre-designed/kit homes)	3	6	9	0.5
Two storey terraced house group (up to 8 dwgs)	3	7	7	1
Low rise multi-unit apartment (up to 4 storeys, 50 units)	3	7	7	0.8
Low rise multi-unit apartment (up to 4 storeys, 51 units +)	5	8	9	0.8
Mid rise multi-unit apartment complex (up to 6 storeys)	5	8	9	0.8
High rise multi-unit apartment (up to 18 storeys)	7	9	12	0.8
High rise multi-unit apartment (over 18 storeys)	7	9	12	0.8

Three generic matrices were developed which represent slightly different consent processes that can be applied throughout the Region, these being for:

- Areas where Comprehensive Development Plans are required (in most areas these do not apply).
- Heritage areas where all new buildings require resource consent (in other areas consents apply only to multi-unit developments).
- All other areas (detailed in Appendix D).

The remaining time periods (i.e. other than Council processing timeframes) identified in the tables relate (in summary) to:

- Design/documentation periods.
- Construction periods.

⁶ Period of processing of first building consent to enable construction to commence (for large scale developments the building consents are staged).

- Certification and LINZ periods.

These periods were calibrated based on HG's experience (in land development design and consent processes) and discussion with developers and architects (in relation to design and construction periods).

Landowner Aspirations

Interviews were undertaken with landowners and developers of some of the largest vacant landholdings within the region. These interviews were held for three purposes.

1. To assist with the calibration of our timing tables (this has been referred to above);
2. To provide us with specific advice in respect of our intentions regarding the likely timing of development and release of their landholdings to the market; and
3. To provide us with qualitative information as to their drivers and decision making processes and their views on rigidities and blockages in the market.

The second purpose is relevant here. The Residential Land Development Framework recognises that developer aspirations may override the timings to release that could otherwise be assumed if one relied only on the sequential application of design/consent processing/construction timeframes. A landowner could, for instance, obtain consents for a project but then (for a number of reasons) choose to hold the land in an undeveloped state rather than proceed to develop it in accordance with the consent.

Similarly, if there are no consents in place for a landholding, then it is not possible to confidently estimate the timing of development and ultimate release to market of units on that land, as the date of commencement of the process is not known.

With these scenarios in mind, we sought advice from several landowners/developers as to the planned or else most likely release of sections or units to the market. In some instances Council Officers provided us with forecasts based upon their own site specific knowledge.

This information has proved to be the most useful in our model where no (or limited) consents have been lodged for multiple future stages of large development areas, and has provided the basis for our future staging and release to market modelling for the following areas:

- Gulf Harbour, Silverdale North and Orewa West Structure Plan areas in Rodney District.
- Long Bay Structure Plan area in North Shore City.
- Hobsonville Airbase in Waitakere City.
- Mt Wellington Quarry in Auckland City.
- Parts of the Flatbush Structure Plan Area in Manukau City.
- Parts of the Takanini and Hingaia Structure Plan Areas in Papakura District.

In instances where developer aspirations are now known, and there is no evidence that the consent/development process has commenced, then an assumed aspiration has necessarily

been adopted. The model has been designed, however, to enable these assumed aspirations to be clearly distinguished from known aspirations.

Infrastructure Constraints

Irrespective of landowner aspirations and permissive zoning provisions, in areas where there are infrastructure constraints, development opportunities are limited until constraint is resolved. This situation can arise for example, in areas where wastewater infrastructure has reached capacity, and further infill housing development (which is anticipated by the zoning) is precluded until additional capacity is provided. Another example would be where trunk piped infrastructure has not yet reached the boundary of a greenfield area which is otherwise available for development, and the extension of that pipe is beyond the control of the landowners.

Information was gathered in relation to areas throughout the Region where such constraints may be present. Advice was sought from TA Assets staff as to actual constraints, and the expected timing of resolution.

The framework has been designed so that an overriding time period can be placed in the dataset in any row of data (relating to a specific parcel) which is in a catchment affected by such an infrastructure constraint. The rules of the model have been written such that physical works (subdivision or building development) may not commence until the constraints have been resolved (that is to say, the resolution date is reached).

In greenfield areas, infrastructure is typically extended and developed at the same time as the development of the land. In these situations, infrastructure is put in place as blocks of land are developed. There are situations where blocks cannot be developed until such a time as piped infrastructure is provided to the boundary, and this is reliant on the development of the downstream blocks. These issues are specific to each individual block of land and dependant on timing of surrounding development. They are progressively resolved as development proceeds, and this is generally market driven.

Public and Private Agencies

Data fields have been included to enable time penalties to be allocated to parcels of land where there is some evidence to suggest that delays will be caused by either public or private agencies. Public agencies would typically be Central or Regional Government agencies such as Transit New Zealand which have been involved in the consent process as submitters (where the State Highway network is affected by the development), and can delay development projects through Appeals.

Both public and private agencies may delay development projects through the appealing of consents. This tends to be more typical in the Auckland context for higher density developments in established neighbourhoods.

Property Cycle

A field has been included in the model to enable a holding period to be added to datelines to reflect inactivity caused by the soft periods of the property market. This field has not been populated, however, it is worth noting that at the time of preparing this report, there are a number of subdivisions which are consented but did not proceed to construction in the

2007/2008 construction season due to the current market conditions and funding issues (a result of the “credit crunch”). The framework has been designed so that a delay period (recognising the short term effect of this factor) can be switched on or off. The period of the delay can be selected by the user. Based on our discussions with developers a delay of between 6 or 12 months from June 2008 would be appropriate and has been incorporated into the figures.

Construction Season

This field has been included to enable a four month delay to be applied to any consented subdivision in excess of 1 ha in area (this is an ARC threshold) which has not commenced site works at this stage, and may not do so until the commencement at the Auckland earthworks season (commencing 1 October 2008)⁷.

8. Date of Supply Derived

Having established where each parcel of land currently is in the consent/development process, and having exposed it to the dimensions of influence, our model is able to express in months from 1 June 2008, the overall timing of release of the parcels of land based on the preceding factors. Some of the factors will add time to one another, others will run in parallel. Some will take priority over others. Rules have been developed and applied to perform this calculation.

Because the parcels have been split by TA, housing typology, stage in consent process, suitability, capacity/timing matrices can be created, and the data can be readily manipulated and utilised to answer a range of questions, or test scenarios.

For infill or redevelopment housing, demand is assumed to be available currently and will be consumed as demand requires. This is also true for rural and residential on business land.

⁷ The Auckland construction season (for subdivisions over 1ha in area) is generally 1 October to 30 April. Due to Auckland’s inclement weather, earthworks are precluded outside of this period, or require special arrangements to be made in respect of stabilisation and consent from the ARC.