AUCKLAND FINE GRAIN ANALYSIS

visualising scale of change

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Background

SD4 and Jasmax have been jointly engaged to assist Auckland Council to investigate, on a more fine grained level, the residential capacity of the Auckland urban area.

Fourteen areas were selected from a total of approximately 115 across Auckland. The areas selected were chosen to provide variety in terms of geographical location, in order to provide a varied sample, both in terms of geography and socio-economics.

This particular study has focussed on the commercial viability of residential intensification, asking not just "*how many new dwellings are theoretically possible?*"

but asking... "under the current market conditions, how many new dwellings are likely, and where are they likely to be?"

Patrick Fontein of SD4 has outlined his methodology in detail in his report, to which this document is supplementary.

Purpose of this document

Numbers and plans are one thing, but many people find it hard to understand exactly what these numbers mean, especially for their house, street or neighbourhood.

People want to know broadly what are the implications of this growth planning work on their neighbourhood.

- Will my street / neighbourhood change?
- How will it change?
- Will it mean just a few extra houses in my street...?
- ...Or will it mean my whole street changing to apartments?
- What sort of place will it become like?

We can help people to understand the implications of any planning decisions if we can demonstrate what this means visually.

Purpose of this document

This applies just as much to the planners as it does to the politicians and the community.

In particular, we consider that it is important to help visualise three aspects of this planning work:

- What is **the scale of change that is likely to happen in each neighbourhood**, both in terms of the amount of new development, and the type of development it will be?
- As a result, the density of these neighbourhoods will be different. But what do different neighbourhood densities look like?
- Also as a result of this exercise, sites will be developed at greater densities. But what sort of development will this result in?

This document sets out to help people understand these three basic questions, initially to help make some of the important decisions around spatial planning and growth policy.

The Scale of Change

SD4's work set about analysing the development economics of 14 areas across Auckland in order to determine the commercial viability of residential intensification. This was carried out at a very fine grained level, looking at each parcel of land. It concludes by setting out the likely residential development scenario for each area based on the commercial viability and potential re-zoning of land.

The detailed methodology and results of that work is set out in SD4's accompanying report.

To accompany this work, Jasmax has developed a tool that allows different development scenarios to be visualised at a street, neighbourhood, or even city scale.

The Scale of Change

Unlike numbers and plans, this can help people immediately understand the scale of change suggested by each scenario 3-dimensionally.

But crucially, the tool is interactive. If you want to change the assumptions that underpin the development scenario calculations, or the recommended planning zonings, the computer tool can immediately visualise the effect of these changes and calculate the corresponding increase or decrease in projected dwelling numbers. The following pages show a number of screen shots which demonstrate the scale of change for 4 sample areas from SD4's work.

For each of the 4 areas, an existing image of the area is presented, followed by a visualisation of SD4's calculations. The computer model accurately selects those lots most likely to develop first, but then introduces a degree of randomisation in order to reflect reality where not every site will be developed according to its development potential.

The Scale of Change

The presented screen shots therefore represent just one scenario, whereas the actual computer model can randomly generate alternate outputs of the same scenario at the push of a button.

These visualisations do not represent Jasmax' recommended zoning pattern or built form outcomes. Rather, they are simply visualisations of the output of SD4's work, which shows the scale of change that will result from significant re-zoning, which has been determined in part by the desire to achieve a quality compact city with 75% of new residential development over the next 30 to 50 years taking place within the current urban limits.

This has been developed as a tool to aid discussion around whether this is practical and/or desirable, and has been designed to allow a range of scenarios to be tested.

Details

- The terrain is an accurate representation of the landscape.
- The buildings shown are not intended to represent actual development forms.
- The existing buildings are approximate in terms of both bulk and location, as opposed to being an accurate representation of existing building form. Equally, the proposed buildings are intended to show the scale of change in terms of the amount of lots that will be developed, and the approximate scale of buildings that will occur on these lots, as opposed to detailed designed building forms.
- They do not show any details with respect to external appearance, orientation, location of driveways / amenity space etc. but are simply to indicate the approximate bulk of development that may occur. Trees have been included in order to provide a more realistic landscape, but again are not intended to be accurate representations of actual or proposed trees.
- For Birkenhead, in addition to the Existing built form and the possible built form representation of SD4's work, we have included a series of other scenarios based around the existing District Plan density provisions. These visualisations still take into account the development economics for each parcel of land as calculated by SD4, but use existing zoning densities as opposed to recommended densities, and therefore demonstrate the difference between the likely number of new residential dwellings.

Details



WHITE	-	represents existing dwellings
BLUE	-	represents new detached houses
YELLOW	-	represents new attached houses
ORANGE	-	represents new apartments

Birkenhead

Existing



Existing dwellings 3059

Existing zoning

Area / Lot uptake 25% Site uptake 100%



New Dwellings

- Stand Alone Houses 607
 - Attached houses 0
- Low rise apartments **182**
- High rise apartments 4

Remaining dwellings2536New dwellings793

Total 3379 (+320)

Existing zoning

Area / Lot uptake 50% Site uptake 100%



New Dwellings

- Stand Alone Houses 1259
 - Attached houses 0
- Low rise apartments 382
- High rise apartments 11

Remaining dwellings 2037 New dwellings 1652

Total 3739 (+680)

Existing zoning

Area / Lot uptake 100% Site uptake 100%



New Dwellings

- Stand Alone Houses 2657
 - Attached houses 0
- Low rise apartments 650
- High rise apartments 78

Remaining dwellings 10ିଡି New dwellings 3385

Total 4453 (+1394)



Area / Lot uptake varies Site uptake varies



New Dwellings

- Stand Alone Houses 13
 - Attached houses 394
- Low rise apartments **3610**
- High rise apartments 349

Remaining dwellings 2763 New dwellings 4366

Total 7134 (+4075)



Existing



Existing dwellings 4466



Area / Lot uptake varies Site uptake varies



New Dwellings

Stand Alone Houses26Attached houses1766Low rise apartments1123High rise apartments1309

Remaining dwellings 4010 New dwellings 4224

Total 8234 (+3768)



Existing



Existing dwellings 2679



Area / Lot uptake varies Site uptake varies



New Dwellings

Stand Alone Houses 31 Attached houses 1385 Apartments 809

Remaining dwellings 2313 New dwellings 2225

Total 4538 (+1859)



Existing



Existing dwellings 4844



Area / Lot uptake varies Site uptake varies



New Dwellings

Stand Alone Houses17Attached houses3020Low rise apartments3190High rise apartments7259

Remaining dwellings 3347 New dwellings 13486

Total 16833 (+11989)



What do different neighbourhood densities look like?

SD4's work concludes that the densities of our neighbourhoods are likely to change, in some places quite substantially.

But when we talk of different "neighbourhood" densities, people find it hard to understand what this actually means, and how it relates to the place that they live.

These are some of the questions we face when talking about increasing the density of a neighbourhood.

"What is the density of my neighbourhood?"

- "What will my neighbourhood look like?"
- "If you mean my neighbourhood might end up like that one, that would be ok."

"Oh I wouldn't mind living somewhere like that...oh that's x density!"

The following case studies show the "neighbourhood" (or gross) density of several neighbourhoods, many of which are familiar to Aucklanders.

They have taken several "meshblocks" from the Census data in order to generate the figures. The densities have been generated from the total area of the meshblock which includes local streets and small areas of open space. However, meshblocks have been selected that are predominantly residential and do not contain large areas of commercial property or open space, in order that a relative comparison can be made.

The case studies also include a graph showing the relative proximity of essential local facilities and amenities. These figures are taken from "walkscore.com", which provides an indication of how easy it is to walk around this neighbourhood. It is clear that some neighbourhoods have much greater access to essential local facilities, and this figure generally correlates with the density of the neighbourhood.

These examples are included to demonstrate the different densities, and the different visual appearance of these neighbourhoods. The point of this exercise is not to suggest that one neighbourhood, or one density is better than another. Rather it is to show that different neighbourhoods have different densities and different characteristics, both visually and in terms of the range of local facilities. Hopefully it shows that some of our most popular neighbourhoods also have the higher densities, and that higher density neighbourhoods can also be beautiful and attractive places to live.

Ranui Waitakere

Gross / Neighbourhood density **1 0** dph









Proximity to Local Amenities*



Data	
Study Area	10.73 ha
No. of dwellings (households)	105
Population	336
Dwellings per hectare (gross)	9.8 dph
Residents density (residents per hectare)	31.32 rph
Average occupants per dwelling	3.2
Transit Score*	25
Walkscore rating* (Sapperton Drive)	16 out of 100



Tamaki Auckland

Gross / Neighbourhood density dph





Proximity to Local Amenities*



Data	
Study Area	18.6 ha
No. of dwellings (households)	204
Population	732
Dwellings per hectare (gross)	11 dph
Residents density (residents per hectare)	39 rph
Average occupants per dwelling	3.6 rph
Transit Score *	28 out of 100
Valkscore rating * (45 Anderson Avenue)	41 out of 100



Bayswater Auckland

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110

Gross / Neighbourhood density **13** dph





Proximity to Local Amenities*







Flat Bush Aucl

Auckland

Gross / Neighbourhood density **15** dph







Proximity to Local Amenities*



* Walk Score - www.walkscore.com

Data Study Area 12.9 ha No. of dwellings (households) 196 Population not available Dwellings per hectare (gross) 15.2 dph Residents density (residents per hectare) not available Average occupants per dwelling not available Transit Score 18 out of 100 Walkscore rating (15 Malahide Drive) 13 out of 100



Harbour View Te Atatu

Gross / Neighbourhood density **15** dph



Proximity to Local Amenities*



Data	
Study Area	14.05 ha
No. of dwellings (households)	216
Population	555
Dwellings per hectare (gross)	15.3 dph
Residents density (residents per hectare)	39.5 rph
Average occupants per dwelling	2.57
Transit Score*	29
Nalkscore rating* (Lone Tree Ave)	69 out of 100



Sandringham Auckland

Gross / Neighbourhood density **16** dph









Proximity to Local Amenities*



Data	
Study Area	12.47 ha
lo. of dwellings (households)	195
Population	564
Owellings per hectare (gross)	15.6 dph
Residents density (residents per hectare)	45.2 rph
Average occupants per dwelling	2.9
ransit Score *	74
Valkscore rating * (14 Halesowen Ave)	48 out of 100



Addison

Takanini, Auckland

Gross / Neighbourhood density **20** dph









Proximity to Local Amenities*



Data	
Study Area	10.5 ha
No. of dwellings (households)	207
Population	not available
Dwellings per hectare (gross)	19.7 dph
Residents density (residents per hectare)	not available
Average occupants per dwelling	not available
Transit Score	21 out of 100
Nalkscore rating (Bruce Pullman Drive)	21 out of 100



New Farm Brisbane

Gross / Neighbourhood density **22** dph









Proximity to Local Amenities*



Data	
Study Area	15.2 ha
lo. of dwellings (households)	339
Population	622
Owellings per hectare (gross)	22 dph
Residents density (residents per hectare)	41 rph
verage occupants per dwelling	1.8 rph
ransit Score *	n/a
Valkscore rating * (7 Hickey Street)	96 out of 100



Mt Eden Auckland

Gross / Neighbourhood density **23** dph





Proximity to Local Amenities*



* Walk Score - www.walkscore.com

Data	
Study Area	17.0 ha
lo. of dwellings (households)	396
Population	954
Owellings per hectare (gross)	23.3 dph
Residents density (residents per hectare)	56 rph
verage occupants per dwelling	2.4
ransit Score	56 out of 100
Valkscore rating (21 View Road)	81 out of 100









Kingston Canberra Gross /

Gross / Neighbourhood density **36** dph









Proximity to Local Amenities*



Data	
Study Area	18.8 ha
lo. of dwellings (households)	785
Population	1018
Owellings per hectare (gross)	36 dph
Residents density (residents per hectare)	47 rph
Average occupants per dwelling	1.3
ransit Score *	not available
Valkscore rating * (8 Howitt Street)	96 out of 100



Kronsberg Hannover, Germany

Gross / Neighbourhood density **38** dph









Proximity to Local Amenities*



Data	
Study Area	21.4 ha
No. of dwellings (households)	810
Population	1830
Dwellings per hectare (gross)	38 dph
Residents density (residents per hectare)	86 rph
Average occupants per dwelling	2.3 rph
Fransit Score	-
Walkscore rating (Weistfeld 2)	73 out of 100



Neighbourhood Density]

80

* Walk Score - www.walkscore.com

Images: "Modell Kronsberg - Sustainable Building for the Future", Eckert, Kastner and Schottkowski-Bahre, Jutte Druck, Leipzig, September 2000

Cremorne Point Sydney

Gross / Neighbourhood density 44 dph









Proximity to Local Amenities*



Data	
Study Area	5.9 ha
No. of dwellings (households)	262
Population	416
Dwellings per hectare (gross)	44 dph
Residents density (residents per hectare)	71 rph
Average occupants per dwelling	1.6
Transit Score	-
Nalkscore rating * (56 Cremorne Road)	32 out of 100



Vauban Freiburg, Germany

Gross / Neighbourhood density **47** dph









Proximity to Local Amenities*



Data	
Study Area	11.1 ha
No. of dwellings (households)	524
Population	1462
Dwellings per hectare (gross)	47.2 dph
Residents density (residents per hectare)	131.7 rph
Average occupants per dwelling	2.8 rph
Transit Score *	n/a
Nalkscore rating * (Vaubanallee 18)	76 out of 100



Dockside Green BC, Canada Gross / Neighbourhood density 144 dph









Proximity to Local Amenities*



Data	
Study Area	6.05 ha
No. of dwellings (households)	1100
Population	2200
Dwellings per hectare (gross)	144 dph
Residents density (residents per hectare)	288 rph
Average occupants per dwelling	2
Transit Score	-
Walkscore rating (391 Tyee Road)	86 out of 100





SD4's work concludes that in order to achieve the urban intensification ambitions set out by Auckland Council in the Auckland Plan (September 2011), substantial re-zoning needs to occur across Auckland. This means that developments will be able to achieve greater number of units than is currently allowed under the District Plan.

SD4's work sets out possible new planning zones and the density rules that would accompany these zones.

But what does this mean on the ground?

What sort of developments would we see under such new density controls?

Auckland has seen some poor examples of developments at higher densities, yet at the same time, there are a host of great examples that people tend to overlook. The best schemes tend not to stand out.

So when we talk of increasing density, people immediately jump to the conclusion that it must mean some of the very high density apartments schemes that have blighted the CBD fringe.

It is therefore important to understand what sort of developments would be possible in order to achieve the densities suggested in SD4's work.



The following pages set out a range of possible solutions at varying densities in an attempt to help people understand what sort of development may take place within their street / neighbourhood if new zoning does happen.

They have not been developed in great detail, and therefore do not show either external finished appearance nor the internal layout of the typology. As with all intensive development, design quality is a critical part of the success of the development, and so a planning process that both encourages and controls design quality will be crucial to the success of such a strategy.

However, they have been developed with a working knowledge of residential design, and represent a range of solutions that we feel could work in Auckland that broadly satisfy:

- New planning rules set out in SD4's zoning recommendations
- Good practice urban design principles
- Basic development economics
- General market aspirations for new residential dwellings



Explanation of terms:



This "R Value" relates to the dwellings per hectare on the development site. It is therefore a "net" density figure, which simply takes into account the number of dwellings on the site divided by the size of the site.

Street Orientation	Whether a particular orientation of site is required - such as a "north facing" site.
Dwelling format	The type of dwellings provided - whether they are stand alone houses, attached houses or apartments.
Total Units	The total number of dwellings on the site.
No. of Lots	The number of standard "lots" or "sections" required for this type of development.
Average unit size (approx.)	The average floorspace (internal) of each dwelling.
Parking	Describing where the parking occurs - whether it is on the driveway, or in garages etc.
No. of floors	The height of the building, in storeys.
Occupancy	The approximate number of people that would be suitable for this dwelling type.
Lot Dimensions	The dimensions of the "lot" or "section" that have been used for this type.





R42 - 01		R42 - 02	
Street Orientation	Any	Street Orientation	Any
Dwelling format	Detached houses	Dwelling format	Detached houses
Total Units	2	Total Units	4
No. of Lots	1	No. of Lots	2
Average unit size (approx.)	120 m ²	Average unit size (approx.)	180 m² / 48 m²
Parking	Driveway	Parking	Driveway and garage
No. of floors	2	No. of floors	1-2
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15



R55 - 01	
Street Orientation	Any
Dwelling format	Semi-detached houses
Total Units	5
No. of Lots	2
Average unit size (approx.)	60 m ²
Parking	4-driveway and 1-garage
No. of floors	1-2
Occupancy	





R83 - 01

Street Orientation	Any	Street Orientation	Any
Dwelling format	Detached houses	Dwelling format	Cottage houses
Total Units	4	Total Units	4
No. of Lots	1	No. of Lots	1
Average unit size (approx.)	55 m ²	Average unit size (approx.)	55 m²
Parking	Driveway	Parking	Driveway
No. of floors	2	No. of floors	2
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15

R83 - 02



R92 - 01	
Street Orientation	Any
Dwelling format	Apartments
Total Units	9
No. of Lots	2
Average unit size (approx.)	m²
Parking	Driveway
No. of floors	3
Occupancy	
Lot Dimensions	30x15

Page 43 [Typologies]





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Street Orientation	NS	Street Orientation	Any
Dwelling format	Apartments	Dwelling format	Apartments
Total Units	10	Total Units	11
No. of Lots	2	No. of Lots	2
Average unit size (approx.)	60 m ²	Average unit size (approx.)	100 m ²
Parking	Basement	Parking	Basement
No. of floors	2	No. of floors	4
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15

R111 - 02

Page 44 [Typologies]

R133 - 01		R133 - 02		R133 - 02	
Street Orientation	Any	Street Orientation	Any	Street Orientation	Any
Dwelling format	Apartments	Dwelling format	Apartments	Dwelling format	Apartments
Total Units	12	Total Units	12	Total Units	17
No. of Lots	2	No. of Lots	2	No. of Lots	3
Average unit size (approx.)	60 m ²	Average unit size (approx.)	85 m²	Average unit size (approx.)	81 m ²
Parking	Basement	Parking	Basement	Parking	Basement
No. of floors	3	No. of floors	3	No. of floors	3
Occupancy		Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15	Lot Dimensions	30x15



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Street Orientation	NS	Street Orientation	NS
Dwelling format	Apartments	Dwelling format	Apartments
Total Units	14	Total Units	14
No. of Lots	2	No. of Lots	2
Average unit size (approx.)	70 m ²	Average unit size (approx.)	95 m²
Parking	Basement	Parking	Basement
No. of floors	3	No. of floors	6
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15

R155 - 02



R177 - 01

Street Orientation	Any	Street Orientation	Any
Dwelling format	Apartments	Dwelling format	Apartments
Total Units	15	Total Units	15
No. of Lots	2	No. of Lots	2
Average unit size (approx.)	64 m ²	Average unit size (approx.)	84 m²
Parking	Undercroft	Parking	Basement
No. of floors	4	No. of floors	4
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15

R177 - 02



R355 - 01		R355 - 02	
Street Orientation	EW	Street Orientation	Any
Dwelling format	Apartments	Dwelling format	Apartments
Total Units	32	Total Units	32
No. of Lots	2	No. of Lots	2
Average unit size (approx.)	60 m ²	Average unit size (approx.)	60 m ²
Parking	Podium and Basement	Parking	Podium and Basement
No. of floors	8 Res, 2 Comm, 4 Parking	No. of floors	8 Res, 2 Comm, 4 Parking
Occupancy		Occupancy	
Lot Dimensions	30x15	Lot Dimensions	30x15



R520 - 01		
Street Orientation	S	
Dwelling format	Apartments	
Total Units	70	
No. of Lots	3	
Average unit size (approx.)	70 m²	
Parking	Podium and Basement	
No. of floors	14 Res, 2 Comm, 4 Parking	
Occupancy		
Lot Dimensions	30x15	