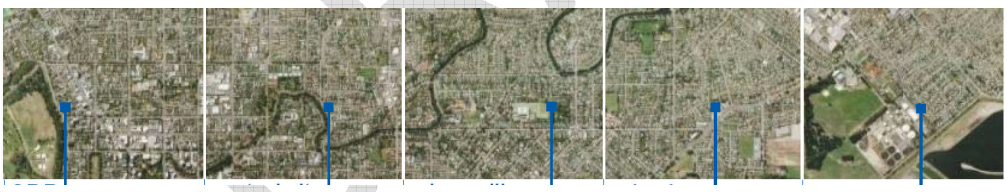
District Plan Review - Residential Chapter 14

Section 32- Appendix 5

Design Controls Review of Built Form, Character and Amenity Provisions for the Existing Flat Land Residential Zones



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Date: October 2013-May 2014

Version 3		
rev 10	28.4.2014	Updates for objective and policies + edits
rev 9	9-22.4.2014	Edits, new wording, discussions to fill gaps
Version 2		
rev 8	30.03.2014	Finalised for pdf
rev7	29.03.2014	Updated references for finalised objectives and policies. Final edits in blue.
Version 1		
rev6	13.12.13	comparison tables added
rev5	7.11.13	TAG review
rev4	30.10.13	UD review
rev3	25.10.13	TAG first draft
rev1-2	10.2013	Working revisions

1. Summary of Issues and Recommendations

1.1 Residential Suburban (Former L1- L2)

1.1.1 High Quality Residential Environments

Range of types and sizes *14.1.1 Housing Supply:" …an increased supply and wide range of housing types, sizes and densities to meet the diverse needs of the community…"*	
Issue	***Recommendation***
1. No meaningful variety in housing size or type in L2. As a transitional zone between L1 and L3, L2 would be expected to provide for small single detached housing on smaller sites.	Remove site coverage bonus for single storey houses. Encourage two-storey housing with smaller footprints or smaller single storey houses.
Amenity *14.1.5 High Quality Residential Environments: "…well designed, have a high level of amenity and enhance local character…"*	
Issue	***Recommendation***
2. **City and neighbourhood amenity-** Potential for higher density development for adverse effects on storm water management, water quality, and visual amenity as a result of the accumulated impervious surfaces over time.	Remove site coverage bonus for single storey development in suburban residential zones (operational L1 and L2).
3. Low permeability and high site coverage in L2 and increasing single storey house size in L1.	
4. **Street amenity-** Trend for increased garaging and hard surface location in the street scene with resulting reduction in tree and garden planting to the street in L1&2.	Introduce new street scene controls for minimum planting required, maximum size of garage and maximum driveway width adjacent to required planting.

1.1.2 High Resource Consent Generation

Common Generator	***Recommendation***
1. Garage intrusion to road boundary setback for older houses.	Prescribe exceptions to the rule in line with typical redeeming aspects of the breaches.
2. Minor recession plane intrusions (< 200mm)	Allow minor gutter and eave exceptions.
3. Outdoor living space breaches for total area or minimum dimension.	Retain status quo for outdoor living space recommendations.

1.2 Residential Medium Density (Operative L3)

1.2.1 High Quality Residential Environments

Density & Amenity *14.1.5 High Quality Residential Environments: "…well designed, have a high level of amenity and enhance local character…"*	
Issue	***Recommendation***
1. **City and neighbourhood amenity-** Potential for higher density development for adverse effects on storm water management, water quality and visual amenity as a result of the accumulated impervious surfaces over time.	• Introduce site coverage and minimum planted area ratio. • Retain existing landscaping rules and make it clear that the landscaping refers to tree and garden plantings.
2. **Street amenity-** High level of impermeability and domination of hard surfaces on the street.	
3. **City and neighbourhood form**- Permitted RFAR at 0.8, especially on narrow sites, is forming a target and forcing amenity related standards to be compromised in favour of theoretical density.	Option 1: Reduce RFAR on single sites and incentivise site amalgamation by allowing increased RFAR for amalgamated sites. Option 2: Alternatively remove RFAR provision and reinforce control of density via height, recession plane and amenity/ urban design standards for a more optimum outcome.
4. **On-site amenity-** Routine breach of outdoor living space provisions for small units.	Allow permitted exception for smaller outdoor living space for single bedroom units.
5. **On-site amenity / Neighbours' amenity-** Low level of privacy as a result of the dominant development pattern of long narrow buildings perpendicular to the road creating permanent overlooking of adjacent sites.	Keep status quo for privacy provisions (due to insufficient time for producing alternatives) and explore improvements to provisions as part of continued review.

2. Review Approach and Method

2.1 Methodology

The report is developed through studies listed below and workshops with the two principal urban design advisors, landscape planner, processing planners and strategic planners of Christchurch City Council.

Desktop studies and analysis:

- Visualisation of density and site coverage possible within operative provisions.
- Site coverage analysis on typical (Operative) L3 sites by typical developments.
- High RFAR and consequential breaches of amenity standards.
- Analysis via aerial photography for street scene trends.
- Review of Plan Change 53 (L3-L4 Plan Change) Urban Design Technical Report for relevant references.
- Comparison of privacy distance provisions between Hamilton and Christchurch.
- Targeted analysis of resource consent data from last three years (post February 2011 earthquake) looking at known three high resource consent generators in L1&2: outdoor living space, recession planes and garages in road boundary set back.

2.2 Approach

Status Quo – Trends and issues with respect to the district plan objectives listed below and high resource consent generation.

- 14.1.1 Housing supply
- 14.1.5 High Quality Residential Environments (city and neighbourhood, street, site and neighbours)

Review of Existing controls - Rules and Qualitative assessment matters.

Controls were evaluated according to their density, variety and amenity affects.

- Issues, redundancies, gaps.
- Controls that have been effective in achieving desired outcomes.

Consolidation and simplification **opportunities**

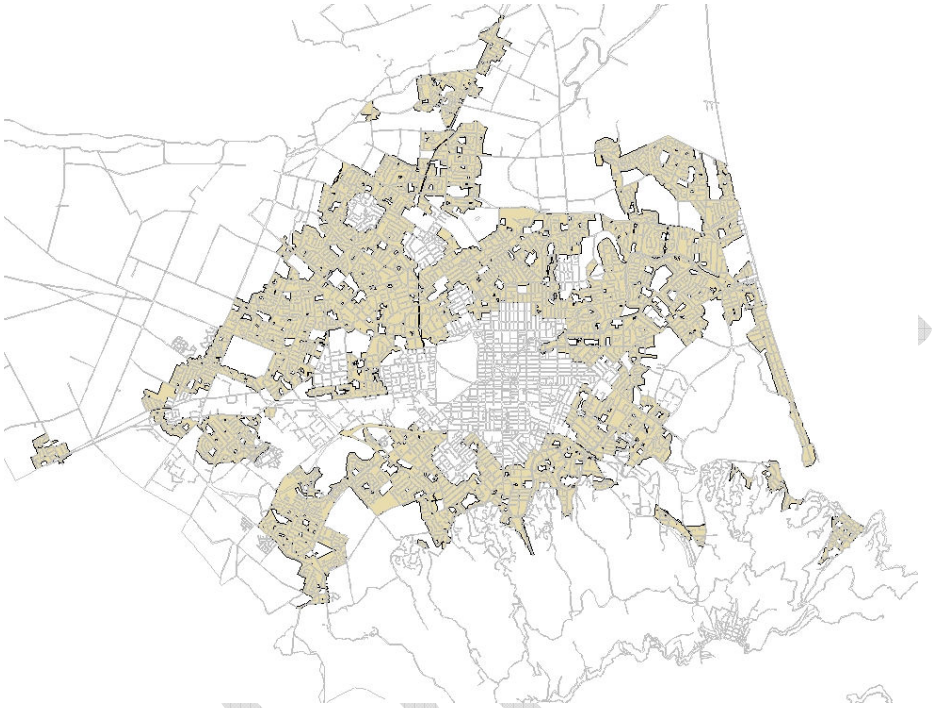
Cross checking of controls across living zones for appropriateness to the anticipated zone outcomes and consistency across the city.

3. Status Quo, Trends and Discussion

3.1 Residential Suburban Zones (Operative L1 & L2)

Context

Living 1 and Living 2 provide for the dominant housing typology of single detached housing in Christchurch. It is the largest living zone by the area it occupies in the city.



Residential Suburban (Living 1&2 in Operative Plan). Image is indicative only. See planning maps for finalised borders.

L1 zone remains to be popular among Christchurch residents[1]. In a recent survey, the top five main reasons for wanting to stay in the suburbs were:

1- Greater amount of private space (24%)

2- Greater area for private land, gardens, trees and outdoor living and play (23%)

3- Peace and quiet (19%)

4- Suitability for family (9%)

5- Greater privacy (9%)

[1] Christchurch Central City Living Research — Full Report
Conducted by IPSOS and Christchurch City Council, 2013

3.1.1 Housing Supply - Variety in size and type

OBJ 1 Housing Supply

Living 1 provisions support single detached predominantly single storey housing. **Living 2** would be expected to provide the smaller site smaller house, predominantly two storey, possibly semi detached option. In practice, the L2 outcome includes similar size and type houses to those on L1 only built on smaller sites. This results in a high impermeability ratio without a meaningful choice for house types in return. Net effect in L2 zones therefore is reduced amenity with less openness and a cumulatively reduced contribution to the garden city amenity.

Facilitation of smaller house development and encouragement of two storey housing would help provide the missing variety in house types as well as helping preserve the essence of residential suburban character.

3.1.2 High Quality Residential Environments – Nature of open space

Policy 8: Neighbourhood Character, Amenity and Safety &
Policy 9 Character of low and medium density areas

The low density and the resulting openness together with significant landscaping (trees and gardens) is a major determinant of the suburban character in Christchurch. The operational site size and site coverage provisions support an open space dominated suburban residential character, however do not include standards to control what the openness is to include. Does open space that is made up of hard surfaces lead to the same outcome as open space that is planted with trees and gardens?

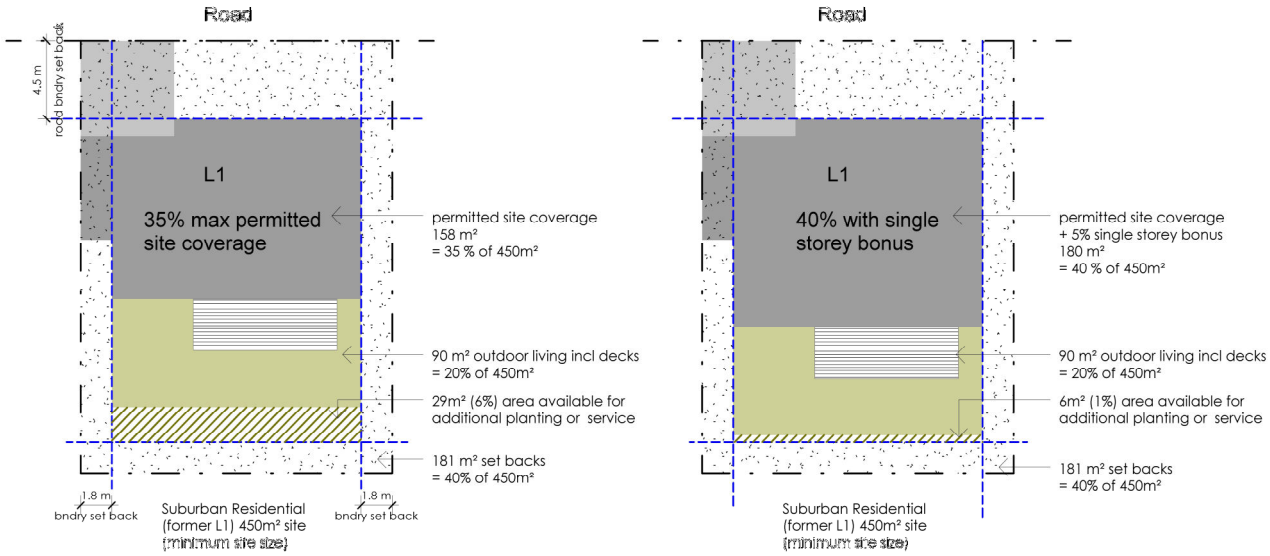
Historically the actual density in L1 areas has been significantly lower than allowed for within the operative district plan. Together with low site coverage, a high portion of the remaining space has been planted. Large numbers of L1 housing also include a deeper road boundary set back than is regulated for. The common distance of the house to the street boundary is often between 7 to 9m (district plan standard is 4.5m). Deep set backs are often treated as front gardens and include planting. The planted 'front yard', especially if it includes trees, has a great impact on the amenity value of the openness of the neighbourhoods as experienced from the street.

Contemporary trend with newer houses is to locate garages and associated hard surfacing to the street side. This trend is resulting in loss of tree and garden planting in front yards and a greatly reduced interaction between the dwellings and the street. Cumulatively, this will amount to a change in the character of suburban streets towards a street scene dominated by garages and driveways and are less safe[2].

The operational plan, includes a site coverage bonus of 5% for single storey houses in both L1 and L2. The impact of a larger single storey building is small on neighbours, however the cumulative impact can be significant for the neighbourhood. Larger houses often have larger garages and associated hard surfaces which on a small site near the minimum size, end up located on the street side. Cumulatively, larger single storey houses on small sites bring the risk of garage and hard surface

[2] Crime Prevention Through Environmental Design (CPTED) principles- Seven Qualities of Safer Places http://www.justice.govt.nz

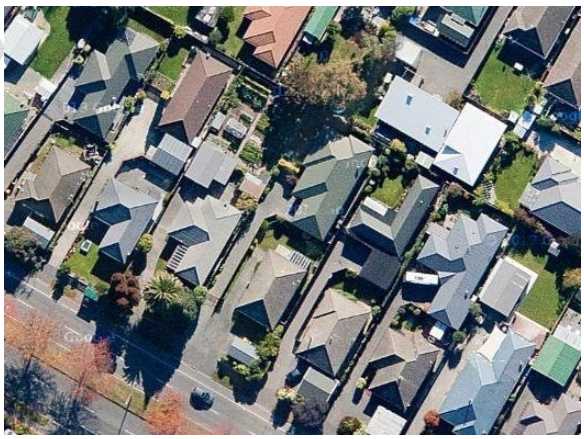
dominated streets in low density neighbourhoods that are also less safe due to reduced interaction of the houses with the street[3].



Interpretation

1- When all other rules are met for a single detached house and some of the side boundary is utilised for accommodating a garage, an L1 site has 6% of the site available for additional planting or service.

2-The site coverage bonus for single storey dwellings in L1 permits the whole site to be built on apart from the set backs and outdoor living space. On a 450m² site, this equates to 180m² including garage. It is a probable size for a single storey house[4] for houses aged 10 years and older.

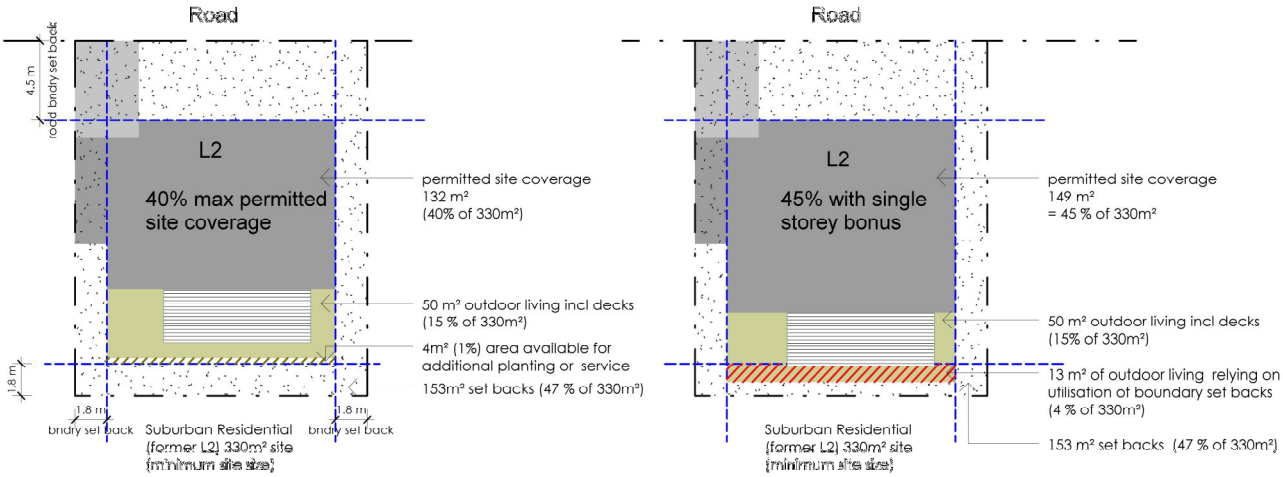


Cumulative high site coverage outcome in L1 (large single storey houses on small parcels)[5].

[3] Crime Prevention Through Environmental Design (CPTED)- Seven Qualities of Safer Places http://www.justice.govt.nz

[4] Quote from Stonewood Homes at Housing Sustainability Forum post Earthquake on 19 Sep 2011: "Average house size has grown from approx. 170m² to 250m² in the preceding 8-9 years". (ES -Site sizes have not grown proportionally).

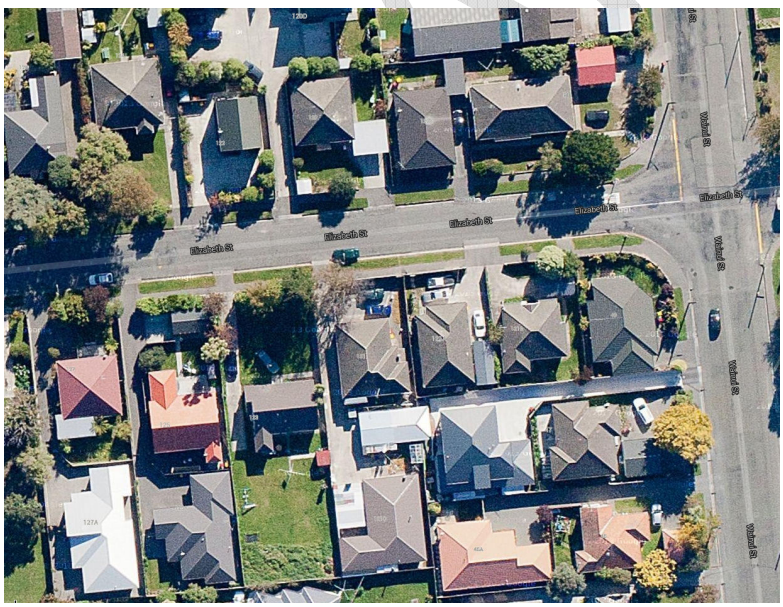
[5] Garegg Street, Harewood Road



Interpretation

1-When all other rules are met for a single detached house and some of the side boundary is utilised for garage location, an L2 site has 1% additional site available for additional planting or service.

2-The site coverage bonus for single storey dwelling in L2 permits the whole site to be built on apart from set backs. A portion of the outdoor living space has to occupy part of boundary set backs to make up the total outdoor living space required.



Cumulative high site coverage outcome (large houses on small parcels and increasingly more hard surfaces at street scene.[6]). See middle left and bottom right corner for examples of smaller houses on a small sites with proportional planting.

[6] Elizabeth Street

Recommendation – Variety in size and type

	Existing controls	Recommendation	Reason
Site density	Minimum site size	Retain status quo but allow down to 400m² for L1 subject to assessment of site design.	-Respond to permeability and planting reduction as a result of larger houses and garage with vehicle surfaces occupying a larger percentage of the total development. - Encourage 2-storey housing in L2.
	Maximum site coverage	Keep status-quo. Consider reduction to 35 % in L2 as permitted site size is smaller.	
	Single storey bonus	Remove from both L1 and L2.	

3.1.3 High Quality Residential Environments - Street scene

OBJ 5 High Quality Residential Environments
Policy 8: Neighbourhood Character, Amenity and Safety

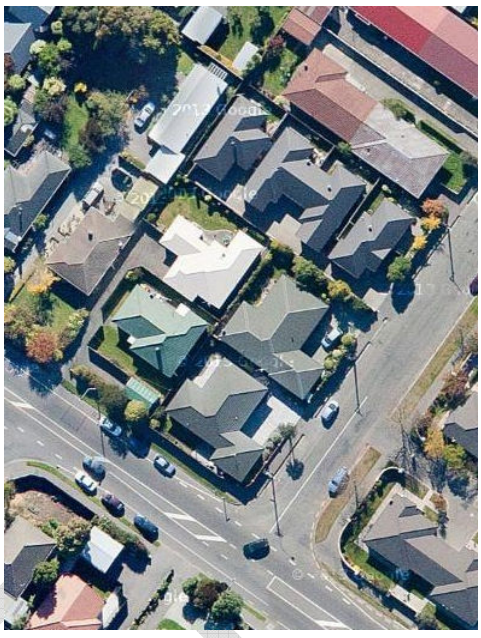
Historically suburban residential housing garages were located at the back of the parcels with the main house having primacy over any accessory buildings when viewed from the street.
The contemporary trend is both for new and older suburban houses to locate or relocate the garaging to the street side of the house.

TRADITIONAL L1 front yards

CONTEMPORARY TREND L1 garages to street

TRADITIONAL L2 relatively smaller houses

CONTEMPORARY TREND L2 larger houses



Streetscene Standards Comparison Table Wellington & Auckland

Wellington Outer Residential	Auckland Unitary Plan – Single house zone
• *3m min front yard*. Accessory buildings allowed. • 2m max height fence.	• *Yards rule: 5m min front yard*. • *Landscape rule:* 50% of the front yard landscaped. • *Fence rule: 1.6m max height of fence within.* • *Garage rule:* Garage door no larger than 40% of the width of the front façade and not project forward of the front of the building.

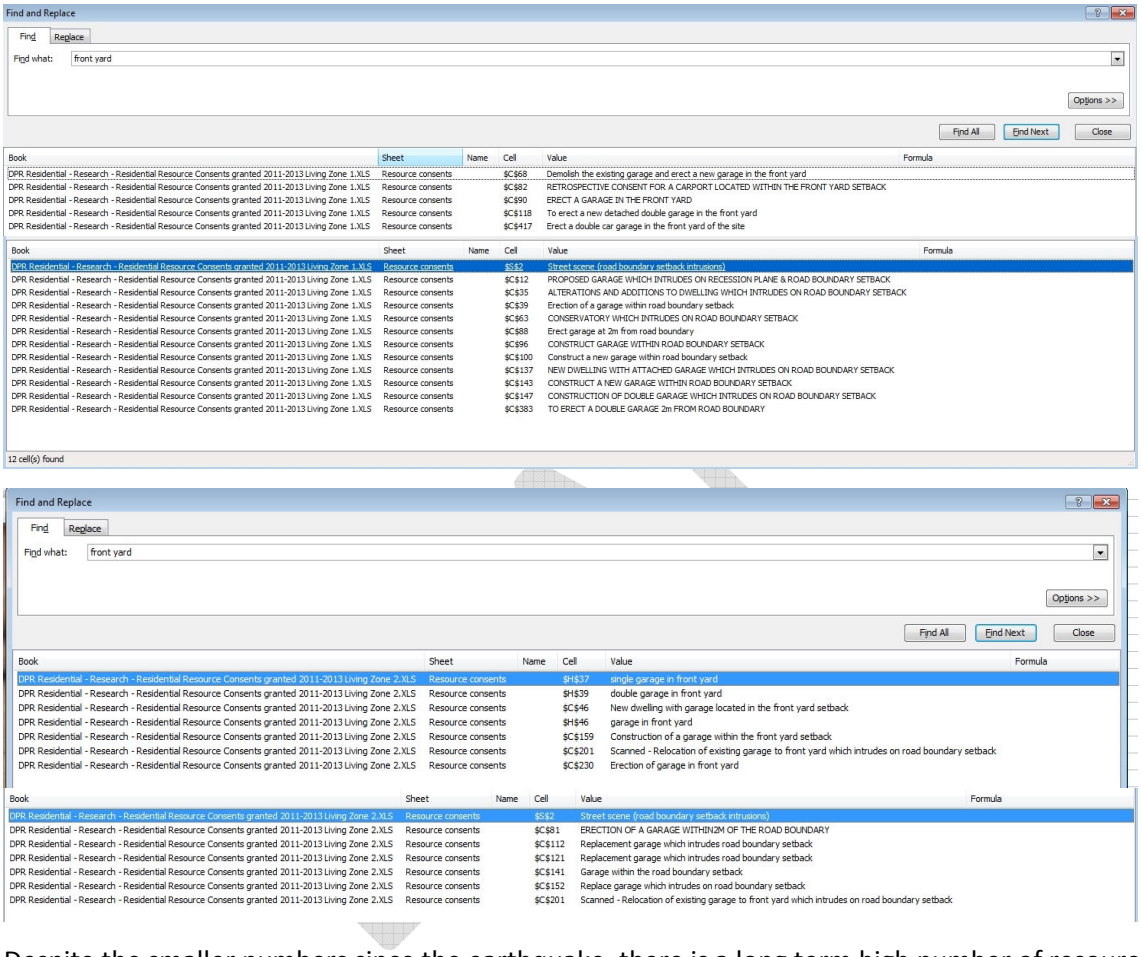
Recommendation Residential Amenity - Streetscene

	Existing control	Recommendation	Reason
Street scene	No street scene controls other than road boundary set back.	Introduce street scene controls for landscape, garages and driveways and fences to the street. Model the new standards on new neighbourhood provisions. See Appendix 1 for further discussion.	1- Location of garages and driveways to the street with houses less connected to the public realm is a threat for street amenity and safety. 2- Without street scene controls, residential suburban zone has significantly lower street scene anticipation than new neighbourhoods.

3.1.4 High Resource Consent Generation Residential Suburban

A. Garage intrusion to road boundary set back

Since 2009, 27 resource consent applications[7] have been received and granted for garages intruding into the road boundary set back where this was the only reason for requiring resource consent. The total number of resource consents is 808, making the combined RC generation for L1 and L2 zones 3.3%.



Despite the smaller numbers since the earthquake, there is a long term high number of resource consents and common practice to grant most of these consents subject to consistent criteria:

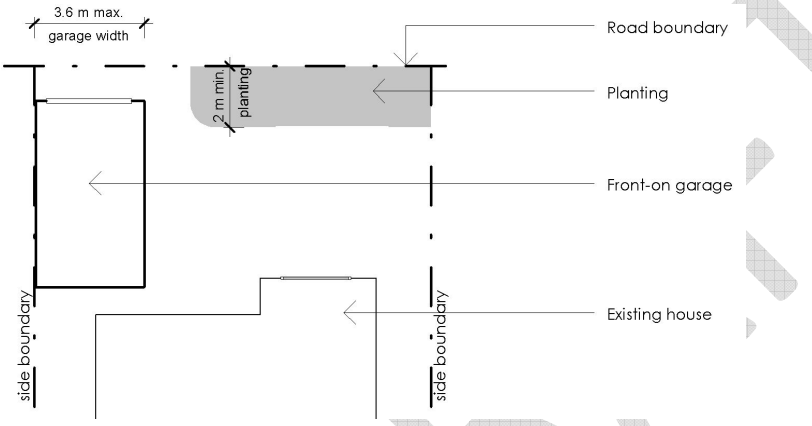
- Landscape strip to road boundary.
- Cladding and roof matching that of house.
- Visual bulk not dominating the street or the neighbours.

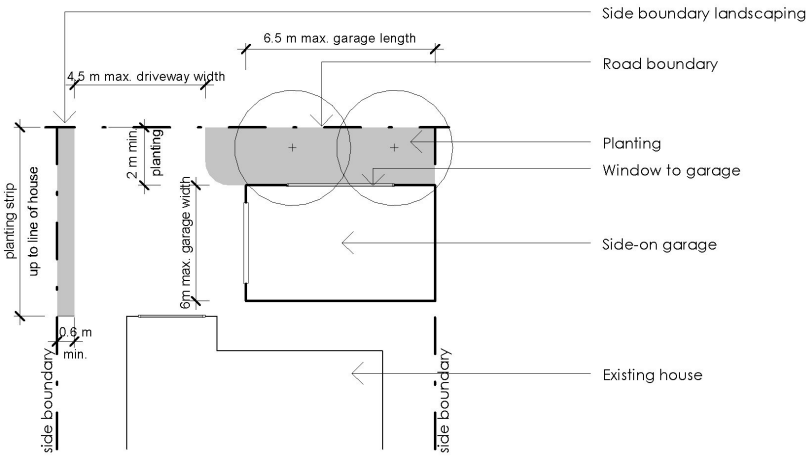
Typical aspects of these applications and the way they have historically been assessed indicated two possible exceptions to the rule to be prescribed therefore not requiring resource consent.

[7] Breakdown: 12 out of 233 in L2 (5.2%) and 15 out of 575 in L1 (2.8 %).

Recommendation Garage intrusion to road boundary

	Existing control	Recommendation	Reason
Street scene	Road boundary set back.	Introduce two exceptions for garage intrusion to road boundary set back.	1-The criteria applied in assessment of these RC's is established enough to be clearly prescribed. 2-The exceptions will result in a reduction in consenting process for applications where the outcome is predictable.





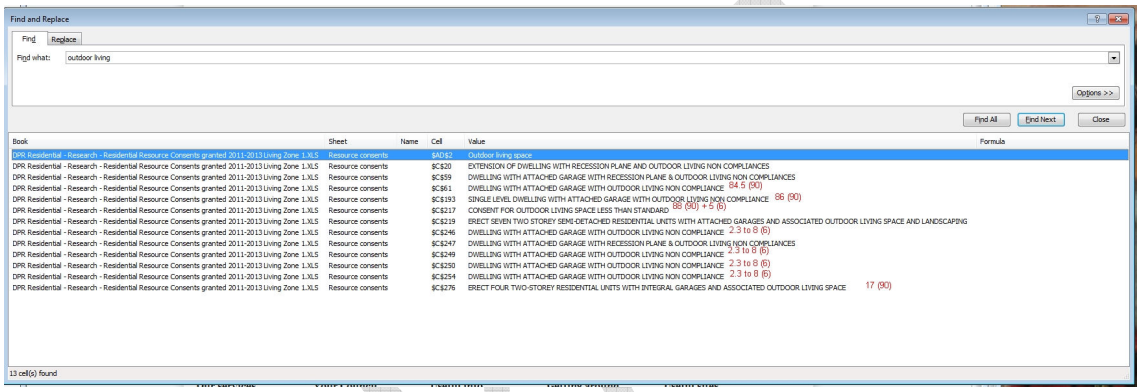
B. Outdoor Living Space total area and minimum dimension

Since 2009, 9 resource consent applications[8] have been received and granted for outdoor living space related rule breaches where this was the only reason for requiring resource consent. The total number of resource consents is 808, making the combined RC generation for L1 and L2 zones 1.1%.

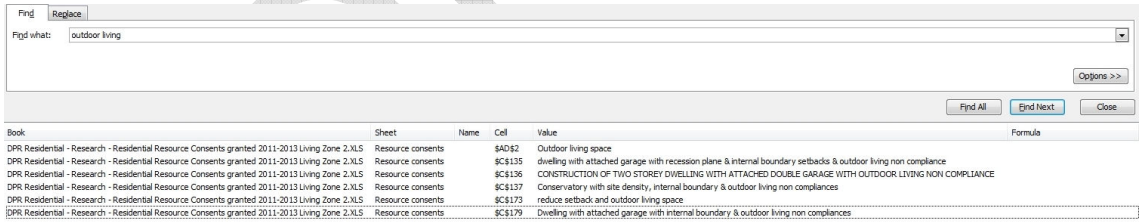
There are no simple typical aspects to these breaches. The breach of minimum dimension or total area is dependent on the specific house and site layout. The breaches are either for very small shortcomings or for a significant reduction such that slight adjustment to the outdoor living space requirements would not necessarily reduce resource consent generation.

Minimum outdoor living space area and dimension requirements are likely to be tested for small breaches wherever they are set.

L1



L2



Recommendation Outdoor Living Space total area and minimum dimension

	Existing control	Recommendation	Reason
Outdoor living space	Minimum total area and minimum dimension	Keep status quo.	No pattern identified in this report to reduce unnecessary consenting requirements.

[8] Breakdown: 1 out of 233 in L2 (0.4 %) and 8 out of 575 in L1 (1.4 %).

C. Recession Plane breaches for less than 200 mm

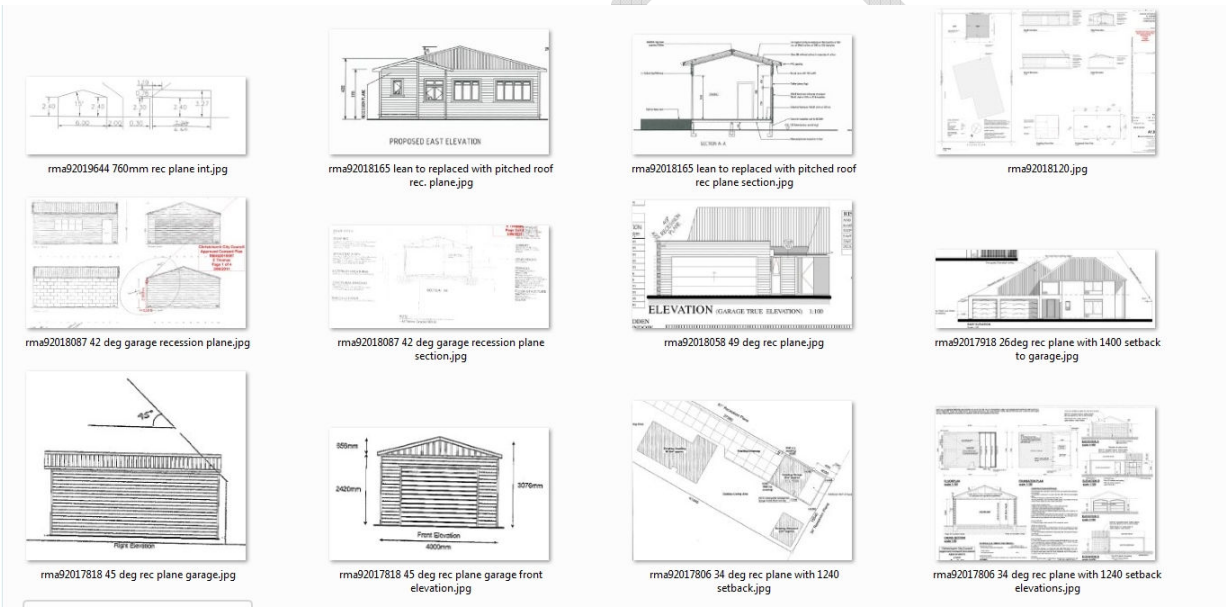
200 mm exemption for minor intrusions such as gutters is supported as these do not form the bulk of buildings and the resulting reduction in sun light access is minor.

Other Option Considered
Lifting the recession plane angle starting height from 2.3m to 2.5 m

There is not enough evidence to support a blanket lifting of the recession plane to 2.5.
A sample set of 186[9] L1 RC applications were examined and 11 recession plane intrusions were found.

All 11 intrusions were for more than 200 mm and a significant portion was also related to proposal of a long (around 12m) accessory building. A recession plane angle change starting at 2.5m would not have avoided the need for resource consent.

Accessory buildings of less than or equal to 10.1m are permitted to occupy the side boundary setbacks. With the recession plane breaches caused by these buildings, no pattern of consistent set back was found. i.e. The location of building varied between 500 mm and 1.2m.



Recommendation Recession plane height change

	Existing control	Recommendation	Reason
Separation from neighbours (Recession plane)	Orientation dependent angle starting from 2.3 m on the boundary.	Keep status quo.	No pattern identified in this report to reduce unnecessary consenting requirements.

[9] Total number of application in L1 since 2011 is 575.

3.1.5 Minor dwelling unit provision comparison

The scope of this report does not include a discussion on the provision of an additional minor residential unit in residential suburban zones. Refer to main body of the s32 assessment for the discussion.

A comparison table only is provided here as part of the comparison study of standards from other district plans.

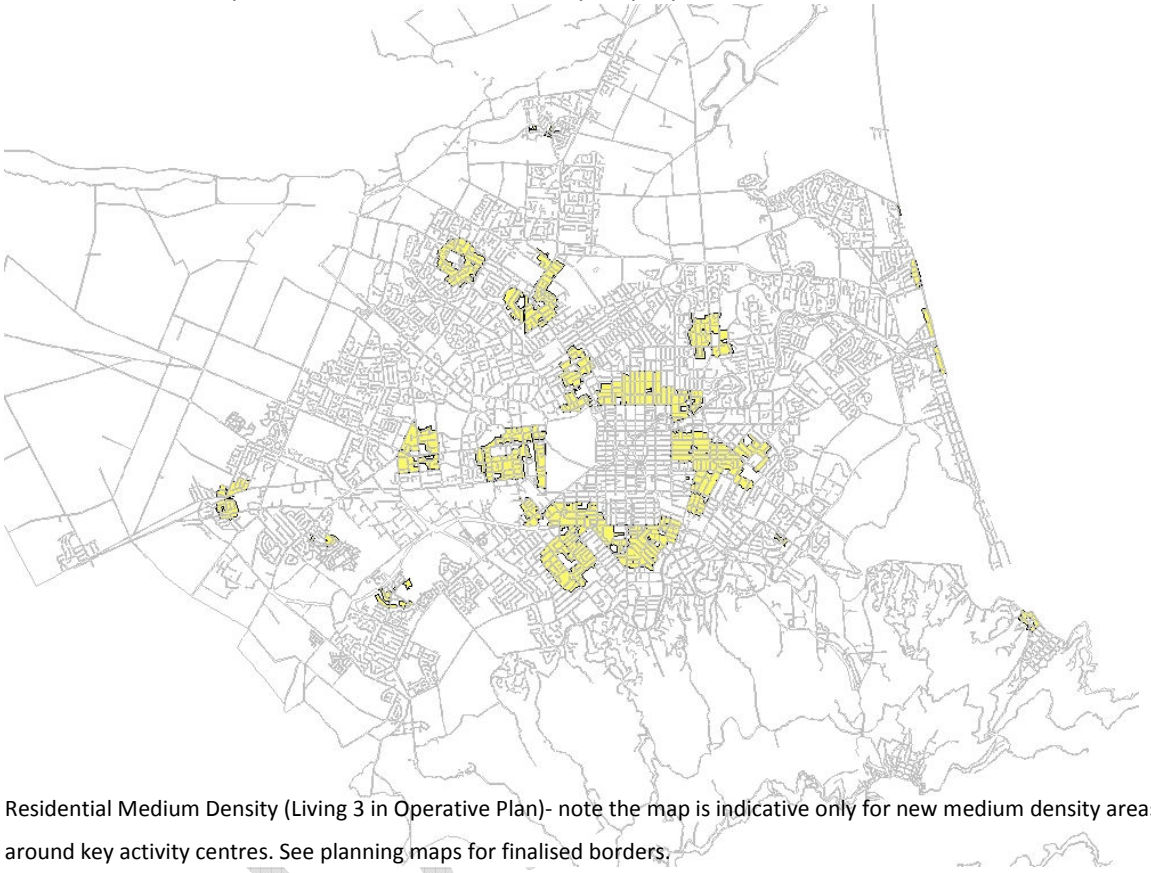
Minor Dwelling Provision Comparison Table

Waitakere (operative plan to be absorbed to Auckland Unitary Plan) ***"minor household unit"***	• Min 600m² net unit area for the main and the minor unit is permitted . • If minor unit is between the dwelling and the road, then discretionary activity in L2. • If minor unit is located in front of the main unit, then max. 5m height. • Minor and main may share the same OLS that is 25m² x number of bedrooms, min 3m dim, directly accessible from the unit. • One on site park for a minor unit. • Comply with other privacy and set back rules. Summarised on 13.12.13 from http://www.aucklandcouncil.govt.nz/EN/planspoliciesprojects/plansstrategies/DistrictRegionalPlans/waitakerecitysdistrictplan/text/Pages/the-rules.aspx
Northshore (operative plan to be absorbed to Auckland Unitary Plan) ***"minor residential unit"***	• Max 60m². • Max one per site. • Min 40m² OLS or 10m² balcony min 4m. • Comply with other privacy and set back rules. Summarised on 13.12.13 from http://www.aucklandcity.govt.nz/council/documents/districtplannorthshore/text/section16-residential.pdf
Reviewed Christchurch City - "*minor residential unit*"	• Where the site complies with minimum size in the zone. • Max one per site. • Max 65m² floor area for the minor unit. • Max 5.5m high. • Minor unit to share the same access as the main dwelling. • Outdoor living space requirement of min 90m² with min 6m on site or min 30m² serving the minor unit with min 4m dim. • Located behind the main unit.

3.2 Residential Medium Density Zone (Operative L3)

Context

Living 3 provides for multi unit developments predominantly in the area immediately around the central city and surrounding neighbourhood centres. The dominant housing typology is 2-3 storey blocks where multiple attached units are developed perpendicular to the street.



Residential Medium Density (Living 3 in Operative Plan)- note the map is indicative only for new medium density areas around key activity centres. See planning maps for finalised borders.

Density, Amenity and Character

3.2.1 Housing Supply - Availability and density

OBJ 1 Housing Supply

Multi-unit developments often include 3 or more dwellings on sites down to 13m x 50m[10] (3 households on 780m² including road portion achieves 38 hh/ha) meeting Regional Policy Statement (RPS) & Land Use Recovery Plan (LURP) intensification minimum density requirement of 30 hh/ ha[11].

[10] 13m x 50m=650 m² = approx. 1/15 of a hectare. 780m² (including the road portion) is approximately 1/13 of a hectare)

[11] 16.6m x 50 m + 10 m width portion of typical 20m road is 1000 m² (1/10 ha) is a simple 1/10th unit for ease of calculation.

Net density (Canterbury RPS): Number of households/ha including local roads and roading corridors, pedestrian and cycle ways, neighbourhood reserves.

Developments often do not reach the max RFAR of 0.8 on single narrow sites due to on-site parking, set-back and recession plane restrictions. Where 0.8 RFAR is achieved on narrow sites, this forces/compromises amenity related provisions. See table below and Appendix: Study of Recent L3 Development with respect to RFAR and associated non-compliances.

RFAR is often used as a feasibility tool to gauge the development potential of sites. However, when compliance with all amenity and sunlight access rules are achieved, the operative RFAR is an unrealistic target for majority of development especially those on single narrow sites. (See appendix and table below.)

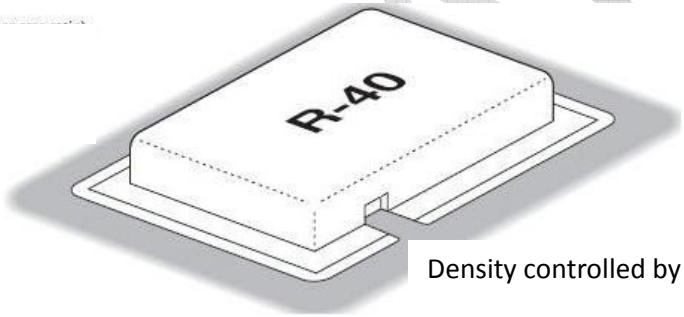
Density provisions are often perceived as more fundamental provisions of the District Plan. When permitted RFAR does not match the achievable RFAR, this creates a risk for amenity related standards to be compromised. This is not the intention of the District Plan which relies on packages of standards to deliver the objectives of the plan.

In addition, RFAR as a density standard does not fully match the objectives of the plan which calculates density in terms of households per hectare rather than floor area per hectare. For example a site fulfilling its RFAR but producing a single household will not deliver the RPS minimum density requirements.

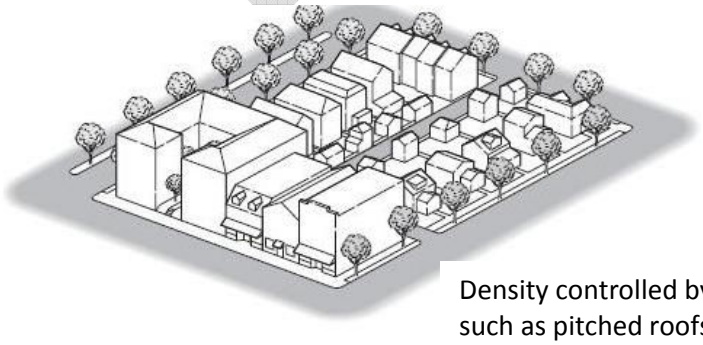
	Site Coverage Bldg +Garage	**Site size**	**RFAR**	**Non-compliances / Merit**
			0.6-0.7	
Nursery Road			0.61	3 No. 2 storey units separated at first floor level.
Fitzgerald 274		400 **11m** wide	0.6	Recession plane + minor reduction of OLS for one unit + minor intrusion to road boundary set back + minor reduction in la strip along access + reduced entry landscaping
Holly Road138	36%	1022	0.69	Entry landscaping achieved.
			0.75 to 0.85	
Gloucester 479	47.4 % (256 fp)	541	0.768	No landscaping associated with entry for units other than front unit.
Dickens 24	50%? (site boundary unclear)	393 20m wide back section	**0.815?** (depends on driveway calc)	Overhang more than 800 mm +living windows less than 4m to boundary + recession plane
Poulson Street 89	40.6 % (416 fp)	1023	**0.818** 837/1023	No indoor storage + no landscaping associated with entry + no landscape strip along access way.
Bishop street 106		521 **wide** corner site	**0.85**	OLS min dim 4 not met + road boundary set back minor breach
Onslow 10				Double garage only to street with living above + no landscaping strip along access.

Recommendation - Housing Density RFAR standard (residential floor area ratio)

	Existing control	Recommendation	Reason
Residential Floor Area Ratio (RFAR)	Max RFAR =0.8 Built floor area / Site area =<0.8	1- Reduce RFAR for single sites and keep the same or increased RFAR for amalgamated sites as an incentive. 2- Alternatively remove RFAR to eliminate the unrealistic target and rely on well administered amenity related provisions.	1- Typical single site in L3 is a narrow site with limited ability to satisfy amenity related rules if operative RFAR is to be achieved. 2-Site width is the greatest restriction in compliance with amenity rules therefore amalgamated sites will not be restricted to the same degree. 3- The reviewed package of standards are focused on built form outcomes rather than mathematical calculations and will better realise the density objective of the plan in terms of household numbers rather than total floor area.



Density controlled by RFAR



Density controlled by form, amenity and safety rules such as pitched roofs, tree and garden planting requirements, minimum outdoor living space and entry relationship to public space.

3.2.2 Housing Supply - Variety in size and type

OBJ 1 Housing Supply

One of the trends in recent development proposals in L3 is the use of single storey detached/semi-detached house typology on narrow parcels. These ordinarily detached or semi –detached types are joined into attached building forms. This forces the typology to inappropriate size and inter-relationships both with each other and with neighbouring developments.

Typical example of an inappropriate relationship is bedrooms being located directly adjacent to vehicle access at eye-level which unduly compromises privacy.

Recommendation Housing Variety in Size and Type

	Existing control	**Recommendation**	**Reason**
Site coverage	None	Introduce maximum site coverage (less than what is typically achieved) to encourage double storey development with reduced overall footprint.	Release area for required outdoor living space, service space and planting provisions as well as ensuring adequate privacy is achieved through the use of upper level spaces.

See appendix on site coverage analysis of post 2011 development for average site coverage.

The Urban Design Review of Recent Developments[12] analysis carried at PC53 time found that the site coverage in the Living 3 zone was45% or below for 92.5% of the sites studied with the remaining 7.5% being between 45% and 55%.

3.2.3 High Quality Residential Environments – Opportunities for planting

OBJ 5 High Quality Residential Environments
Policy 8: Neighbourhood Character, Amenity and Safety
Policy 9 Character of low and medium density areas

a. Intensified development of narrow sites result in a high hard surface to planting ratio. As a consequence, street scene is dominated by access ways and car parking provisions with frequent vehicle crossings.

b. Narrow sites fail to accommodate sufficient soft landscaping (planting) whilst providing for on-site minimum car parking numbers, access way dimensions and turning circles.

[12] including GIS data on the site coverage for a sample of sites expressed within L3 zone

3.2.4 High Quality Residential Environments - Permeability

OBJ 5 High Quality Residential Environments
Policy 10: Best Practice for health, building sustainability, energy and water efficiency.

Medium density development has the potential for adverse effects on stormwater management, water quality, and visual amenity as a result of the accumulation of impervious surfaces over time. With regard to stormwater management, the requirement for a minimum % of pervious /planted surfaces reduces the volume of stormwater runoff by allowing rainwater to sink into the ground rather than having to rely solely on management by an engineered or other stormwater management mechanism. It also reduces the contaminants by filtering these out through planted areas before the stormwater runoff combines with surface water i.e. rivers. This can also assist with mitigating the severity of effects of flooding.

There are important benefits in terms of visual amenity and potentially biodiversity values, and the garden city amenity by ensuring that minimum permeable /planted areas are included in higher density developments. The above is supported and explained in more detail in the Council's Surface Water Management and the Canterbury Water Management Strategy and the accompanying Zone Implementation Programme (overseen by a joint CCC and ECAN committee).

Study of Site coverage by: **Buildings, Access and vehicle related surfaces, and Outdoor Living Space**

	OLS	**Site Coverage** (Building + Garage)	**Access**	**Non-pervious** (Building + Access)	**notes**
Brockworth Pl 48	27 %	42 %	31 %	73%	
Salisbury St 152154	33 %	41 %	25 %	66%	
Fairfield Ave 36	27 %	45 %	26 %	71%	
Ferry Road 668-670	30 %	47 %	23 %	70%	
Holly Road 138	20 % (201)	36% (368=281+87 27%+9%)	44%	80%	RFAR given 0.815 for 839m² site area. Access way is not included as RFAR would be 0.69 if all area were to be included (1022m²). This is an anomaly created by shared accesssways not being included in RFAR when they are a separate lot.
CORNER SITE Tancred St 2	37 %	46 %	17 %	73%	Corner site takes advantage of short accessways possible from two streets and utilisation of additional road boundary setbacks for outdoor living space.

Summary

	Average excludes corner site	low	high
Total of vehicle related surfaces (but not garages)	**30%**	17% (excluded from average)	31%.
Total site coverage	**42%**	41%	47%
Total OLS	**27%**	20%	37% (excluded from average) High ratio is facilitated by use of two street boundary setbacks for ols.

Study of the above sites indicate that use of single rather than double garages would create opportunities for tree and garden planting without reducing the number of units provided. Capping site coverage at 40% slightly lower than average would facilitate some of the area taken up by garages to be released for planting. See appendix for drawings of the sites studied.

Interpretation: Site coverage on typical sites are similar for the total of vehicle related surfaces (between 23 and 31%) and buildings (between 41 and 47%). It is uncommon for OLS provision to exceed the minimum unless the site shape an orientation permits boundary setbacks to be included.

In the studied sites, there is little or no space for tree or garden planting to benefit the residents at site level and contribute to the neighbourhood. Study of the above sites indicate that use of single rather than double garages would create opportunities for tree and garden planting without reducing the number of units provided.

Permeability Provision Comparison Table

Auckland Unitary – Mixed housing suburban and urban zone (Considered equivalent to Christchurch medium density zone)	Reviewed Christchurch City - Medium density zone
• *Impervious rule* 60% maximum impervious area. • *Coverage rule* 50% max building coverage if more than 1 unit per 300m². • *Landscape rule* 30% minimum landscaped area of which 10% (i.e 3% of site area) to have shrubs and a tree. • *Front yard rule* 50% of the front yard to be landscaped.	• *Site coverage rule* 40% max site coverage. • *Tree and garden planting rule* Minimum planted area ratio of 15%.

Reason (Christchurch)

Improve stormwater management as well as the city's character in terms of vegetation.

Purpose (Auckland Unitary Plan)

Impervious surface rule: Manage the amount of stormwater runoff generated by a development.

Landscaping rule: •provide for on-site amenity and an attractive streetscape character
•improve stormwater absorption on-site.

Recommendation Permeability

	Existing control	Recommendation	Reason
Minimum planted area ratio	None	Introduce minimum planted area ratio of 15%.	Improve stormwater management provisions as well as city-wide amenity and character.

3.2.5 High Quality Residential Environments - On-site amenity

OBJ 5 High Quality Residential Environments

Policy 8: Neighbourhood Character, Amenity and Safety

a. Outdoor living space

Outdoor living space provisions for small units are routinely breached with the argument that the current standards are not proportional to the unit size. Whilst there can be a wide variety of number and profile of residents in multi bedroom units, the proportionality argument is reasonable for single bedroom units which have limited occupancy. An exception package for single bedroom units is recommended:

Reduction of total OLS area to 16m² and if the unit is fully contained on an upper level, then one 6m² balcony to form the total private OLS.

It is considered impractical to provide a balcony as large as 16m² for a single bedroom unit that is located on an upper floor only. The 6m² private area for single bedroom unit is considered equivalent to 16m² private area on the ground floor. Balconies have the opportunity to borrow visual space from around whereas ground floor areas are often surrounded by buildings or fences. 6m² in a balcony has adequate space for a table and chairs as well as a small area for service or plants.

Proposed name	**Suburban residential**			**Medium density**	**Central City** (under review - CERA)
			Multi unit suburban		
Operative name	**L1**	**L2**	**EPH equivalent**	**L3**	**L4: under review**
Total	90m² - no change	50m²- no change	30m²- no change	30m² -no change + new 1 bedroom exception 16m² total	
Private			16m² - no change	16m² - no change	
Min dimension	6m- no change	4m-no change	4m - increased from 3m	4m- 1.5 if balcony - no change	
Min area for balcony				6 m² which can also be the min private if upper level one bedroom unit.	

For consistency across the city, L3 zones require more outdoor living area than Central City zones because L3 areas have less ready access to the central city high amenity significant outdoor spaces (such as Hagley Park and the Avon River) to balance a smaller outdoor living provision.

b. Privacy

Low level of privacy is observed in L3 areas especially with respect to privacy between adjacent sites where there is continuous development along side boundaries. As a contrasting example, intensive perimeter block development typologies such as terraced housing or perimeter apartments seen internationally allow for the centre of the blocks to act as green lungs or at least open space breathing areas. The site by site development perpendicular to the street in Christchurch eliminates any green belt or green centre establishment within urban blocks, creating permanent overlooking of adjacent sites along their long boundaries. Established trees and high level of vegetation along side boundaries could be one way to mitigate this but this is a difficult control to introduce and/or enforce and difficult to achieve with existing narrow site widths.

Privacy issue was identified in recent plan change 53 (operative since2011) and was explored in some detail. The recommended rule package at the time facilitated development concentrated in two buildings separated by a privacy distance of 12m. These were not supported by the Council/commissioners in concern for consequential density reduction. For some of the discussion, see also Appendix 5 PC53 -Privacy discussion thorugh submissions.

The writer of this report considers that the issue can be addressed by an overall typology change where 2-4 storey buildings are located parallel rather than perpendicular to the street making maximum use of the additional separation distance and outlook afforded by the street width (20m in most of Christchurch). The current plan review priorities and time frame do not permit expansive exploration at this scale.

Recommendation outdoor living space and privacy

	Existing control	**Recommendation**	**Reason**
Outdoor living space	Min area and min dimension	Keep status –quo but introduce one bed unit exception.	OLS requirement proportional to occupancy.
Privacy	Separation distances	Keep status –quo	Adequate in absence of new typology. Explore ways to address as part of continued plan review. Explore non-statutory actions such as identification of pilot areas and obtaining high landowner engagement, to provide case studies and examples.

Additionally, Hamilton City rules are compared to Christchurch City operational rules in table below in order to research if solutions may be found in other district plans. **The provisions are similar with minor variance. See below.**

Hamilton - Residential Zone	**Privacy Distances**	Christchurch L1-2-3	**Separation distance**s
Set back for a balcony or habitable room at upper level: **Unless:** -Windows are at 60° or more to the boundary. -Window sill at 1.7m or higher. -Opaque or obscured glazing. -Written consent from the occupier of the adjoining property.	5m **except** if adj. to an access way, entrance strip (of 6m or less width), right of way, private way or access lot. (*ES note: unclear what the set back is if adj. to access)*	Set back for a balcony or a living area at FF or above. **Unless:** **-**Windows are at 90° or more to the boundary -Window sill at 1.6m or higher.	4m
Ground floor (GF) privacy distance	None	Set back from any internal boundary for a living area on GF**.**	3m **If** adjacent to an access, then 1m.
Eave to eave distance within the same site	3m	Building separation on the same site	3m in L1

4. Further Opportunities for Simplification / Consolidation

4.1 Residential Suburban Zones (Operative L1-L2)

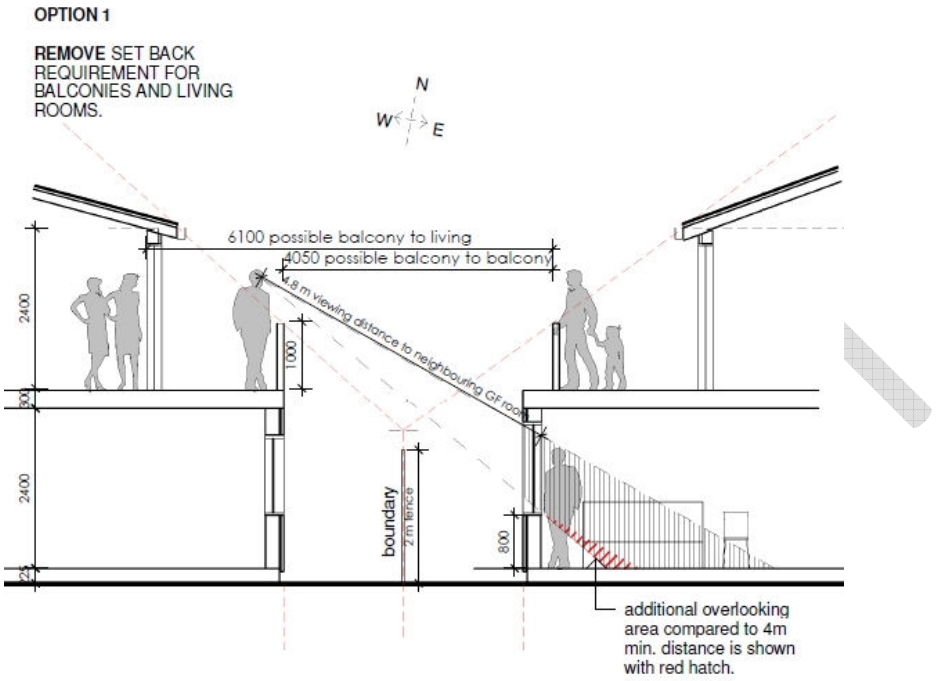
The following rules have been identified by staff or requested by the technical advisory group (TAG) for consideration with a view to deletion or simplification.

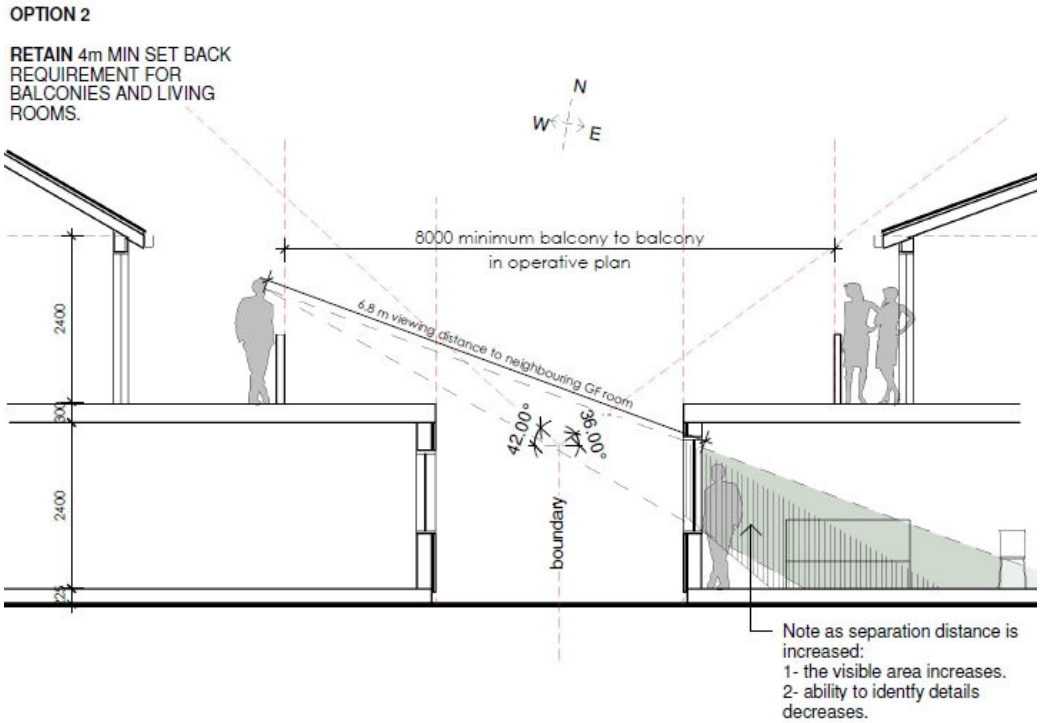
Control	Recommendation	Reason
Outdoor living space minimum requirement in context of the new minor dwelling provision.	**Retain** at 90m² total per site.	If there are two dwellings, the total outdoor area would be shared, practically equating to 45m² for each. This is consistent with the 50m² requirement for the next density level L2.
Maximum floor area under "separation of buildings"	**Remove.**	The operational rule is intended to manage effects of non-residential activities. These are now dealt with under the activity table, under restricted discretionary status. See also discussion in main s32 document.
Privacy distances for balconies and living areas under "separation from neighbours". See 4.1.1 beow.	**Retain** separation distance for balconies and above ground level living areas. Remove separation distance for ground level living areas. See diagrams on following page.	The existing separation levels area already documented to be inadequate where a high level of detail can be recognised across properties. See Plan Change 53 Urban design technical report on privacy. On ground level, the typical separation via fence provides adequate visual separation.
Continuous building length rule. See 4.1.2 below.	**Remove**.	The operational rule is intended to deal with the effects of large non-residential buildings in living zones. Non-residential activities are now dealt with a new activity table. See also discussion below.

4.1.1 Separation distances

The existing separation levels area already documented to be inadequate where a high level of detail can be recognised across properties. It is recommended that existing distances are retained for first floor and above.

On ground level, the typical separation via fence provides adequate visual separation therefore additional distance is not considered necessary. See also Plan Change 53 Urban design technical report on privacy.





4.1.2 Continuous building length

This rule intends to mitigate effects of large unarticulated building facades by prescribing steps for walls and ridges that are longer than 20m. In practice it introduces a bleak permitted baseline of 20m long blank facade. The prescribed depth and length of steps are rarely able to be complied with on specific instances. In many cases a simpler design with high quality materials and architectural detailing would lead to a better outcome than that of prescribed/forced articulation.

The effects of building bulk and scale are addressed via the urban design (UD) assessment matters in multi-unit developments where there is higher potential for buildings to reach 20m. In smaller grain residential development in the rare instance that a house reaches 20m, there are openings and articulation such as windows which provide the degree of articulation expected in residential context.

Operative plan rule:

Continuous building length - ridgelines and parapets - residential and other activities
Updated 14 November 2005

No length of any ridgeline/s and/or horizontal parapet/s of a building, or buildings separated by a length of less than 3.6m (from ridgeline and/or parapet to ridgeline and/or parapet), combined with the length of any distance/s between the ridgeline/s and/or horizontal parapet/s shall exceed 20m without providing either a horizontal step of at least 2m, or a vertical step of at least 1m. The minimum length of all steps shall be 6m.

except that:
(i) This rule shall not apply to any part of a ridgeline and/or horizontal parapet which is more than 10m from every internal boundary and more than 6m from every road boundary.
(ii) Where a step occurs within 6m of the end of the ridgeline and/or horizontal parapet at the end of the building, the length of that step need only equal the remaining length of the ridgeline and/or horizontal parapet.

(Refer to Appendix 1A and the definitions of step, length and ridgeline for further clarification of this rule.)

Continuous building length - exterior walls - residential and other activities
Updated 14 November 2005
(a) Steps shall be provided along the length of exterior walls in accordance with the following table:

Length of exterior wall	Minimum number of steps
< or = 20m	0
> 20m < or = 24m	1
> 24m < or = 28m	2
> 28m < or = 32m	3
> 32m	4 + 1 for every additional 10m of length over 32m

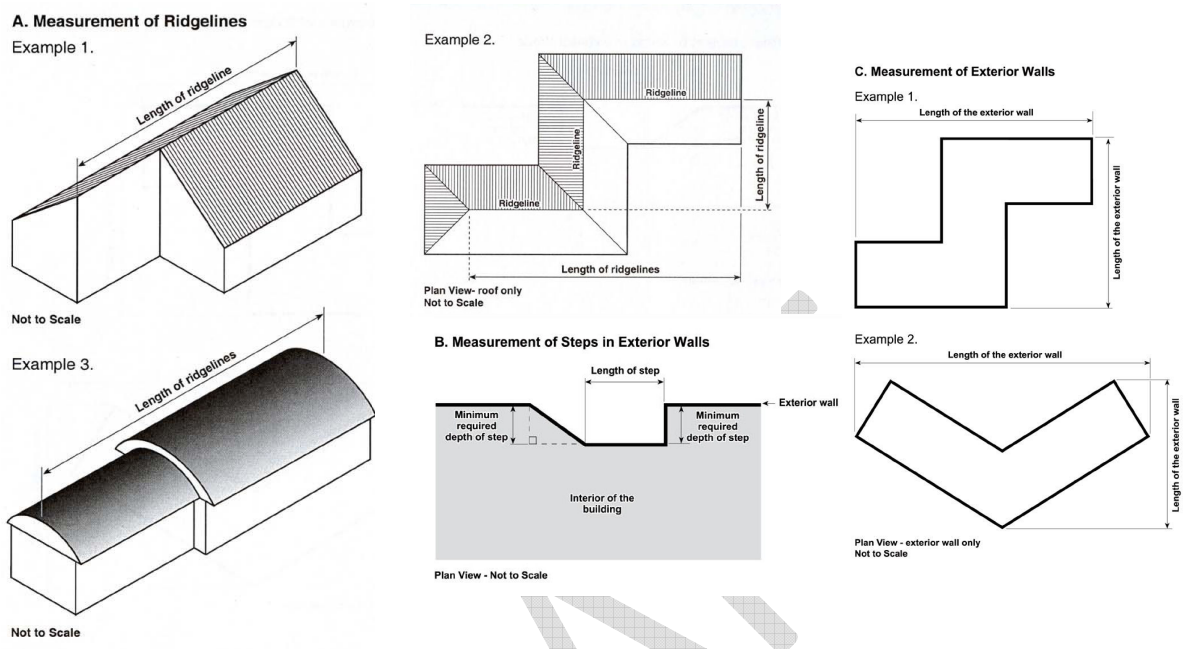
(b) Where steps are required by (a) above:
(i) One step shall have a minimum depth of 2m. Any steps required thereafter shall have a minimum depth of 1m.
(ii) One step shall have a minimum length of 2m. Any steps required thereafter shall have a minimum length of 4m.
(iii) No length of any exterior wall shall exceed 20m without a step of the required dimension having commenced.
(iv) The required steps shall be provided at all levels of the exterior wall.

except that:
(i) This rule shall not apply to any part of an exterior wall which is more than 10m from every internal boundary and more than 6m from every road boundary.

(ii) Where no part of a building exceeds 5.5m in height, this rule shall not apply to any exterior wall of less than 28m in length.

(Refer to Appendix 1A and the definitions of step, depth, length and ridgeline for further clarification of this rule.)

Appendix1



4.2 Medium Density Zone

The following rules have been identified by staff or requested by the technical advisory group (TAG) for consideration with a view to deletion or simplification.

Control	Recommendation	Reason
Building overhang	**Retain.**	It avoids the dominance of large overhangs both on site and as viewed from the street. Survey of resource consents show that only minor breaches are applied for and the rule is performing its function.
Entry landscaping	**Reduce** from 3m² to 1.5m² with min dimension of 0.6m.	This will rationalise the area and minimum dimension requirement in line with common site widths and common building dimensions on ground floor.
UD trigger rule	**Retain.**	The operational trigger at 3 units is an effective threshold where likelihood of adverse effects of multi-unit is increased due to increased building size and occupant number.
Qualitative assessment matters	**Retain** content but simplify and reformat.	User feedback suggests that the qualitative assessment matters were complex and lengthy although containing high quality content.

5. Recommended Rule Changes Summary

5.1 Residential Suburban (Operative L1 and L2)

INTRODUCTED NEW OR DELETED

- Introduce street scene controls to require
  - Max 1m solid fence or 50% transparency up to 2m height to fences within the road boundary set back
  - 2.0 m wide landscaping to street
  - Max 4.5 m width to driveways
  - Max 50% ratio of garage to total street elevation

- Remove 20m max length rule for walls and ridge line

REFINEMENTS:

- Remove site coverage bonus for single storey. i.e. 35% coverage with additional 5% possible as Restricted Discretionary.
- 2No exceptions for relocation of garage into road boundary set back for existing houses only see diagrams.
- Match permitted accessory building length to medium density zone. i.e. 10.1m instead of 9m.

L1 overlay

- Retain minimum site size 450m² as the permitted standard
- Reduce minimum site size to 400 m² as the non-complying standard

L2 overlay

- Retain minimum site size 330² as the permitted standard
- Retain minimum site size to 300 m² as the non-complying standard

5.2 Residential Medium Density (Operative L3)

INTRODUCTED NEW OR DELETED

- Introduce 40% site coverage.
- Introduce 15% planting requirement.
- Reduce RFAR to 0.7 for single site developments OR remove RFAR.

REFINEMENTS:

- Reduce entry landscaping requirement to 1.5m² with min dimension of 0.6m.
- Note the ability to use the difference between legal and formed access way width for landscaping.
- Introduce single bed unit total OLS exception at 16m².
- Introduce minimum balcony area of 6m² which can be the total private OLS for a single bedroom unit.
- Introduce reformatted qualitative assessment matters –see also separate discussion.
- Remove 20m max length rule for walls and ridge lines for 1-2 units.

6. Appendices

Appendix 1 Street scene – Garage and hard surface domination
Appendix 2 RFAR examples and consequential breaches.
Appendix 3 Site coverage study drawings.
Appendix 4 PC53 discussion and illustrations on Privacy and Community Safety (especially with respect to fences)

Appendix 1

Issues

1- Garage and impervious surface domination of streets in low density zones

2- Garage intrusion to road boundary set back in low density zones- existing houses

a. existing dwellings

In existing L1 areas, it is common for older houses to be set back further than 6 m. This set back is typically 7-9 m with the dwelling located centrally on the parcel with a single garage at the end of a narrow driveway.

As these houses are being renovated and upgraded in time, there seems to be a trend to upgrade the garage to a double garage and locate it between the house and the street boundary. The relocation often results in some intrusion into the road boundary set back.

Whilst this facilitates more unobstructed use of the back yard on the individual site level, on the street scene level, it presents issues of garage and imperviable surface domination and disconnection of activity from the street. This cumulatively results in loss of amenity and passive surveillance on the street.

There is a suggestion that road boundary intrusions resulting from relocation of garages are high generators of resource consent applications. Study of 575 Resource consent applications since 2011 in L1 zone showed 11 such applications. This equates to 1.9%.

In order to :

- reduce the number of applications
- control the extent of the breach
- introduce more certainty

Options

1- **policy support**
the desired outcome (not locating garages in the road boundary set back) can be supported with policy and consents stop to be granted.

2- **more permissive approach**
the unofficial check-list resulting in routine granting of resource consents can be turned into a rule, in effect prescribing an exception to the rule. (see diagrams)

3- **controlled activity** – specific assessment matters
the unofficial check list can be reviewed, added to and turned into specific assessment matters specifically for 'garage intrusions into the road boundary set back'. Currently the garage intrusion is dealt with the generic street scene assessment matters which do not cover the matter of interaction

of the dwelling with the street to contribute to safety and liveliness of the neighbourhood. (see diagrams)

b. new dwellings

The trend for larger cars and bigger garages is apparent in all parts of the city, especially in suburban residential areas. The impact of the move towards larger garages in combination with the typical location of existing older houses is discussed above.

New dwellings do not typically result in intrusions to road boundary set back. However they also cumulatively add to the garage and impervious surface domination of the streets and the resulting loss of tree and garden planting, reduction in street level amenity and reduction in the interaction of the dwelling with the street.

Currently the district plan does not include any controls around garage widths nor does it require any tree and garden planting within the road boundary set back. Historically these have not been issues given the smaller number of cars, large land parcels, smaller houses and the gardening culture. However the trend for increasing size of cars and houses on the same or smaller land parcels and the resulting garage sizes and locations presents a threat to the future of Christchurch suburban streets.

This threat is recognised and reflected in the street scene controls for recent Greenfield Living zones (see table below). In order to :

- protect the character and amenity of existing suburban living zones
- ensure consistency in the level of amenity between areas of the city that contain similar density housing

Introduction of similar controls is proposed. The control set proposed is the 'new neighbourhoods' set as it is informed by the experience of Greenfield rules, such as controlling the length of the 'garages' rather than the 'garage doors'.

Garage door perpendicular to street

1- Street elevation made up by the garage and the house walls shall have min10% glazing (20 % if assessment matter).

2- Side boundary planting strip to be capable of reaching 1.5 m height and continue to the line of the house.

3- Planting in the front boundary set back to be 1.2m high at the time of planting and include 1 tree per 10m length of total road boundary.

4- Garage cladding material to match the house cladding.

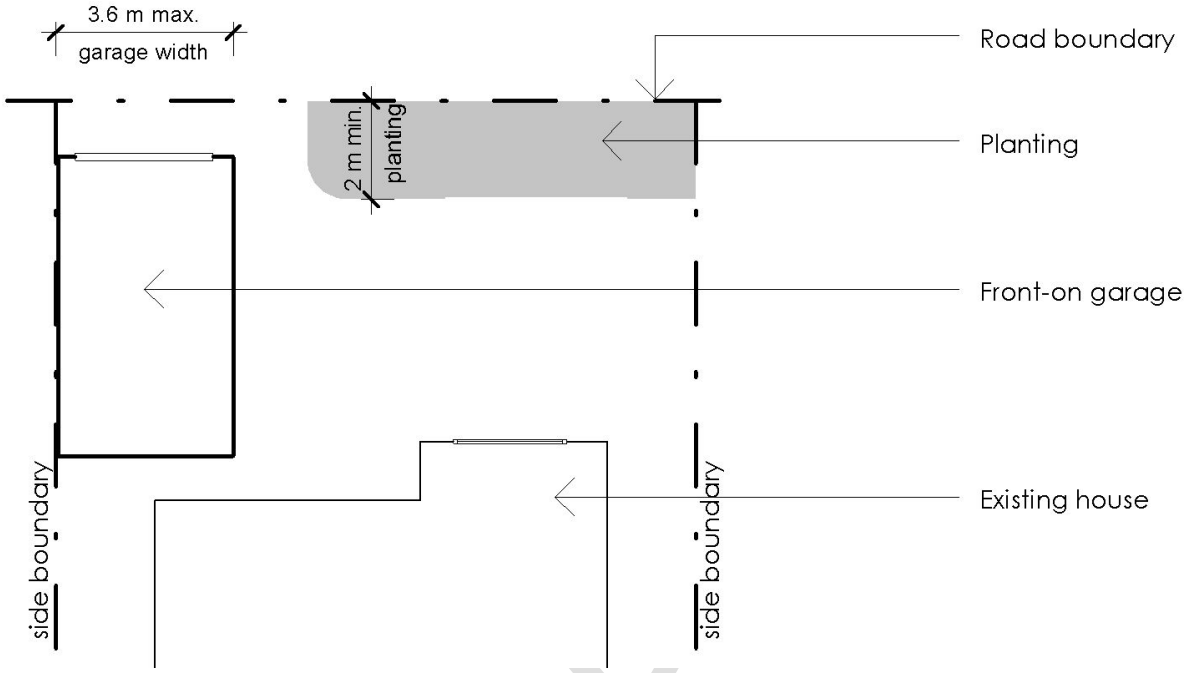
Garage door parallel to street

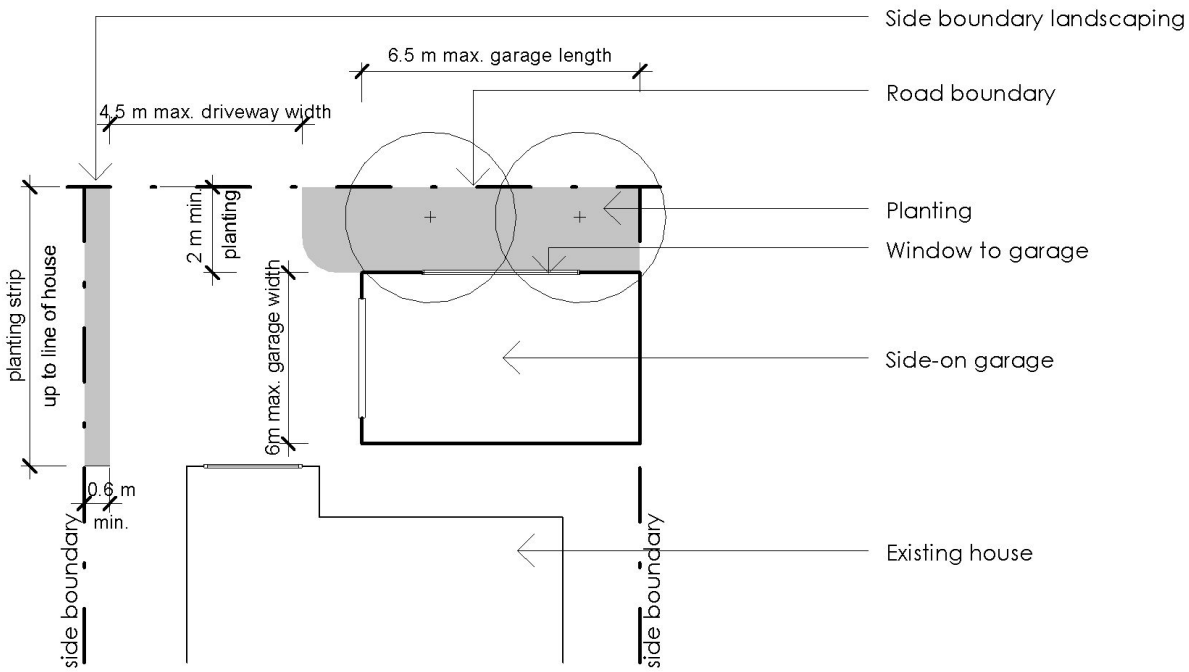
1- The distance between the garage door and the road kerb shall be no more than 5m. (to avoid parking across the footpath).

2- Garage to be single garage width only.

3- Garage cladding material to match the house cladding and the roof pitch to match the house roof pitch.

4-



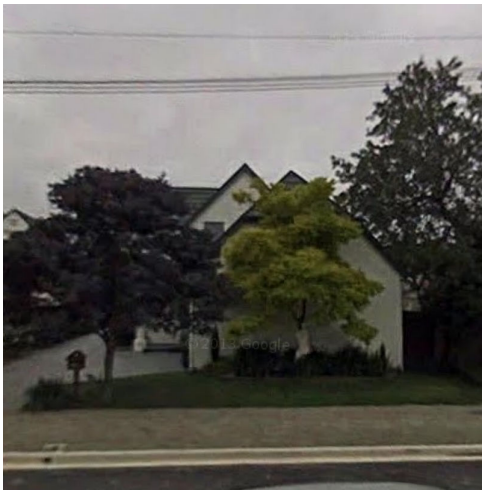


Street scene Issues – 11.10.2013

o Garage and impervious surface domination o Loss off tree and garden planting oDisconnection from the street.

Garage and hard surface domination of streetscene

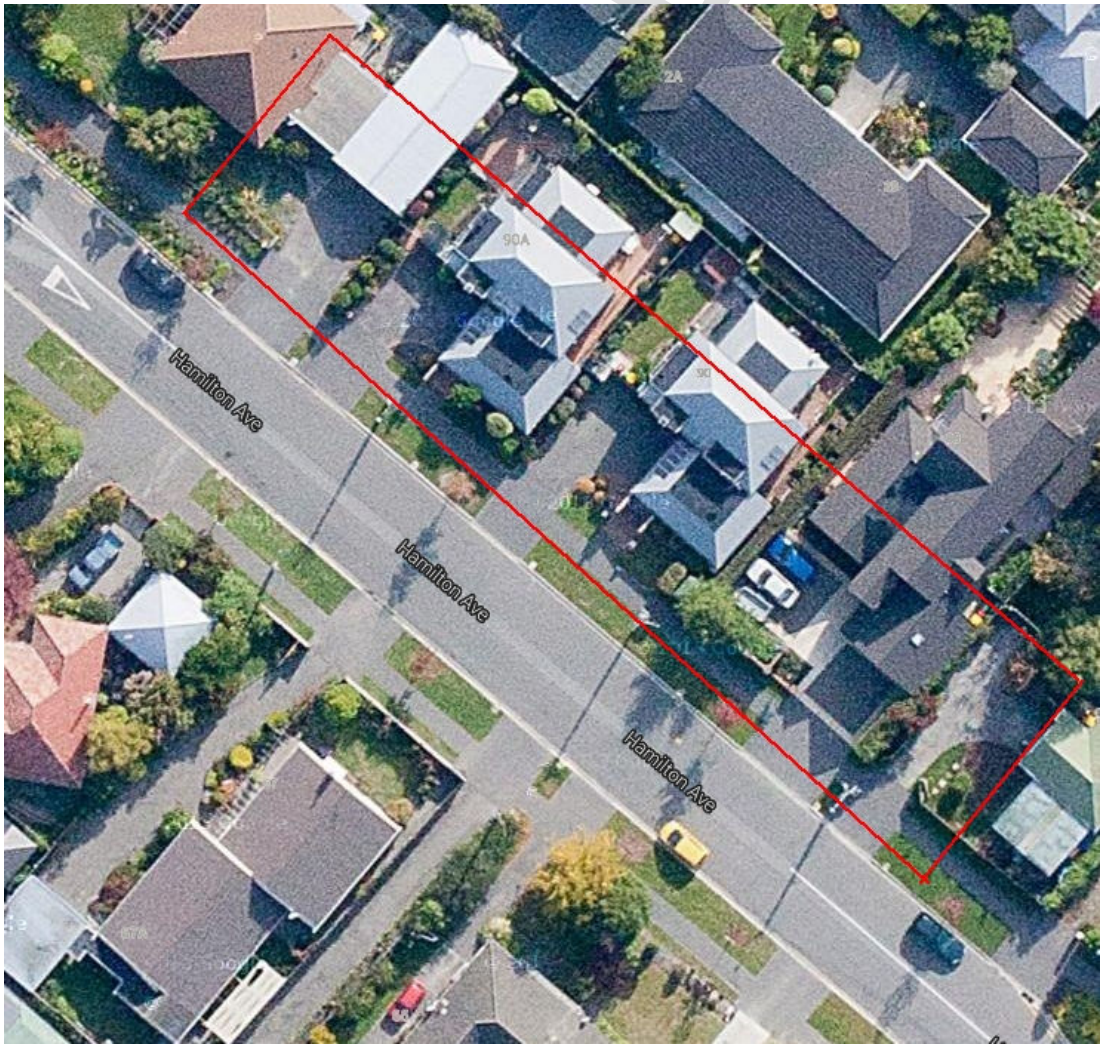
Landscaped strip to the street within road boundary set back



App 1 to District Plan Review 2013-14 s.32 technical report Residential Built Form, Character and Amenity
Street scene Issues – 11.10.2013
o Garage and impervious surface domination o Loss off tree and garden planting oDisconnection from the street.

Landscaped strip to the street and more house than garage in elevation.

Changing street scene with garage and hard surface domination



App 1 to District Plan Review 2013-14 s.32 technical report Residential Built Form, Character and Amenity
Street scene Issues – 11.10.2013
o Garage and impervious surface domination o Loss off tree and garden planting oDisconnection from the street.

Road boundary set back breach typically granted

Operative Greenfiedl streetscene provisions:

Yaldhurst 1

Volume 3 : Part 2 Living Zones : 6.2 Development Standards : 6.2.5 Street scene - residential and other activities

6.2.5 Street scene - residential and other activities

Updated 8 November 2006

(a) Minimum building setback from road boundaries shall be 3.0m except that

(i) where a garage has a vehicle door generally facing a road or shared access the minimum garage setback shall be 5.5m from the road boundary or shared access;

(ii) On any High Density residential site on the north side of a local road which runs at 90 °(+ or - 20 °) to the True North the minimum setback shall be 2 metres provided that the ground level of the entire front yard of the building up to the road boundary is raised by landscaping so that it achieves a height of 450mm above the level of the street frontage to the site.

(b) Street frontage and street frontage landscaping

(i) Subject to rule 6.2.5(a), the full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as vehicles or pedestrian crossing, or where necessary to ensure safety / visibility or security surveillance of public spaces.

(ii) Domestic driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(iii) Garage doors and carport entrance ways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site.

Awatea 2

Volume 3 : Part 2 Living Zones : 8.2 Development Standards - All Residential Areas : 8.2.6 Street frontage landscaping and fencing

8.2.6 Street frontage landscaping and fencing

Updated 11 July 2011

(a) The full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicle or pedestrian crossing, or where necessary to ensure safety/visibility or security surveillance of public spaces.

(b) Except where required for screening of outdoor storage areas, any fence located on the road boundary or within the minimum building setback specified in Rule 8.2.11 shall have a maximum height of 1.2m.

(c) Residential driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(d) Garage doors and/or carport entranceways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site and shall not be more than 6m wide.

East Belfast 3

Volume 3 : Part 2 Living Zones : 7.4 Development Standards : 7.4.5 Street scene - residential and other activities

7.4.5 Street scene - residential and other activities

Updated 12 March 2012

a) Minimum building setback from road boundaries shall be 3.0m except that

i. Where a garage has a vehicle door generally facing a road or shared access, the minimum garage setback shall be 5.5m from the road boundary or shared access;

b) Street frontage and street frontage landscaping and fencing.

i. The full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicle or pedestrian crossing, or where necessary to ensure safety/visibility or natural surveillance of public spaces.

ii. Garage doors and carport entranceways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation as viewed from any one road boundary on any one site.

iii. Any fence within the minimum building setback specified in Rule 7.3.6(a) where the height is greater than 1.2 metres, shall be more than 50% visually transparent, except where required for screening of outdoor storage areas.

c) For residential units with boundaries facing the open space corridor, the height of any fence within 3m of that boundary facing the open space corridor shall be limited to 1m where the fence is solid, or up to 1.8m in height where at least 50% of the fence is visually transparent.

Note: "50% visually transparent" means visibility is achieved through 50% of the fence.

Prestons 4

Volume 3 : Part 2 Living Zones : 10.2 Development Standards : 10.2.5 Street scene - residential and other activities

10.2.5 Street scene - residential and other activities

Updated 1 November 2011

(a) Minimum building setback from road boundaries shall be 3.0m except that:

(i) where a garage has a vehicle door generally facing a road or shared access the minimum garage setback shall be 5.5m from the road boundary or shared access,

(ii) On any Density A residential site on the north side of a local road which runs at 90°(+ or - 20°) to the True North the minimum setback shall be 2 metres provided that the ground level of the entire front yard of the building up to the front boundary is raised by a minimum of 450 mm above the level of the street frontage.

(b) Street frontage and street frontage landscaping and fencing

(i) Subject to rule 10.2.5 (a), the full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicles or pedestrian crossing, or where necessary to ensure safety/visibility or security surveillance of public spaces.

(ii) Domestic driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(iii) Garage doors and carport entrance ways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site.

(iv) Any fence within the minimum building setback specified in rule 10.2.5(a) shall have a maximum height not exceeding.

(a) 2m where the whole of the fence is at least 50% transparent; or

(b) 1m where the whole of the fence is less than 50% transparent

except for any site where Rule 10.3.8 (b) - 10.3.8 (e) applies, in which case the maximum height shall be 1.2m

Halswell West 5

Volume 3 : Part 2 Living Zones : 11.2 Development Standards - All Residential Areas : 11.2.5 Street scene - residential and other activities

11.2.5 Street scene - residential and other activities

Updated 1 November 2011

Minimum building setback from road boundaries shall be as follows:

Density A residential area 2m

Density B residential area 2m

Density C residential area 3m

except that:

(i) Where a garage has a vehicle door generally facing a road or shared access, the minimum setback of the garage door shall be 5.5m from the road boundary or shared access; and

(ii) In Density A area, garages, carports and other accessory buildings (excluding basement carparking and swimming pools) shall be located at least 1.5m further from the road boundary than the front facade of any ground level habitable room of residential unit; and

(iii) In Density A areas the maximum building setback from the road boundary for the front facade of buildings, excluding garages, carports and other accessory buildings shall be 4m.

11.2.6 Street frontage landscaping and fencing

Updated 1 November 2011

(a) Except within Density A areas, the full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicles or pedestrian crossing, or where necessary to ensure safety/visibility or security surveillance of public spaces.

(b) Except where required for screening of outdoor storage areas, any fence located on the road boundary or in the minimum building setback specified in Rule 11.2.5 shall have a maximum height of 1m, except that where a fence or other screening structure is over 1m in height, then the whole of that structure shall be at least 50% visually transparent. No fencing or other screening structure shall exceed a height of 2m.

(c) Residential driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(d) Garage doors and carport entrance ways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site and shall not be more than 6m wide.

Wigram 6

Volume 3 : Part 2 Living Zones : 9.2 Development standards - residential activity : 9.2.5 Street Scene - residential and other activities

9.2.5 Street Scene - residential and other activities

Updated 12 September 2011

(a) Minimum building setback from road boundaries shall be:

Density ATC (residential activities at ground level)	1m
Density ATC (residential activities above ground level)	0m
Density A	2m
Density B	4.5m
Density C	4.5m

except that:

(i) where a garage has a vehicle door generally facing a road or shared access the garage door shall be setback from the closest point of the front facade of the associated residential unit to the road or shared access by 1m.

(b) Street frontage and landscaping.

(i) Subject to rule 9.2.5(a), the full length of the road frontge shall be landscaped to a depth of 2m for Density B and C sites and 1m for Density A Sites except across those parts of the road boundary used as vehicles or pedestrian crossing, or where necessary to ensure safety / visibility or security surveillance of public spaces.

(ii) Domestic driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(iii) Garage doors and carport entrance ways on attached or detached garages and carports shall:

- not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site and shall not be more than 6m wide and
- be constructed so that they open (including any arc on the door) entirely with the site they are located on

Except:

(i) where required for screening of outdoor storage areas, any fence located on the road boundary or within the minimum building setback specified in Rule 9.2.11 shall have a maximum height of 1.2 metres, except that where a fence or other screening structure is over 1.2m in height, and the whole of that structure shall be at least 50% visually transparent. No fencing or other screening structure shall exceed a height of 2m: and

(ii) On a corner site the maximum height of a fence located on the road boundary or within the minimum building setback specified in Rule 9.2.11 on the secondary frontage (i.e. not the primary frontage to which the front of the associated building faces) shall be 2m.

North west Belfast 7

Volume 3 : Part 2 Living Zones : 12.2 Development Standards : 12.2.6 Street scene - residential and other activities

12.2.6 Street scene - residential and other activities

Updated 14 May 2012

(a) Minimum building setback from road boundaries shall be 3.0m except that:

(i) Where a garage has a vehicle door generally facing a road or shared access the minimum garage setback shall be 5.5m from the road boundary or shared access;

(ii) On any Density A residential site on the north side of a local road which runs at 90°(+ or - 20°) to the True North there shall be no minimum setback excluding a garage (for which 12.2.6(a)(i) applies).

(b) Street frontage and street frontage landscaping and fencing.

(i) Subject to the exception in rule 12.2.6(a)(ii), the full length of the road frontage shall be landscaped to a depth of 2m except across those parts of the road boundary used as a vehicles or pedestrian crossing, or where necessary to ensure safety/visibility or security surveillance of public spaces.

(ii) Domestic driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

(iii) Garage doors and carport entrance ways on attached or detached garages and carports shall not comprise more than 50% of any ground floor elevation viewed from any one road boundary on any one site.

(iv) Any fence within the minimum building setback specified in rule 12.2.6(a) shall have a maximum height of 1 metre, except where required for screening of outdoor storage areas.

Highfields 8

13.3.4 Street scene - residential and other activities

Updated 18 May 2013

Minimum building setbacks from road boundaries shall be as follows:

Density A residential area	**2m**
Density B residential area	**3m**
Density C residential area	**3m**
Density D residential area	**3m except all buildings shall be set back at least 10m from the Hills and Hawkins Road boundaries.**

except that:

(i) **where a garage has a vehicle door generally facing a road, the minimum setback of the garage door shall be 5.5m from the road boundary.**

13.3.5 Street frontage landscaping and fencing - residential and other activities

Updated 18 May 2013

a) The full length of the road frontage (except where used as a vehicle or pedestrian crossing) shall be landscaped to a depth of 2m, except

(i) in the Density D Residential Area fronting Hills and Hawkins Roads, the landscaping depth shall be 5m and any new planting shall only include plants from Part 2, Appendix 3yc.

b) Except where required for screening of outdoor storage areas, any fence located on the road boundary or within the minimum building setback specified in Rule 13.3.4 shall have a maximum height of 1.2m.

c) Residential driveways shall be a maximum width of 4.5m at the property boundary for a depth of at least 2 m at the entrance (in order to facilitate landscaping) and allow clear visibility above 1m for a width of 1.5m either side of the entrance.

Appendix 2
RFAR Examples
Summary Table

	RFAR	**Site size**	**Footprint** (Building+ Garage)	**Non-compliances / Merit**
Nursery Road	0.61			Successful building bulk : 3 No. 2 storey units separated at first floor level.
Fitzgerald 274	0.6	400 **11m** wide		Small non-compliances : Recession plane + minor reduction of OLS for one unit + minor intrusion to road boundary set back + minor reduction in la strip along access + reduced entry landscaping.
Note RFAR increase from 0.6 starts including more amenity and neighbour effects non-compliances EXCEPT in corner and amalgamated sites.				
Gloucester 479	0.768	541	47.4 % (256 fp)	No landscaping associated with entry for units other than front unit.
Dickens 24	**0.815?** (depends on driveway calc)	393 20m back s.	50% (see note)	Overhang more than 800 mm +living windows less than 4m to boundary + recession plane. Note- Footprint calculation unclear as site boundaries for proposal not given behind existig house.
Poulson Street 89	**0.818** 837/102 3	1023	40.6 % (416 fp)	No indoor storage + no landscaping associated with entry + no landscape strip along access way.
Bishop street 106	**0.85**	521 **wide** corner site		Small non-compliances due to corner site advantages: OLS min dim 4 not met + road boundary set back minor breach.
Onslow 10				Double garage only to street with living above + no landscaping strip along access.
Holly Road138	**0.815** (actual 0.69 see note)	1022	36%	Entry landscaping achieved with outdoor living adjacent entry. RFAR given 0.815 for 839m² site area. Access way is not included as RFAR would be 0.69 if all area were to be included (1022m²). This is an anomaly created by shared accesssways not being included in RFAR when they are a separate lot.

- RFAR as a density standard does not fully match the objectives of the plan which calculates density in terms of households per hectare rather than floor area per hectare. For example a site fullfilling its RFAR but producing a single household will not achieve the objective.

- RFAR is often used to gauge the development potential of sites. However, when compliance with all amenity and sunlight access rules are achieved, the operative RFAR is an unrealistic target for majority of development especially those on single narrow sites. Density provisions may be perceived as more fundamental provisions of the District Plan. Amenity standards are at risk of compromise when permitted RFAR does not match the achieavable. This is contrary to the intention of the District Plan where packages of standards deliver the objectives of the plan rather than a hierarchy of certain standards over others.

Appendix 3

Site Coverage Analysis of Recent Typical Development

Summary Table

	OLS	**Built Footprint** (Building+ Garage)	**Access**	**Impervous area** (Building +access)	**Notes**
Brockworth Pl 48	27 %	42 %	31 %	73%	
Salisbury St 152154	33 %	41 %	25 %	66%	
Fairfield Ave 36	27 %	45 %	26 %	71%	
Ferry Road 668-670	30 %	47 %	23 %	70%	
Holly Road 138	20 % (201)	36% (368=281+87 27%+9%)	44%	80%	RFAR given 0.815 for 839m² site area. Access way is not included as RFAR would be 0.69 if all area were to be included (1022m²). This is an anomaly created by shared accesssways not being included in RFAR when they are a separate lot.
CORNER SITE Tancred St 2	37 %	46 %	17 %	73%	Corner site takes advantage of short accessways possible from two streets and utilisation of additional road boundary setbacks for outdoor living space.

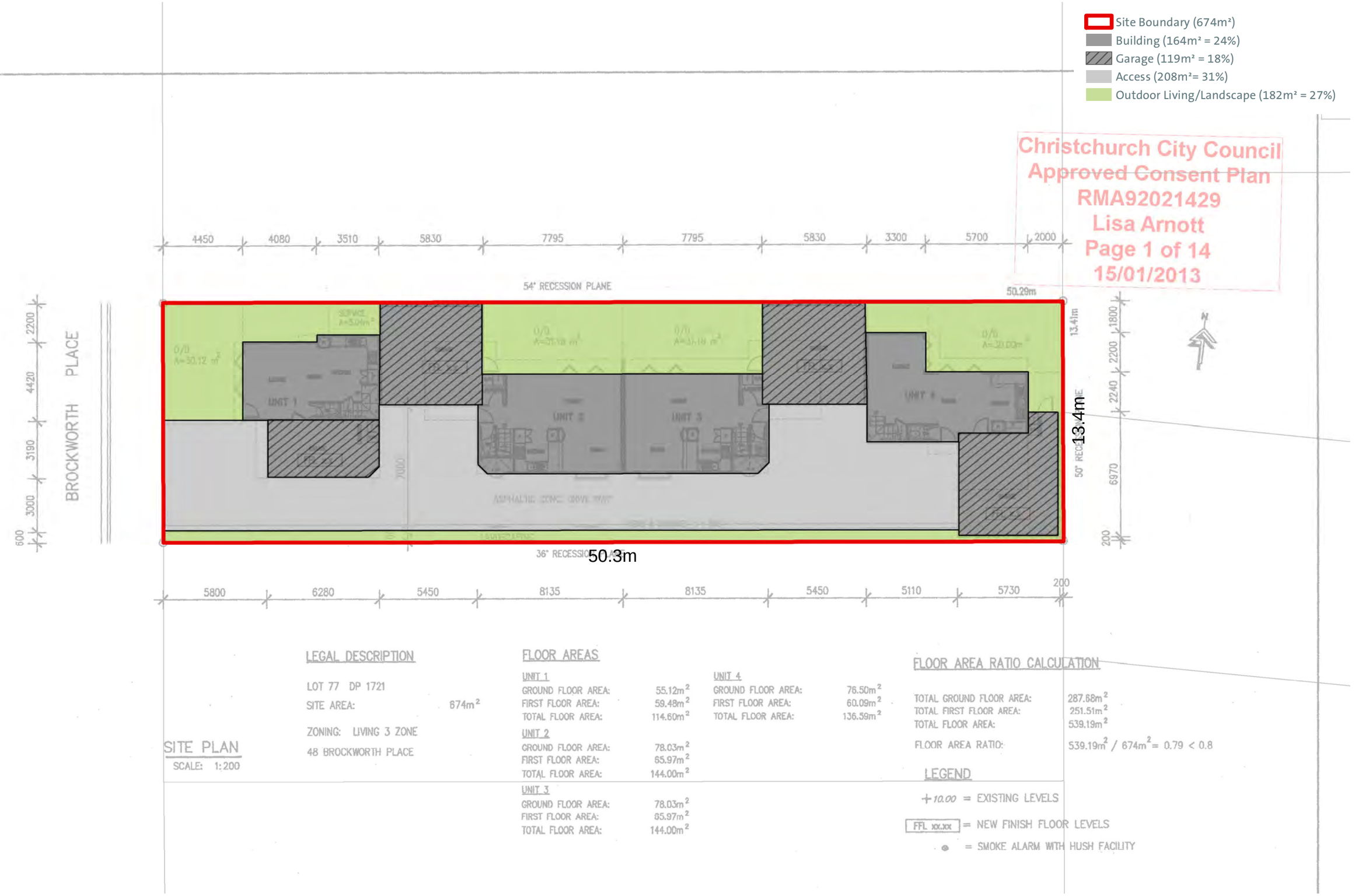
Summary

	Average excl. corner site	low	high
Total of vehicle related surfaces (but not garages)	30%	17% (excluded from average)	31%.
Total building foot print	42%	41%	47%
Total OLS	27%	20%	37% (excluded from average) Facilitated by two wide street boundary setbacks for corner development.

Study of the above sites indicate that use of single rather than double garages would create opportunities for tree and garden planting without reducing the number of units provided. Capping site coverage at 40% slightly lower than average would facilitate this.

File Ref: C11037_001_SiteCoverage_Brockworth.mxd

- Site Boundary (674m²)
- Building (164m² = 24%)
- Garage (119m² = 18%)
- Access (208m²= 31%)
- Outdoor Living/Landscape (182m² = 27%)



SITE PLAN
SCALE: 1:200

LEGAL DESCRIPTION

LOT 77 DP 1721

SITE AREA: 674m²

ZONING: LIVING 3 ZONE

48 BROCKWORTH PLACE

FLOOR AREAS

UNIT 1	
GROUND FLOOR AREA:	55.12m²
FIRST FLOOR AREA:	59.48m²
TOTAL FLOOR AREA:	114.60m²
UNIT 2	
GROUND FLOOR AREA:	78.03m²
FIRST FLOOR AREA:	65.97m²
TOTAL FLOOR AREA:	144.00m²
UNIT 3	
GROUND FLOOR AREA:	78.03m²
FIRST FLOOR AREA:	65.97m²
TOTAL FLOOR AREA:	144.00m²
UNIT 4	
GROUND FLOOR AREA:	76.50m²
FIRST FLOOR AREA:	60.09m²
TOTAL FLOOR AREA:	136.59m²

FLOOR AREA RATIO CALCULATION

TOTAL GROUND FLOOR AREA:	287.68m²
TOTAL FIRST FLOOR AREA:	251.51m²
TOTAL FLOOR AREA:	539.19m²
FLOOR AREA RATIO:	539.19m² / 674m² = 0.79 < 0.8

LEGEND

+10.00 = EXISTING LEVELS

FFL xx.xx = NEW FINISH FLOOR LEVELS

= SMOKE ALARM WITH HUSH FACILITY

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Living 3 Zone Site Coverage Analysis

48 Brockworth Place

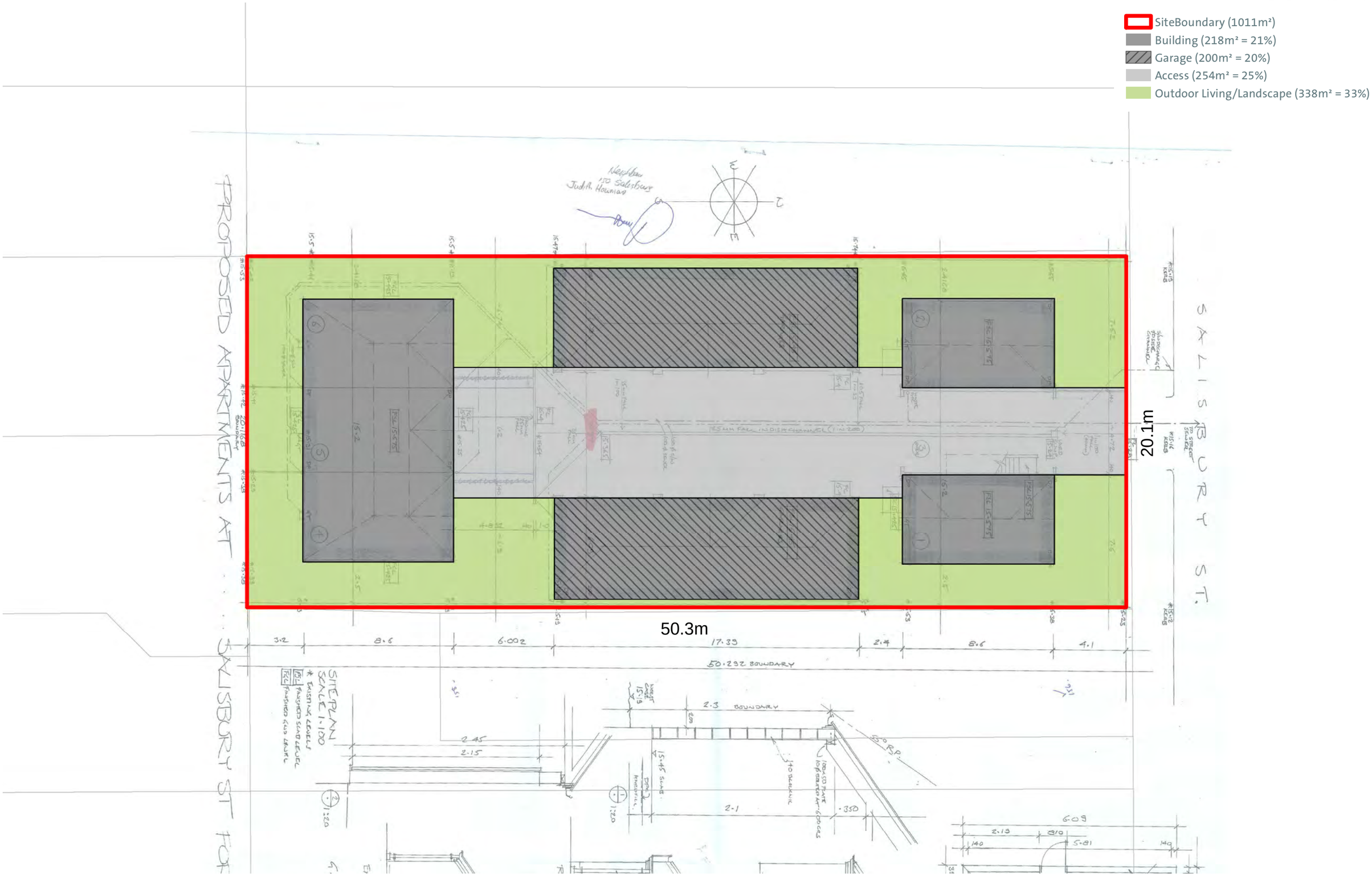
Date: 17 September 2013 | Revision: 0

Plan Prepared by Boffa Miskell Limited

Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

File Ref: C11037_002_SiteCoverage_Salisbury.mxd

- SiteBoundary (1011m²)
- Building (218m² = 21%)
- Garage (200m² = 20%)
- Access (254m² = 25%)
- Outdoor Living/Landscape (338m² = 33%)



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Living 4 Zone Site Coverage Analysis

152-154 Salisbury Street

Date: 17 September 2013 | Revision: 0

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Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

File Ref: C11037_003_SiteCoverage_Fairfield.mxd

Site Boundary (1143m²)
Building (384m² = 34%)
Garage (120m² = 11%)
Access (293m² = 26%)
Outdoor living/landscape (345m² = 27%)

SITE PLAN

Scale 1:200

AREAS:

PROPOSED UNIT 1: 77.59m²
PROPOSED GARAGE 1: 23.45m²
TOTAL: 101.04m²

PROPOSED UNIT 3: 77.05m²
PROPOSED GARAGE 3: 24.13m²
TOTAL: 101.18m²

PROPOSED UNIT 5: 77.05m²
PROPOSED GARAGE 3: 24.13m²
TOTAL: 101.18m²

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Living 3 Zone Site Coverage Analysis

36 Fairfield Avenue

Date: 17 September 2013 | Revision: 0

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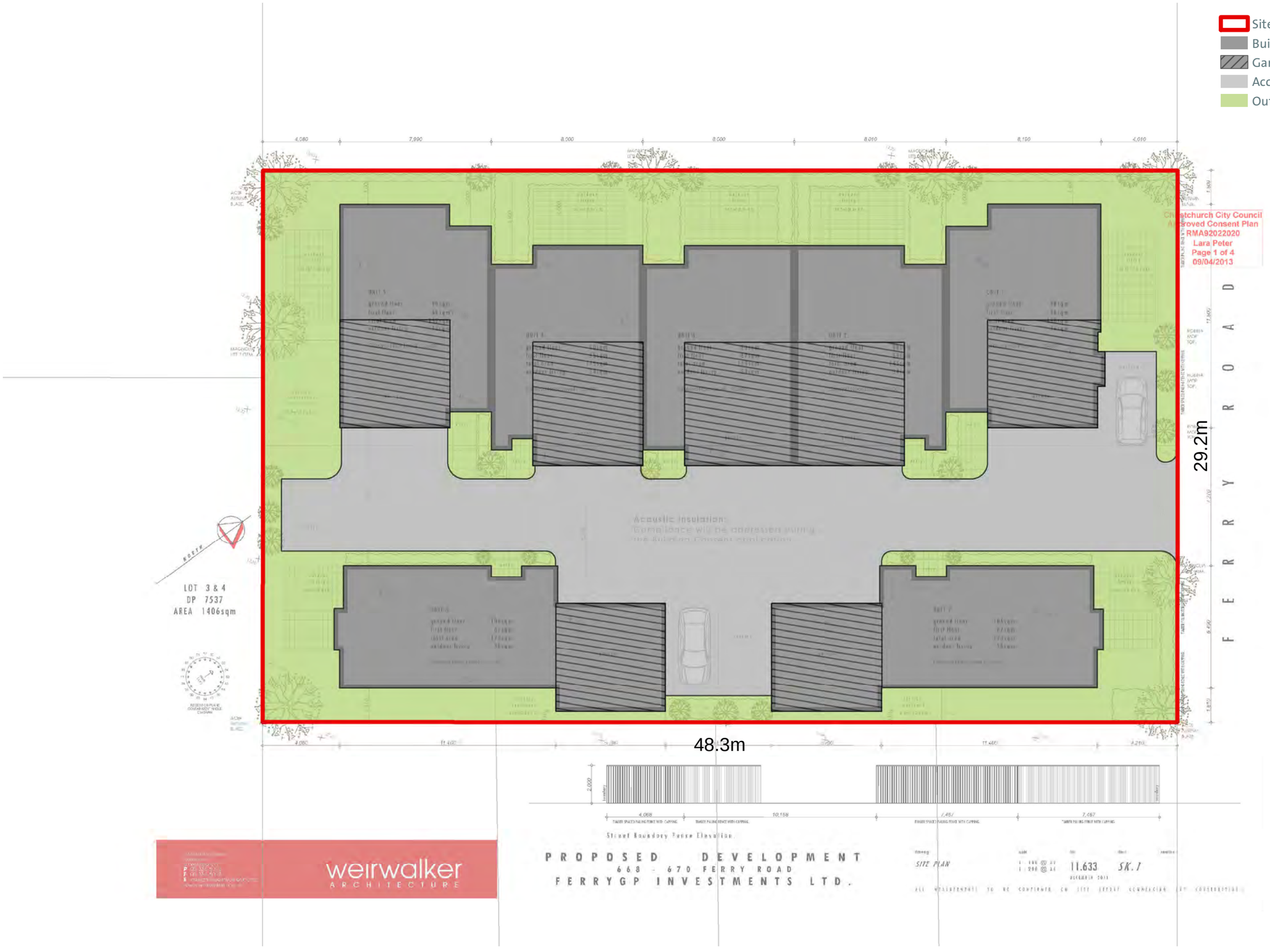
Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

File Ref: C11037_004_SiteCoverage_Ferry.mxd



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Living 2 Zone Site Coverage Analysis

668-670 Ferry Road

Date: 17 September 2013 | Revision: 0

Plan Prepared by Boffa Miskell Limited

Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

File Ref: C11037_005_SiteCoverage_Holly.mxd

Homes by PARKLANE

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0 8 m

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Living 3 Zone Site Coverage Analysis

138 Holly Road

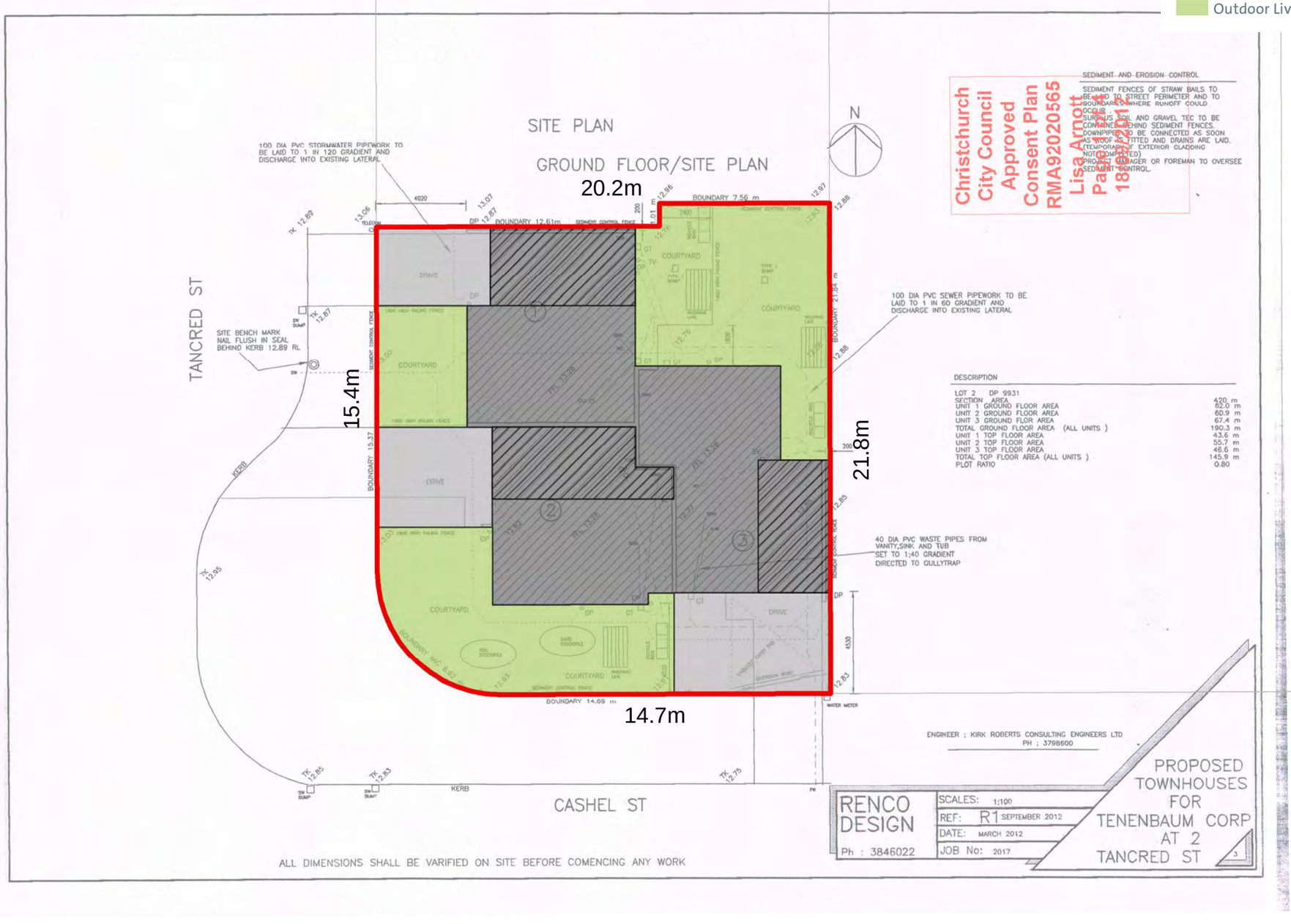
Date: 17 September 2013 | Revision: 0

DRAFT

Plan Prepared by Boffa Miskell Limited
Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

File Ref: C11037_006_SiteCoverage_Tancred.mxd

- Site Boundary (421m²)
- Building (127m² = 30%)
- Garage (64m² = 15%)
- Access (71m² + 17%)
- Outdoor Living/Landscape (157m² = 37%)



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Living 3 Zone Site Coverage Analysis

2 Tancred Street

Date: 17 September 2013 | Revision: 0

Plan Prepared by Boffa Miskell Limited

Author: corey.murray@boffamiskell.co.nz | *Checked:* XXX XXXX

Appendix 4

Selected sections from PC 53 Urban Design Technical Report

The following discussions from PC53 Urban Design Technical Report are relevant to the District Plan Review:

1. Visual Privacy

Required distances for adequate level for residential privacy is discussed and illustrated in the selected section. The discussion and studies equally apply to Residential Suburban and Residental Medium Density zones.

2. Community Safety and Social Interaction

The discussions especially around Crime Prevention Through Environmental Design, sense of ownership, natural surveillance and social interaction and the illustrations of the different levels of fence permeability equally apply to Residential Suburban and Residental Medium Density zones.

4.3.1 Visual Privacy

Explanation of amenity effects

The importance of a transition in privacy from public to private has been discussed in the section on Community Safety above. This was particularly focused on the relationship between residential development and streets or parks. This section considers what a reasonable degree of visual privacy can be expected between neighbours in the context of higher density residential areas and what represents an adverse effect on residents' amenity.

Privacy, along with access to sunshine, has been found to be one of two aspects most treasured by Christchurch residents in previous research[4]. Some of the adverse effects from a perceived loss of visual privacy include:

- The feeling of intrusion into physical and emotional space from unwanted overlooking;
- Perception of crowding (i.e. residents' cannot adequately seek the solitude they may desire);
- Exposure to everyday habits that residents may be embarrassed to be seen doing (or see others doing); and
- The desire to be free from surveillance to carry out personal activities or display possessions of value;

These issues are particularly important in higher density areas where there is likely to be a mix of lifestyles and occupation periods. This is where social responsibilities, levels of discretion and common understanding may be more likely to break down between neighbours and is more difficult to confront due to the numbers of residents involved.

For existing residents, a dramatic loss of privacy through urban change can also set up resentment between neighbours. This may represent a radical change in living situation and a sense they need to modify their behaviour to adapt.

A selection of poor existing developments is illustrated in Figure 8.

Review of Recent Development

The survey was not able to consider all aspects of privacy and overlooking, including relationships to private gardens, but observed the predominant location and qualities of windows on building facades.

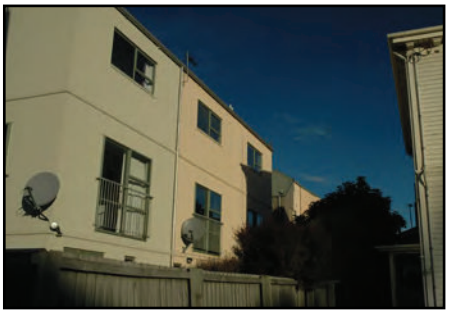
The 'Visual Privacy' criteria indicated that only 7% of developments in L3 did not record an acceptable outcome. However, this was dominated (63%) by the median situation where most developments in L3 avoided overlooking on to the more sensitive northern and western building facades, but direct overlooking of neighbours was still widely possible.

[4] Vallance, Suzanne et al. The results of making a city more compact: neighbour's interpretation of urban infill, Environment and Planning Bulletin: Planning and Design 2005, volume 32, pages 715-733 – December 2004, Lincoln University, Christchurch, Canterbury

Visual Privacy

Large windows, roof terraces and balconies face directly onto neighbouring developments

The extent of large windows facing side boundaries limits the options for future developments to avoid privacy issues



New developments within existing neighbourhoods benefit from overlooking into established private gardens

Three storey developments are harder to screen for privacy with on-site vegetation

Direct facing windows across a narrow access way within a development

All L4 zones performed poorly under the 'Visual Privacy' criteria. L4C developments fell below an acceptable outcome across 36% of developments, while large proportions of L4A (60%) were substantially poorer. This is attributed to higher percentage of three storey buildings in L4A and the presence of taller multi unit apartments in L4B, which increase the extent of windows looking toward sensitive boundaries. The slightly higher score in L4C is attributed to better design quality, with a higher percentage of controlled aspect or reduced windows along sensitive boundaries.

Observations of schemes in L3 and L4 indicated that the present rules seem to impose little constraint on development, either within or between sites, with a number of developments introducing larger openings on all facades. There were few examples of controlled aspect windows, where no direct upper facing windows were oriented to side boundaries, most of these occurred within the L4 zone. However, the reviewers observed that most developments did introduce some level of window hierarchy, but this was strongly related to building orientation, with either small or elevated windows located to their secondary facades on the southern and eastern boundaries.

The reviewers found that the intensification process has substantially increased the opportunity for upper level windows and balconies to overlook neighbours. The extent to which this occurs relates to development typology, but is a particular issue in relation to sausage and tower blocks, where a significant extent of window and balconies can be expected on the northern and western boundaries. For sausage block typologies on single lots, this may result in significant façade openings overlooking the adjacent property for most of the site depth and was compounded as buildings reached three stories or more.

Development forms that addressed the street, either as courtyards or terraced arrangements, generally exposed fewer window openings to side boundaries at first floor level and above. Most windows occurred on the main facades facing across the street or towards the rear of the site, minimising the need for additional main window openings on the shorter side elevations. Some schemes had no window openings at all to these side elevations.

Urban Design Best Practice

The maintenance and enhancement of visual privacy relates to both indoor and outdoor private spaces and has many parallels with sunlight access and outlook amenity issues.

Unlike suburban residential areas, absolute visual privacy cannot be expected in higher density residential areas. Residents will need to make a conscious trade off between improved access to other amenities, services and social interaction against the complete protection of privacy. Equally, residents should not have to overly protect privacy (i.e. draw blinds) at the risk of compromising other internal amenities, such as visual outlook, access to sunlight/ daylight, natural ventilation and access between indoor and outdoor spaces.

Adequate privacy also has an important bearing on residents' satisfaction with their unit and on the attitudes of neighbours to a proposed development. If a development inadequately provides for acceptable levels of privacy, residents may have to adapt by changing their living styles, modifying their behaviour or introducing additional visual screening. A common example of this is residents having their curtains drawn at all times. Such adjustments can be stressful and are not always easy to implement post-completion. Consideration also needs to be given to the permanence, maintenance requirements and aesthetic treatment of these later measures.

There is also the potential for existing residents to sense that developers are appropriating their properties for personal gain (i.e. landscape outlook), without providing their own internal site amenities. This is acceptable between public and private realms, where the Council collectively provides a level of street or open space amenity, but less so between private developments.

These effects are best able to be addressed by considering privacy issues during design development rather than rely on piecemeal adaptation by individual residents at a later stage.

Visual privacy can be achieved in three key ways:

- Screening to contain the extent of views or redirect views away from private spaces.
- Separation or remoteness between private spaces; and
- Building configuration that avoids direct views into private spaces;

Technical solutions, such as offsetting windows, reorientation of windows or screening views for privacy, can be employed to resolve privacy issues. This is particularly relevant for the higher density areas where there is reduced opportunity to solve amenity issues through generous suburban space standards. This is a realistic approach between buildings within a development as prospective purchasers will be able to assess whether the development meets their privacy expectations and privacy levels may be reduced to some extent depending on market demand.

However, separation distances between direct facing habitable room windows on neighbouring sites still need to be provided. In a period of transition, there are many neighbours in existing dwellings who currently have little control over privacy levels across site boundaries and experience the “goldfish bowl” effect with large windows overlooking their houses and private gardens, potentially from both sides.

Furthermore, the Plan is unable to anticipate the privacy effects of any future redevelopment on these neighbouring sites. Subsequent developers could be considerably constrained if the existing ‘first in, first served’ approach is taken and large numbers of windows already face internal boundaries. Therefore, a ‘precautionary principle’ regarding direct overlooking is a logical approach with reasonable upper level separation distances applied between the proposed development and the property boundary. This avoids the common occurrence with sausage block typologies where of large habitable room windows face directly at each other and minimises the overlooking of private open spaces between neighbours.

The choice of a standard separation distance should balance the need for more intensive housing within the L3 and L4 zone with the attainment of reasonable privacy for neighbours. Any compromise standard should not expect new development to provide total privacy protection and the onus will still fall on adjacent neighbours to take some supplementary action to retain their own personal privacy expectations.

It is acknowledged that any increase in the existing separation distance might make development less workable on narrow sites, but this does not preclude building close to the boundary and using high level or smaller windows where the ease of overlooking (e.g. casual gazes) is reduced. This has an additional benefit of encouraging buildings to re-orientate long facades from side boundaries toward public open spaces, such as streets and parks, which provide a clear and ample area of outlook and less privacy conflicts with neighbours. However, due to the existing transition issues in the L3 and L4 zone it would be

inappropriate to use 'zero lot line' development approaches, such as traditional terraced housing, to increase the efficiency of the land take, but it could provide further incentives for greater lot aggregation.

In identifying an appropriate separation distance, there is little literature to draw on that provides a good rationale to follow. Christopher Alexander, in A Pattern Language[5], does provide two empirically-based measurements relating to the recognition of a person's face. With normal vision, a person's face can be recognised at 70 or 80 feet (21-24m) and rich detail picked up at 48 feet (14m). However, the sensitivity to visual privacy is dependent on:

- The activities within each area where overlooking may occur (e.g. between habitable rooms)
- The times and frequency private spaces are being used (e.g. occupation of living rooms and bedrooms)
- The occupants' expectations of privacy and their ability to control overlooking with screening devices.

A selection of planning documents and design guides from different countries with similar densities have been reviewed (Appendix E) and identify a range of setback distances between direct facing habitable rooms. The average distance recommended between directly facing windows is approximately 14 metres, the minimum being six metres and the maximum 22 metres.

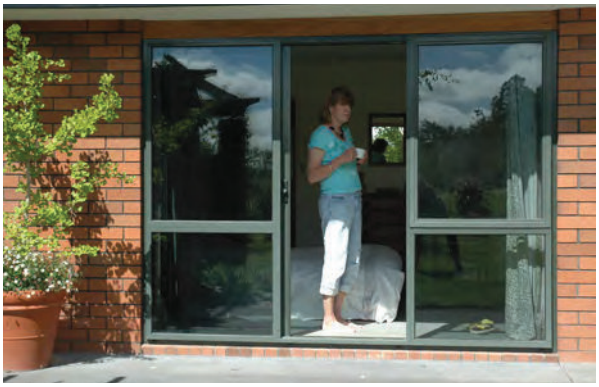
The documents examined frequently had a sliding scale for lesser privacy conflicts, such as between non-habitable rooms, but one also made the distinction between habitable rooms and bedrooms[6]. Although, most habitable rooms require some level of privacy, this document placed a greater emphasis on maintaining privacy between living areas and private open space, rather than bedrooms. In this instance only 4.5 metres was required to the side or rear boundary as opposed to six metres for other habitable rooms. A smaller separation distance could be justified by the lesser occupancy time of bedrooms during the day and the ability to screen with curtains in the evening. This may also provide an incentive to have the most active rooms in the unit (i.e. living rooms) on the ground level, where they can link better with ground level gardens. This is provided that the depth of overhangs for upper building levels is controlled, as recommended in the section on Visual Dominance.

To clarify the issue, a range of potential separation distances and indicative views that might occur between windows have been photographed in Figure 9. It appears from the photography that the existing setback distance, equating to six metres between neighbouring buildings, is inadequate for privacy as opposing windows would likely be the primary focus of the outlook and it appears to heighten the sense of confinement experienced within the unit. As the separation distances increase, the view opens out and other features come into view that provides alternative focal points or other visual distractions. The detail and scale of the subject also diminishes. For the longer separation distances, there is a risk of other features,

[5] Alexander et al, A Pattern Language, New York Oxford University Press, 1977

[6] Western Australian Planning Commission, Residential Design CODES of Western Australia Perth, Western Australia, October 2002

View distance - 6m

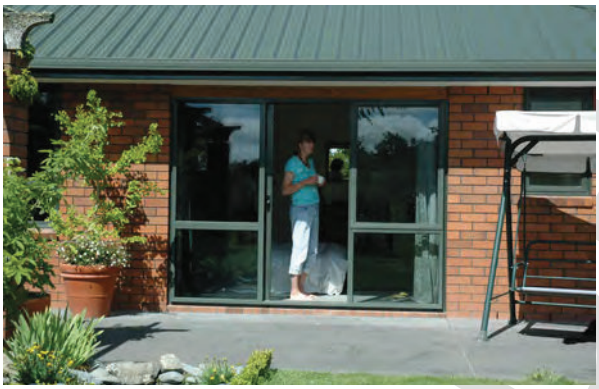


View distance - 14m

View distance - 8m

View distance - 15m

View distance - 9m



View distance - 20m

View distance - 12m

Photography taken with a Nikon D70 • Focal length - 38mm (55mm in 35mm film)

Boffa Miskell

FIGURE 9 – PHOTOGRAPHS OF PRIVACY SEPARATION DISTANCES FROM UPPER LEVEL WINDOWS

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such as ground level gardens, come into the viewing area and this may potentially compromise the privacy of outdoor living spaces. A separation distance in the mid-range (between 12m and 14m) would seem most appropriate in these instances.

As indicated above, separation distances between buildings on a site are less critical as there is a greater ability for developers to avoid direct facing habitable room windows through offsetting or redirecting views. However, there are numerous examples exist were developers have not considered privacy between units. It therefore is appropriate that separation distances normally used between habitable rooms and non-habitable rooms could be used as this also allows for the likelihood that bathroom windows may be present on opposite facades and some allowance is made for sunlight and outlook considerations. In the guidance document Better Urban Living: Guidelines for Housing in NSW this distance is reduced down to nine metres and this correlates with various other guidance documents about providing reasonable outlook distances for units. This will also allow more flexibility for the layout of on-site buildings relative to each other.

Visual privacy can vary with building height. Less controls on visual privacy between ground level private spaces is generally acceptable as screening devices, such as fences and planting can easily mitigate them. However, the sense of overlooking tends to increase with additional floors from first floor level and above. As buildings gain in height, the angle of view within buildings begins to tilt downward, or over, adjacent residential properties and more windows are likely to be visible to neighbouring occupants as ground level screening becomes less effective. Accordingly, minimising the potential extent of upper level windows that may overlook adjoining properties or providing greater separation distances is advantageous for visual privacy.

The literature review identified a couple of approaches that generally start increasing separation distances above four stories. This would capture those developments predominantly within L4B and would potentially work with the Horizontal Containment Angle, or similar, to minimise the building bulk of taller buildings. The Residential Flat Design Code in NSW (2002) specifies an increase in separation distances to 18 metres (i.e. 9m to the internal boundary) for buildings between 13 and 25 metres in height and 24 metres (i.e. 12m to the internal boundary) for buildings there over. For separation distances internally within the site this could be 13 metres and 18 metres, respectively, based on a similar approach between habitable and non-habitable rooms. An alternative approach used in one UK example applies a standard three metres per additional floor, but this may considerably constrain the practicality and built form of developments as they became taller.

Recommended Plan Change Approach

Relevant sections of the existing City Plan policies where the amenity effects of Visual Privacy are considered include:

- Landscape design
- Privacy and outlook
- Infill and redevelopment

Additional urban design principles recommended for inclusion in the policy section of the City Plan that either fully or partially addresses Visual Privacy are:

- *That development considers the amenity for residents, neighbours and the wider community; and*

- *That residential units have adequately designed internal and outdoor living spaces, levels of privacy, access to sunlight and insulation from traffic noise.*

Relevant sections of the existing City Plan Living Zone rules where the amenity effects of Visual Privacy should be considered are:

- Street scene

- Separation from neighbours

- Outdoor living space

The attractiveness of living in higher density neighbourhoods needs to be balanced between the benefits of compact living and satisfying basic human needs like privacy. This is particularly important in zones experiencing rapid change.

Due to the sensitivity of existing neighbours and the uncertainty of development outcomes on adjacent sites, a rule requiring window setbacks for privacy should be included within the Separation from Neighbours section of the Plan. This will need to relate directly to the internal side and rear boundaries of a site for fairness to all property owners. Any measure should reflect half the separation distance between direct facing windows and private open spaces that are considered reasonable (e.g. the distance between the window and the internal side or rear boundary). Direct facing windows are considered to be within 90^{o} of the boundary; so as to avoid large windows of a lesser angle still allowing direct views and the possibility for range of unusual facade angles to result.

Following the modelling work and a review of District Plans and urban design guidance documents there is clearly a need for greater privacy than is currently provided in the Plan. Selection of reasonable separation distances will need to be balanced between the broader issues of site efficiency, particularly on the numerous small sites across both zones, and the protection of internal amenities, such as outlook, sunlight and access to private open space. The review was inconclusive as to the actual separation differences between habitable rooms (e.g. living rooms) which could be considered reasonable, but they should fall somewhere within the range indicated above. The modelling work clarifies this and illustrates separation distances between direct facing windows of habitable rooms should be in the region of 12-14 metres (i.e. 6-7 metres to the internal boundary). Given the times and lesser frequency that bedrooms are used during the daylight periods, it is acceptable that separation distances could be smaller than those for other habitable rooms, but only one document reviewed has made any distinction for bedrooms at 4.5 metres to the internal boundary. Similarly, a lesser separation distance is acceptable for upper level private open spaces, such as balconies and roof gardens. These are less frequently used than internal areas, particularly during winter, and can be designed to mitigate direct views between units. Furthermore, balconies and roof gardens are important elements in the architectural articulation of buildings and should be encouraged wherever possible.

Separation distances need only apply to upper level windows and private open spaces, such as balconies and roof gardens, as there are sufficient visual screening devices that can easily be employed at ground level. However, opportunities for overlooking of these spaces increase along with building height and additional separation distances will need to be put in place for taller buildings.

For taller buildings over three storeys in the L4B zone, it is recommended that building separation distances increase to ensure appropriate built form, adequate amenity and privacy for building occupants. Window separation distances based on The Residential Flat Design Code in NSW give some direction on appropriate distances required and have been converted below:

- 9 metres between habitable room windows and the internal boundary for buildings between 13 and 25 metres in height;

- 12 metres between habitable room windows and the internal boundary for buildings over 25 metres in height.

The Review of Recent Development also identified that there are issues of Visual Privacy internally within developments and rules should also address this. It is assumed direct facing windows and open spaces can be largely avoided through coordination of building orientation and window placements. Therefore, it can be assumed only separation distances suitable between habitable rooms and non-habitable rooms are needed. Design guidance indicates this could be approximately nine metres, which includes some additional allowance for good quality outlook and sunlight access for units. Similarly, this increase with building height as for internal boundary separation distances above:

- 13 metres between internal facades within the site for buildings between 13 and 25 metres in height; and

- 18 metres between internal facades within the site for buildings between above 25 metres in height.

Privacy separation distances may also place greater pressure on developers to maximise the allowable plot ratio through increasing building coverage at ground level. It is recommended that in zones with the lowest height limits a complementary rule should be provided to encourage private ground level outdoor living spaces with those habitable rooms that require the deepest privacy separation distances, such as living rooms. This could also act as a useful combination to encourage taller screen planting to be provided to supplement the privacy of these ground level spaces.

Additional urban design assessment matters recommended for inclusion in the City Plan that either fully or partially addresses Visual Privacy are:

- *Communal outdoor living spaces should be consolidated and designed to be accessible, usable and attractive whilst avoiding noise, light spill and loss of privacy for residents and neighbours;*

- *The location, orientation and internal design of residential units should balance outlook and sunlight with the privacy of internal occupants and neighbouring residential units; and*

- *Windows and balconies on upper levels should be orientated and screened to limit direct overlooking of adjacent dwellings, their outdoor living space and the private outdoor living space of other units within the same development.*

Setting maximum set back distances have also been considered to ensure this enclosure is consistently applied across the zones and some sense of visual order is attained. However, the need for good modulation of building facades, potential for retaining existing site features and the predominance of northern street orientations make this difficult to apply. This is best approached in a flexible way through assessment matters while trying to keep setbacks consistent as possible.

A rule setting a quantum of landscaping and tree planting to be provided within the road boundary setback is most important in the L3 zone where street enclosure can be enhanced by tree planting and where maintaining the 'Garden City' image is reliant on private initiatives rather than streetscape amenity provided by the Council. This is less appropriate in L4 zones where street tree planting is more likely to be implemented by the Council across the Central City and the smaller setbacks to emphasise building enclosure of the street.

While it is good to retain some separation between neighbouring buildings to maintain the basic visual rhythm of the street, other rules will need to be utilised to maximise the sense of enclosure of the street. Again, the establishment of a privacy separation distance and frontage landscape strips will help facilitate this.

The current Continuous Building Length rule is intended to ensure the building bulk is broken up within large aggregated sites, but it is difficult to match this against the existing subdivision patterns of the zones. This results in either arbitrary steps in the street façade or none at all. It is recommended that this rule be removed to allow for a more responsive approach to the various street frontage rhythms that may exist around the zones through assessment matters.

Additional urban design assessment matters recommended for inclusion in the City Plan that either fully or partially addresses Visual Continuity and Enclosure of Public Space are:

- *Buildings should be oriented toward the street and positioned close to the road boundary;*
- *Buildings on corner sites should orientate towards all adjacent streets and public open spaces and emphasise these corner;*
- *Developments should reflect the predominant pattern of subdivision within a neighbourhood; and*
- *Car parking and garage areas should not dominate the development, particularly as viewed from the street or neighbouring properties.*

4.2 COMMUNITY SAFETY AND SOCIAL INTERACTION

Explanation of amenity effects

The RMA (Part 2, Section 5) states that the purpose of the Act is to promote the sustainable management of natural and physical resources. The following definition of "Sustainable management" includes provisions for safety:

> *"…managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and* ***safety****..."*

Creating safer communities within an urban context includes consideration of those residing within a development and those using the public spaces throughout the wider neighbourhood. Although in recent research almost all Christchurch residents say they feel safe in their homes during the day (98%) and night times (94%), fewer feel safe walking in their neighbourhood after dark (61%)[2]. This figure is even less in the City Centre (42%).

Some of the potential adverse effects from a loss of community safety and social interaction perspective include:

- Actual or perceived invasion of people's physical and emotional space with increased stress levels for residents;
- People feeling less comfortable walking, cycling or using public transport modes without the shared confidence that comes with a repopulation of the streets and adjacent buildings; and
- Undermining the attractiveness of higher density living through lack of urban vitality and support for local community facilities.

A selection of poor existing developments is illustrated in Figure 5.

Review of Recent Development

In the L3 Zone, the 'Boundary Enclosure and Visual Permeability' criteria identified that 78% of developments fell below an acceptable outcome where at least half the boundary is visually transparent. There was a slight improvement in the L4 zones. L4C had 55%, but observers still identified the prevalence of high walled enclosures and concealed entrances in many of the higher density developments within this sub zone.

The 'Façade Openings' criteria in L3 and L4A recorded 63% and 67%, respectively without sufficient façade openings. This fell below an acceptable outcome where at least a third of the street façade needed to be comprised of transparent windows. This figure reflects the generally low proportion of developments that prioritise the street frontage and, in particular reflects the high number of sausage block developments within these zones. This is dramatically reversed in the remaining L4B and L4C zones where most developments record high performance outcomes with scores of either 4 or 5. However, tall fences frequently mask the beneficial effect of this.

The reviewers observed a high percentage of walled enclosures to the street, often associated with private garden spaces. Many of these were associated with Courtyard developments on the south sides of streets. The quality of enclosures was notable with some high boundary fences being unattractive and prone to damage or graffiti, which detracted from the appearance of development.

Few examples of low fences were observed, but some taller fences had permeable solutions such as railings, open mesh or trellising. However, in these instances there appeared to be a tendency for owners to attach temporary screening materials to the inside to block views. There was also evidence of new fencing to street frontages on established developments, indicating a desire to further enclose development against the street. Where views into private gardens were possible, the paraphernalia visible did not always contribute beneficially to street appearance.

[2] Quality Of Life Survey Results: A Summary Of Key Findings Monitoring And Research Team, Strategy And Planning Group, February 2007

Community Safety and Social Interaction

Tall boundary fences and gates reduce natural surveillance and visual connections with activity within developments

A semi-public landscape buffer zone is provided but no windows to monitor street level activity

Poor natural surveillance from narrow street facades and small upper level windows

No ground level activity creates 'no mans land' along front boundary

Tall private garden walls are exposed to graffiti and tagging

Dense road boundary landscaping and garages block views to and from the street

Narrow side boundary walkways are dark entrapment zones

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FIGURE 5 – TYPICAL PHOTOGRAPHS OF URBAN DESIGN RESIDENTIAL AMENITY ISSUES

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The review found many existing setback areas were not overlooked or did not indicate any sense of ownership. These were generally poorly maintained and of low visual quality. This is particularly prevalent in sausage block developments where side-oriented garages isolated open space within the setback area.

Urban Design Best Practice

Intensification is important for revitalising the city. This relies on attracting residents who value higher density living, with the 'buzz' and convenience of being in a more urban location, more than private amenities. However, just improving the visual amenity of development is not enough, the perceived higher levels of crime can also reduce the broader appeal needed to attract the wide range of residents required to sustain these qualities.

The use of Crime Prevention through Environmental Design (CPTED) principles is a proactive way of improving community safety. While the built environment does not cause crime, it does provide the setting for its occurrence and a careful approach to design can reduce the opportunities for committing crime and may also affect people's willingness to act in response to crime. It assumes that by increasing an offender's perceived and real risk of being caught, the incidence of crime will be reduced. It also provides greater safety for residents and the wider public who can more easily identify risks and attract assistance.

There are a few fundamental aspects of residential development that need to work together as a package to optimise community safety and build a sense of community:

- sense of ownership or 'defensible space';
- natural surveillance; and
- social interaction

The first step is to establish a clearly defined hierarchy of spaces transitioning between fully private (e.g. interior of a unit or garden), semi-public (e.g. front yard), and public (e.g. street or park). The semi-public front yard provides a 'buffer zone' or psychological threshold discouraging access across the boundary on to privately owned land. Some form of boundary demarcation, such as low fences and vegetation, physically reinforces this threshold.

Secondly, the level of residents' interest in the public space beyond the boundary of the development is critical and heavily dependent on maintaining a clear visual connection from units facing the street. People are more likely to take responsibility for an area and what happens in it when they perceive it to be formally under their control or influence. This is referred to as 'defensible space' by urban researchers such as Oscar Newman and is achieved by:

> *'arranging buildings, open spaces and accessways so that residents can contribute to their own security through collective observation of the public areas around their dwellings. It is most effective where the layout makes the passer-by aware of this potential for resident scrutiny, and where the residents are led to feel some degree of responsibility for, or ownership of, the surrounding areas.'*[3]

People in a neighbourhood are more likely to walk or cycle to wider community facilities if they feel as though they can be seen and heard by other people. Clear visibility from units to

[3] AMCORD, A National Resource document for residential development -1995

public spaces allows for more casual observation of activities and people in public and an increase of 'eyes on the street' or 'natural surveillance'. Better natural surveillance increases the likelihood that crime will be observed and increases people's sense of protection and confidence to move around more freely. Factors to be considered to maximise surveillance include the timing and duration of street occupation, which has a direct relationship to the diversity of users, including those who may also occupy units between working hours, not just in the morning and evening. For example, providing habitable rooms on the ground floor that are connected to larger private open spaces better promotes developments to younger families who a more likely to occupy a development during the day.

Thirdly, the design of the development can either allow or inhibit casual social interaction and therefore influences the sense of community spirit and vitality of the neighbourhood. Provision of an open frontage enables streets to act as an integrating element in a neighbourhood and helps build community focus. This is most encouraged by the simple provision of windows, balconies and front doors directly opening on to the street frontage. However, these provisions can often be compromised by design decisions deeper within the site, such as provision of integral garaging where residents drive straight into their internal garages with very little social interaction required. This is often *too* convenient and not only discourages interactions with those living within the development, but any walking beyond it. At the very least, the recession of garages behind the street façade is critical to enhance natural surveillance and disguise the perceived dominance of car use in these more urbanised zones.

There a number of urban design implications for achieving better community safety and social interaction.

Creating safer neighbourhoods in higher density zones often conflicts with typical suburban interpretations of amenity, such as generous set backs and substantial amenity planting. Greater encouragement of walking and public transport requires a reciprocal increase in active edges and good natural surveillance often achieved through reducing setback distances and removing visual barriers.

The extent of windows and doors within the front façade is critical, particularly at ground level where direct visual and physical connections can be made in close proximity to public open spaces at any time. The location of habitable rooms at ground level increases the chances that there will be 'eyes on the street' at any given time. Even if buildings are not occupied, windows can still imply the presence of others and be a considerable deterrent.

Some simple modelling that was undertaken to better understand the percentage of transparent glazing that would be considered reasonable within front façades of buildings to address streets and other public open spaces. These are illustrated in Figure 6. The results of the modelling demonstrate that 25 percent or a quarter of the façade achieves a good balance between providing sufficient glazing to enable views out of buildings from multiple points on the facade, while not overly constraining design flexibility. However to ensure the success of this coverage, glazing treatments should not obscure views (e.g. frosted bathroom windows) and windows should be evenly distributed across the façade. This minimises the possibility they may be provided solely on upper levels, where the effectiveness of natural surveillance is reduced, or behind tall road boundary fences, where views are obscured.

FIGURE 6 – MODELLING OF GLAZING PERCENTAGES IN FRONT FACADES

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Greater visual permeability through fences means people located within the building can better interact with the street and provide interest to passers-by. This also provides residents with a view of street life and activity and a desirable outlook onto public open space that potentially offers longer range views than could be achieved between developments. However, for this and the defensible space concept discussed above to work effectively the use of road boundary setback areas for fully private use needs to be minimised.

A common outcome, particularly on north facing frontages, is the placement of fully private gardens abutting the public street, which results in a demand from occupants to erect a tall solid fence or unsightly temporary screening to maintain an adequate level of privacy. Relocating the private space to the rear or side of the development is theoretically desirable to substantially avoid this and minimise the opportunity for other nuisances, such as tagging, that further degrades the acceptability of street use. However, in many parts of the L4 and L3 zones the historic city layout has resulted in an east/west orientation of streets with sunny northern aspects along one edge. The prevalence of this local circumstance means a balance needs to be struck between these two compelling amenity considerations. The most appropriate outcome is to allow part of the street frontage to be used for fully private use with the remaining parts remaining semi-public.

It largely follows that in higher density zones it is inefficient for sites to have deep setbacks if they are not suitable for wholly private use. Nevertheless, this should not preclude other semi-public uses, such as providing for the long-established enjoyment of sitting on the front porch and people-watching. Therefore, all buildings should be encouraged to build as close as possible to the road boundary setback to maximise other parts of the site for more private outdoor use where appropriate.

Buildings located closer to the street also address any concerns over internal privacy for those living areas facing the street. Houses built closer to the footpath will be less overlooked, despite the physical vicinity, as setting the building back from the street typically increases the viewing time or field of vision that the passer by may have to look into a unit, as illustrated in Appendix D

A two metre fence height detracts from these qualities, as it generally extends above most sightlines for both inward and outward views, so it is preferable for any solid fencing to be restricted to a maximum height of one metre along the street edge. This is supported by the modelling of various approaches to fencing along the road boundary, as illustrated in Figure 7. Although, given the local circumstances discussed above, a balance could be struck allowing part of the frontage to be screened for private use.

Safety is also an important consideration within a development. Current ‘sausage block’ typologies with multiple garages between dwelling and the accessways can cut off all signs of the presence of people and activity, creating a stark appearance at ground level and limiting the safety and security benefits of informal surveillance from units. Taller shrubby planting adjacent to unit entrances also restricts good visibility and creates hiding places in close proximity to people’s private space. Landscape treatments in these sensitive areas should be restricted to lower ground cover planting or limbed up trees, allowing sightlines between.

View from Unit – no fence

View from Street – no fence

View from Unit – 1.2 metre fence

View from Street – 1.2 metre fence

View from Unit – 2 metre visually transparent railings

View from Street – 2 metre visually transparent railings

View from Unit – 2 metre solid wall

View from Street – 2 metre solid wall

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FIGURE 7 – MODELLING OF FRONT BOUNDARY TREATMENTS

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Recommended Plan Change Approach

Relevant sections of the existing City Plan policies where the amenity effects of Community Safety and Social Interaction are considered include:

- Inner urban area
- External appearance of buildings
- Public safety
- Street scene

Additional urban design principles recommended for inclusion in the policy section of the City Plan that either fully or partially addresses community safety and social interaction are:

- *That development considers the amenity for residents, neighbours and the wider community;*
- *That residential units are oriented towards the street or other public spaces and that the design of pedestrian entrances, windows and front fences enable engagement with the street to ensure community safety, social interaction, and visual interest;*
- *That development provides for safe and efficient movement of pedestrians, cyclists and vehicles within the site and along adjoining streets; and*
- *That development is softened by trees and other landscaping while maximising the safety of occupants and visitors.*

Relevant sections of the existing City Plan Living Zone rules where the amenity effects of Community Safety and Social Interaction should be considered are:

- Street scene
- Separation from neighbours

Development controls relating to the street scene, particularly the size and use of the road boundary setbacks, is critical. One of the conflicts with the principles of community safety and social interaction is the predominance of north facing street frontages in L3 and L4 zones. It is currently desirable to locate the outdoor living space in front of these street frontage units due to the solar orientation it provides.

A compromise may have to be found in these instances between the use of fences for increased privacy and security (e.g. children's play) against the impact on street appearance, natural surveillance and loss of social interaction. A taller fence height with a high degree of visual permeability (i.e. above 50%) is a potential option. However, this would suit the L3 zone more than those in the stronger urban context of L4 where there is a higher priority for community safety due to the greater levels of accessibility and both resident and employment users.

The depth of the road boundary setbacks should be minimised with the optimal solution to use a broad front façade as the 'security screen' rather than a front fence. Four meters is an

acceptable distance in L3. However, any more than this becomes a more onerous responsibility for residents to maintain if generally discouraged for private use. Assessment matters should be used to avoid deeper setbacks where possible.

As Community Safety and Social Interaction is most effectively addressed through the ground level of a building, there should be a strong requirement through rule-based measures to locate the most active uses (i.e. habitable rooms) of a building in these locations and provide a landscape buffer zone (i.e. minimum 2m) between them and the public or external common areas of the development. This potentially aids safety and social interaction both on the street and within the site. In larger developments within the L4B zone, it is acknowledged that there may be a number of communal uses (e.g. entry foyers and internal communal living space) that are required or suited to a ground floor location and these can be similar benefit to activity levels.

Other measures should be put in place to support these, such as direct relationship of front doors, pathways, and glazing to key movement routes. These are best addressed through assessment matters due to the potential complexity of these combinations within multi-unit developments.

Additional urban design assessment matters recommended for inclusion in the City Plan that either fully or partially addresses Community Safety and Social Interaction are:

- *Buildings should be oriented toward the street and positioned close to the road boundary;*
- *Developments should place active areas of buildings, such as habitable rooms and entrances, along the street and public open spaces, particularly at ground level;*
- *Buildings should have pedestrian entrances that are identifiable, well articulated and directly accessible from the street or, in the case of rear units, shared access ways;*
- *Facades facing the street should have a high degree of glazing that is evenly distributed;*
- *Fences and landscaping along the road boundary or adjacent to public open spaces should not obstruct ground level views;*
- *Pedestrian entrances (on corners) are encouraged to be located along main pedestrian routes;*
- *Lighting, planting, fences and other structures should to be designed to maximise safety of occupants and visitors; and*
- *Developments are encouraged to provide a variety of unit types and sizes to accommodate a range of households.*

4.3 PRIVACY AND OUTLOOK

The issue of Privacy and Outlook is addressed through the following sections:

- Visual Privacy
- Outlook