



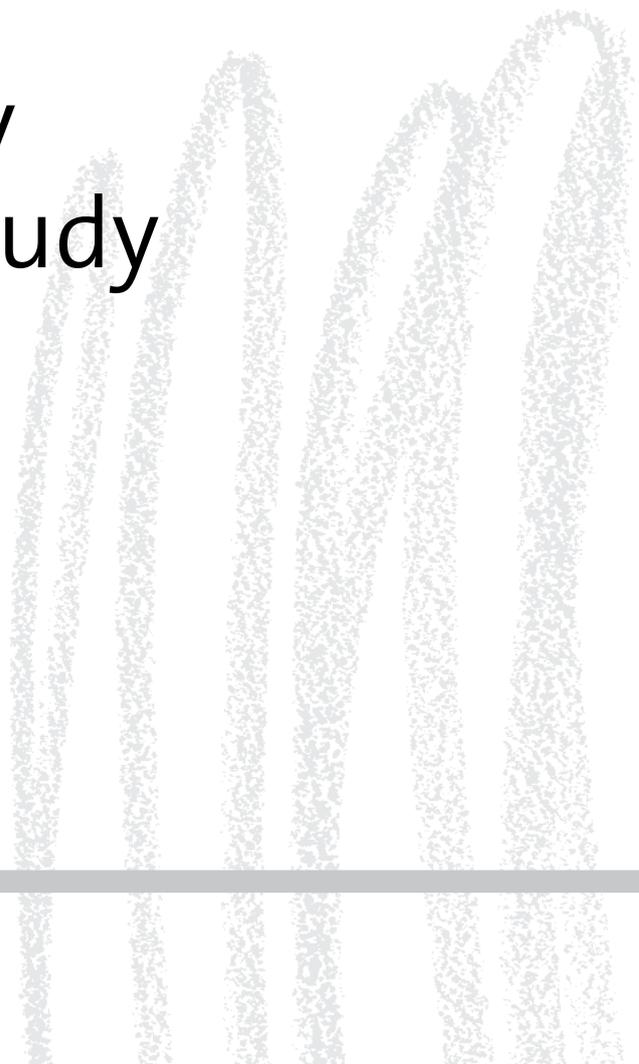
Ministry for the  
**Environment**  
*Manatū Mō Te Taiao*

New Zealand Government



# Medium-density Housing Case Study

Stonefields, Auckland



URBAN DESIGN PROTOCOL



**Acknowledgements**

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David Halsey and Chris Mygind, Fletcher Residential Ltd  
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[www.mfe.govt.nz](http://www.mfe.govt.nz)

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# Introduction

Medium-density housing is a major growth area in New Zealand urban development. As housing density intensifies it is important that design quality improves.

This case study is one of three medium-density housing case studies developed by the Ministry for the Environment to support the New Zealand Urban Design Protocol. It presents a successful design solution and provides an insight into how the developer and council undertook the design and consent process, and how the occupants perceive the development. Together the three case studies provide a range of examples of building typologies from different urban centres.

For these case studies medium-density means:

*“Comprehensive developments including four or more dwellings with an average density of less than 350 m<sup>2</sup> per unit. It can include [stand-alone dwellings](#), [semi-detached \(or duplex\) dwellings](#), [terraced housing](#) or [apartments](#) within a building of four storeys or less. These can be located on either single or aggregated sites, or as part of larger masterplanned developments”.*

The assessment methodology used to develop this series of case studies provides a robust urban design rating system for medium-density housing developments that could be used for different building typologies. The methodology can be modified and adapted to provide a tool to assess proposed and existing medium-density housing and can found on the Ministry for the Environment’s website at: [www.mfe.govt.nz/publications/urban#protocol](http://www.mfe.govt.nz/publications/urban#protocol).

The other case studies in the medium-density case studies series are:

- [Chester Courts, Christchurch](#)
- [The Altair, Wellington](#).

# Stonefields, Auckland

## Fast facts

Fast facts	
Name	Stonefields
Location	Mt Wellington, Auckland
Full address	Briody Terrace, Styak Street, Garin Way and Stonemason Avenue, Mt Wellington
Year completed	Under construction, began 2008, expected completion 2014 for compact dwellings, around 2020 for the apartments and retail centre. The study block was completed in early 2010.
Project type	Masterplanned community
Location type	Brownfields development
Project developer	Todd Property Group Ltd (previously Landco)
Project house builder	Fletcher Residential Ltd
Architect	Shanahan Architects (terrace houses), Fletcher Residential (stand alone dwellings)

## Key statistics

Key statistics	
Number and type of units	2500 – 2900 total once completed Within study area: 40 units <ul style="list-style-type: none"><li>• 35 terrace houses (8 with rear lane garages)</li><li>• 5 large detached dwellings on small lots</li></ul>
Site size	Overall masterplan area: 110 ha Area studied: 2 ha
Site density	Once complete: average 23 – 26 household units per hectare gross density (including parks, roads etc; net site density will be greater as will not include public roads)
Case study block density	20 households per hectare (gross density: including roads and public open space) 40 households per hectare (net density: excluding roads and public open space)
Parking (provision / type)	2 car garage per unit, with on-street parking available for additional cars and visitors

## Site visit details

Researcher	Lisa Mein, Boffa Miskell Limited (Auckland)
Date and time of site visit	Thursday 10 February 2011 (afternoon)
Weather conditions	Fine

# Description

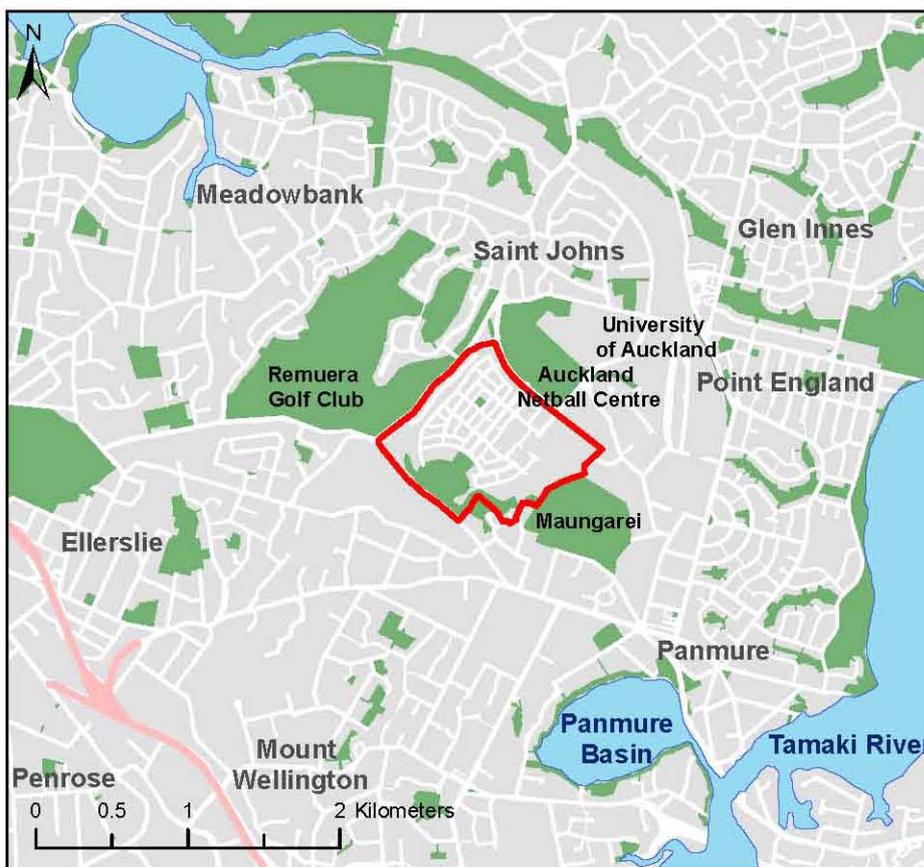
## Location

Stonefields is a masterplanned community on 110 hectares located in the old Mt Wellington volcanic stone quarry site, 8 km south-east of central Auckland. It is in a depression of up to 20 metres below the ground level (at its deepest point below Lunn Avenue). It lies immediately to the west of Mt Wellington (Maungarei).

When completed, the Stonefields development will have 2500 – 2900 units; built in a range of typologies including terraced and detached houses and apartments. The development is accessed via three streets (Stonefields Avenue, Bluegrey Avenue and Searle Street) off College Road. It is overlooked by Auckland Netball from the north and by commercial development along Lunn Avenue from the south. To the west is the Remuera Golf Course.

For this report, one of the more established areas within the wider development has been selected as a case study block. It is the block bounded by Stonemason Avenue to the north, Garin Way to the east, Styak Street to the south and Briody Terrace to the west.

**Figure 1: Location map of the Stonefields site and surrounding neighbourhoods**



Source: Auckland Council – Auckland City Council District Plan Open Space zoning, LINZ – Roads and Coastline, Boffa Miskell Ltd – Site boundary.

Sourced from Land Information New Zealand data. Crown Copyright Reserved

## Site layout

The case study block, is a small area within the entire development. This block comprises 40 units. These are predominantly two-storey rows of terrace houses, but also include some detached dwellings on compact sites of 350 – 400 m<sup>2</sup>. To discuss medium-density housing this case study focuses on the terraced housing. The units are located around a pocket park, Bluestone Park. The park was completed in 2009 and is managed by Auckland Council.

**Figure 2: Site layout**



Source: Masterplan of Stonefields, prepared for Todd Property Group by Woods.

# Evaluation

## Urban design criteria

The case study block within Stonefields was assessed against 20 urban design criteria structured around four broad topic areas. In the following tables, a score is assigned to each criterion with a short commentary that explains the relevant background information and aspects of the development.

The total score for the development is 79 out of 100, indicating that the development successfully addresses a range of urban design principles.

## Site context and layout

**Figure 3: Stonefields indicative masterplan showing case study block**



Source: Masterplan of Stonefields, prepared for Todd Property Group by Woods.

## Figures 4 – 6: Photographs



View of Maungarei from corner of Garin Way and Styak Street.



Street scene.



Future bus stop.

**Table 4: Housing indicators: site context and layout**

Assessment criteria	Score					Total
	1	2	3	4	5	
Neighbourhood context		✓				2
Site context				✓		4
Landscape coverage					✓	5
Outdoor living space				✓		4
Car parking and access			✓			3
Service areas and utilities				✓		4
<b>Sub-total</b>						<b>22 / 30</b>

At present there is no local shopping or local bus network. Connections to shops and regular public transport are poor and residents are reliant on private motor vehicles. Residents must access buses from College Rd, a 10 minute walk from the case study block. It is also approximately 1.5 km (or 20 minutes walk) from train stations at Glen Innes and Panmure.

When the local shops are built and the bus network is connected residents of Stonefields will be within a 10 minute walking distance of these facilities.

The case study block abuts Bluestone Park and is located close to a variety of open space areas for both active and passive recreation. The base of Maungarei is within a 10 minute walk from the block. Stonefields also incorporates the recently opened Stonefields School which is less than 5 minutes walk from the case study block.

Stonefields includes the commercial area on Lunn Avenue to the south. Lunn Avenue is connected to Stonefields via a pedestrian path along the perimeter of the development above the majority of the houses, within a 10 minute walk of the case study block. Road connections are more circuitous, via College Road and Ngahue Drive.

The materials used within Stonefields, such as low basalt walls, reference the former quarry and its historic connection with Maungarei. The collector streets run east-west and allow views to Maungarei.

While collector streets are orientated east-west, the residential streets are orientated north-south, resulting in most units being orientated east-west. All units are provided with a minimum of 25 m<sup>2</sup> private courtyards to the rear of the units. With the exception of the rear loaded terraces which front onto communal parks, units have additional front yards of a minimum depth of 3 m.

Garages are located on the street frontages. These are recessed behind the principal building frontage line. Some of the terraces, such as those fronting Bluestone Park along Garin Way, have rear laneway access to parking.

Clothes lines appear to be located in a service area to the rear of each unit. Wheelie bins are either stored in this area also, or within garages.

### Building form and appearance

Figures 7 – 9: Photographs



Short building forms with visually distinct units create interest on the street.

Table 5: Housing indicators: building form and appearance

Assessment criteria	Score					Total
	1	2	3	4	5	
Horizontal modulation				√		4
Continuous building line				√		4
Building roofline			√			3
Façade articulation				√		4
Material use and quality			√			3
<b>Sub -total</b>						<b>18 / 25</b>

Each block comprises either terrace units or a combination of terrace and detached units. The length of each unit block within the case study block varies from 60 m to 120 m. Blocks are 50 m in depth (25 m deep sites). Within each block, units are clearly defined via strong vertical elements. Regular openings, entrance porches, bay windows and other detailing break up the façades.

The building rooflines are continuous parapets with some detailing to distinguish the units.

All units are two storeys and comprised of a coordinated mix of materials and textures. Building colours are limited to beige and grey tones. Covenants prevent these colours being altered.

Boundary and street planting within the case study area help soften the monochromatic colour palette.

## Street scene

Figures 10 – 12: Photographs



Bluestone park with Garin Way in background.



Relationship between the public street and the building edge.



Shallow front yards with hedges.

Table 6: Housing indicators: street scene

Assessment criteria	Score					Total
	1	2	3	4	5	
Street edge: continuity and exposure					✓	5
Building entrances					✓	5
Façade openings					✓	5
Street boundary treatment					✓	5
<b>Sub-total</b>						<b>20 / 20</b>

The development has been comprehensively planned and developed to incorporate narrow residential streets with wide footpaths and a strong relationship between the buildings and the street. Connection between dwellings and the street is important and has been built into both the street and dwelling designs.

The width of the units ranges from 7.5 m to 10 m along the street frontage. Street setbacks vary from 2 m to 5 m. The two storey height, together with the setbacks and frontage width create an appropriate scale and residential character to the street.

All dwellings have their front doors opening onto the street. A landscape plan for the case study block has directed front yard treatments; however, occupants have begun to individualise their entrances with personal planting and furniture.

Large windows provide good passive surveillance on to the streets. However, many occupants choose to keep curtains or blinds closed, presumably for privacy given the shallow front yards. Most of the dwellings within the case study area overlook Bluestone Park, providing good surveillance of the public open space. The 3500 m<sup>2</sup> park feels safe and comprises play equipment for pre-schoolers through to pre-teens.

## Internal configurations

Figure 13: Ground floor plan of terrace houses in Stonefields



Source: Boffa Miskell Limited adapted from Shanahan Architects courtesy of Fletcher Residential Limited.

Fletcher Residential Limited withheld permission to reproduce the upper level layout. To view all floor plans refer to <http://www.frstonefields.co.nz/>.

Table 7: Housing indicators: internal configurations

Assessment criteria	Score					Total
	1	2	3	4	5	
Internal / external relationships				✓		4
Visual privacy			✓			3
Aspect / natural ventilation			✓			3
Layout efficiency / adaptability				✓		4
Storage space					✓	5
<b>Sub-total</b>						<b>19 / 25</b>

There are two predominant types of terrace units within the case study block influenced by the location of either a front or rear garage. All the units have substantial floor area, with at least four bedrooms. In each unit the ground floor contains the main living areas, kitchen and a bathroom as well as a double garage; the upper levels contain the bedrooms and a second bathroom. Some of the larger units also incorporate a study on the upper floor between the bedrooms. The units with attached garages include laundry facilities within the garage.

The ground floor living spaces are essentially open plan with strong connections to the exterior private open space. The private courtyards are accessed directly off the principal living space and, at a minimum of 25 m<sup>2</sup>, accommodate outdoor furniture.

Units are orientated to enable good solar access to their principal living areas and private open space. The terraces on Styak Street and Garin Way are slightly less well orientated, facing southeast and southwest respectively. These units use the front north-facing garden as part of their open plan space which helps to maximise sunshine.

The units are approximately 10 – 11 m deep, enabling natural light and ventilation to principal living areas and bedrooms. The non-habitable bathrooms tend to be internal and therefore reliant on mechanical ventilation although these do have skylights for natural light.

Visual privacy in front windows appears to be an issue for residents. Most dwellings have net curtains or blinds covering the front windows.

## **Evaluation of urban design essential design qualities**

### **Context**

Stonefields is a masterplanned community on a complex brownfield site in an old quarry site in central Auckland. Its position, on the edge of several established residential areas and within close proximity to active and passive recreation, retail centres, areas of employment and public transport, makes it an ideal location for residential intensification. The proposal had broad support from the Council.

The case study block encompasses terrace and stand alone houses around a central public open space. The open space makes it possible for greater intensification within this particular location.

### **Character**

A “Sense of Place” document was prepared early in the planning stages of Stonefields. This acknowledged the history of the site and surrounding area both pre- and post-European occupation. It influenced the type of materials used for walls, vegetation and guided the naming of streets within the development. It also influenced the code of subdivision and development for the site.

The Stonefields character is influenced by the streetscape and relationship of the built form to the street as well as the relationship to Maungarei. Within the case study block the street planting, open space and configuration of the dwellings around Bluestone Park all create a character distinctive to this block.

### **Connections**

Being in a basin, the site is inward focused. Connections beyond the site, although including several pedestrian paths to all surrounding streets and Maungarei, are problematic. There are only three vehicular connections between Stonefields and the surrounding street network.

The case study block is well within a five minute walk to open space and the local school. Bus stops are at present accessed off College Rd, a 10 minute walk. Eventually bus stops will be less than 400 m or a five minute walk from the block. Until the proposed town centre is constructed, convenience shops are still a car journey away.

## **Choice**

Stonefields currently offers different housing typologies to the traditional suburban environment. There are stand-alone dwellings on compact sites and two key styles of terrace houses: rear lane garage access or standard street front stacked garages. Most of the units are large, three bedrooms or more, providing for young families to post-family couples. Future development will include apartments. A decision not to include social housing in the initial composition has restricted inhabitants to owner occupied or private rental.

## **Creativity**

The landscape treatment and relationship between the terraces and Bluestone Park, particularly the units opening directly onto the park, create an interesting environment within the case study block. The covenants limit individual creativity.

## **Custodianship**

Stonefields represents a brownfield development; re-using land from an old volcanic quarry. An efficient approach to land use has been taken through development of compact sites around usable public open spaces and narrow roads.

Residential streets are orientated north-south to create east-west oriented dwellings. A large wetland has been created as part of the overall development to assist with stormwater management.

## **Collaboration**

Stonefields was developed through a collaborative working approach between Todd Property Group Ltd (formerly Landco), Fletcher Residential Ltd and Auckland City Council (now Auckland Council). A masterplan was prepared and agreed between the parties, informed the development process, and made the consenting process relatively straightforward.

# **Post-occupancy evaluation**

## **Resident survey**

Almost half of the households surveyed returned their survey forms (18 of 39 returned). Returned residents' surveys of the case study area indicate general satisfaction with the location, the look and feel of the development as a whole, and of their block in particular. On questions relating to the site context, 100 per cent of residents rated the look and feel of their street as good or very good, 89 per cent of residents rated the look and feel of Stonefields as good or very good, with the remaining 11 per cent rating this as average. The main criticism residents had on the location and site context is that until the shops within the development are opened, local shops are more than a short walk away.

Bluestone Park has a range of facilities including play equipment, dog water, and picnic tables. Due to this, residents surveyed indicated a high level of satisfaction with the provision of communal facilities; 89 per cent rating this good or very good.

Maintenance of common areas was rated highly; 78 per cent rating this as good or very good. However, one respondent commented on individuals taking responsibility for mowing the berms, suggesting a mixed view on who maintains common areas. While most respondents noted individuals maintain their own parts, many added that the developer and the Council maintain the parks.

People are satisfied with the quantity of car parking spaces; 78 per cent rated these as good or very good. However, one resident observed that stacked car parking in the garages means people park their second car on the street thereby reducing on-street parking for visitors.

The respondents indicate a high level of satisfaction with their building form and appearance. Overall there was a high level of satisfaction amongst residents about their home. The residents in the stand-alone houses were very satisfied and rated all criteria as good or very good. Some of the residents, in the rear access terrace houses along Briody Terrace, appeared slightly less satisfied with the level of visual privacy, the quality and usability of private open space, and the quality and size of external service areas.

Approximately three-quarters of respondents rated ventilation of the home in summer months and protection from noise between them and neighbours good or very good.

Residents commented on how they enjoy the development because it is new and fresh, close to amenities including the new primary school, the neighbours are friendly and a sense of community is forming.

## **Council comments**

Solomon Brett, formerly Senior Open Space Planner with Auckland City Council, was the Council's case manager for Stonefields. He provided insight into the Council's perspective.

As the site was zoned for quarrying activity, a plan change was required to develop the site. Landco began a masterplanning process for the site in 2003. The Council was party to this process. This informed the development of the land-use structure plan which was lodged with the plan change in 2004. The detailed masterplan was developed at the same time and has been updated to guide the development.

As issues mostly related to subdivision and engineering standards, a code of subdivision and development was prepared and agreed between the Council and the developer to guide decision making. Discussions between the Council and the developer have influenced the block layouts, ensured good connections with no cul-de-sacs, and a strong public-private interface.

Solomon considers that the public open space is designed and completed to a very high specification providing an exceptional quality of public space for an intensive development. He believes it represents a good balance of public to private open space. He noted there is a strong sense of pride in the local environment amongst residents and cited the naming ceremony of Bluestone Park as an example as it attracted a strong local audience.

Solomon also felt that the vehicular connections to the surrounding area are as good as they can be given the site's topography. He commented that the pedestrian connections are very strong. Pedestrians are given priority over vehicles throughout the development.

If there was anything that could be done better, he would suggest improving the quality of the public-private interface. He considers that the private front yards have been somewhat compromised at the expense of good public open space and that discussions have raised the issue of whether the building platform should have been more elevated to enhance privacy for homeowners, particularly for the rear lane terraces. Conversely he noted that where retaining walls alongside boundaries have been used facing onto footpaths, these present a blank face onto the footpath and a less than desirable outcome.

## **Developer comments**

The initial vision was to create a masterplanned community within central Auckland, which would provide a full range of community amenities including a school, a town centre, eight neighbourhood parks and access to public transport. In terms of the design and development process, Bryce Morrin (Todd Property Group) notes that once the masterplan had been agreed with the Council and after the first round of consents, the consenting process was relatively straightforward.

The subdivision layout was developed by Todd Property Group Ltd whilst the houses were developed by Fletcher Residential. From the development's inception Todd Property Group Ltd and Fletcher Residential have sought to align the development with Auckland's affluent eastern suburbs of St John's, Meadowbank, Remuera and St Heliers. The target market was for older people from those suburbs trading out of an existing family home and young families looking for a more affordable home within close proximity to these high value suburbs. The initial deal between these two partners established many of the parameters for the development, such as the number of detached and terrace houses and no sale to Housing New Zealand Corporation or other social housing providers.

According to David Halsey (Fletcher Residential), whilst Fletcher Residential are experienced at designing and building standalone family homes, the terrace houses were a new product for them. A complex process ensued around the ideal lot size, building size and cost of construction. The outcome is a module that is as large as possible and as economic to construct as possible whilst still using high quality materials and methods of construction. The result has been a product that attracts a higher price point than other suburban or medium-density developments.

The houses are being well received by the market. At a time when the residential market in Auckland is fairly flat, these houses are selling well at an average of around \$660,000 for a terrace house on a compact 200m<sup>2</sup> site. All houses within the case study block have been sold, with the exception of one which is currently being used as an office. Both parties consider that the terraces with rear lanes work better in terms of interior space and street frontage.

There is a good working relationship between the developers and the Council. One of the current issues being addressed between the developer and the Council is the area earmarked for a town centre (outside of the study area). A large land area has been identified; however, there is currently very little demand for a big town centre. Todd Property Group is looking into options for staging development of the town centre to provide a retail service centre in the first instance.

Bryce considers one of the issues with residential intensification is the ongoing maintenance of the public realm. At present a maintenance agreement is in place; however, when the development is completed, Council will oversee maintenance. He also considers road engineering standards are too restrictive for developments of this type.

Covenants are connected to the titles. These require ongoing maintenance of the garden and the berm by individual landowners. The covenants restrict additional ancillary structures and limit the colour scheme to that existing at time of purchase. Boundary treatments are also restricted.

# Conclusion

## Overall assessment

Stonefields is a large-scale, masterplanned, medium-density development on a brownfields site. The terrace house typologies work well and provide buyers with a low maintenance alternative to a traditional suburban house, yet still enable private outdoor living and street access that might not be offered by an apartment. Its popularity can be witnessed by the speed of its sales.

Well designed medium-density housing close to community amenities offer an alternative living option for a range of household types. The development to date has been completed to a high standard and offers a high quality of living to its residents. This is apparent from discussions with the developers, Council and the residents' surveys. It is clear that the development is succeeding in establishing a community that aligns itself with the high value eastern suburbs, as desired by the developers.

One of the longer-term challenges of this development is the ownership and ongoing maintenance of public space areas and rear access lanes and changing design trends such as the colour scheme. While currently being maintained by the developer, once completed the Council will take over maintenance.

Stonefields case study block demonstrates principles of good urban design including creating a neighbourhood with interconnected streets and accessible public open spaces. It is an integrated development with clear pedestrian connections to encourage residents to walk to local facilities. The interaction between the public and private realm works well. The streets feel safe for pedestrians.

## Lessons learnt

Some of the lessons learnt from the Stonefields development are:

- The agreement of a masterplan between the Council and the developer at the outset of the project makes for a more streamlined subdivision and development process.
- To boost the overall density of the development, Todd Property Group identified sites for apartments early in the masterplanning process. This is positive as it increases choice in housing type and residential market. However, due to changed market conditions apartments are less economic to construct and sell than terrace houses.
- Construction of the local town centre will improve the quality of life for residents as they will only have a 5–10 minute walk to a shop instead of a vehicle trip. A better outcome would have been the early consenting and construction of a portion of the shopping centre to coincide with construction of the first homes.
- Although there are different housing typologies, the limited palette of colours and materials creates a uniform monochromatic appearance that is not typical of New Zealand suburbs. The legibility of the built form could be improved through increased choices in housing typology, materials and colours in future; however, this is restricted by the existing covenants.

# Links to resources

- Auckland Council  
<http://www.aucklandcity.govt.nz/council/documents/subdivision/docs/part1.pdf>  
<http://www.aucklandcity.govt.nz/council/documents/subdivision/docs/part2.pdf>  
<http://www.aucklandcity.govt.nz/council/documents/subdivision/docs/part3.pdf>
- Stonefields homepage  
<http://www.stonefields.co.nz>  
<http://www.frlstonefields.co.nz/>
- Urban Design Protocol:  
<http://www.mfe.govt.nz/issues/urban/design-protocol/>