

# Addison Urban Design Review

Report for Auckland Council



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*Note:*

This review was prepared as part of a wider study into the lived experience of Addison by Auckland Council's Plans and Places department and Research and Evaluation Unit (RIMU).

Reference: Reid, A. Jennings, A. and Butler, R. (2019). *Living in Addison: An investigation into the lived experience of a master planned housing development in Auckland*. Auckland Council Technical Report 2019/023

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# 1 Summary

Auckland Council is undertaking a review of the Addison development in Takanini, Auckland. One aspect of this review is an assessment of urban design outcomes for the area.

Addison is a master planned, greenfields housing development approximately 25kms south of the Auckland city centre. Development commenced in the early 2000s and is nearing the final stages, although there are still two larger development sites near the middle of the area that have yet to be built on. House building has been undertaken by several housing companies.

The review process has involved establishing urban design criteria that would have applied at the time of the original planning, undertaking site visits, discussions with relevant design professionals involved with the development and identifying urban design strengths and weaknesses.

Key strengths are:

- Addison successfully demonstrates that medium housing development is viable in a peripheral location;
- There is a range of housing product;
- There is a strong emphasis on developing the public realm role of streets;
- There are positive, open 'interface' relationships between streets and houses; and
- There is access to rapid transit and commercial activities within a walkable radius.

In terms of pointers for future developments:

1. *There should be improved integration of road typologies with the density and form of development to be served.*

In a peripheral location, albeit close to rapid transit, there is likely to be high rates of car ownership. Medium density developments, while providing on-site car parking, create significant demands for on-street parking. Road designs should be able to accommodate this demand.

In particular, intensive housing forms such as terrace housing, which relies on rear lanes and reduced on-site space for car parking, generate significant demands on road space for parking. Anticipating future density and built form is not straightforward in a rapidly evolving urban environment like Auckland. To a certain extent, road typologies need to be able to accommodate changing demands.

In addition to the demands from visitors and residents, streets play a very important role in the amenity of the development. Street landscaping in Addison is strong in some areas, but less well resolved in others.

2. *Long term functionality*

The internal road layout adopted for some of the early stages of Addison was (perhaps) designed to help sell housing product, rather than provide a pattern that would meet functional needs in the long term. This can be seen in the selection of carriageway widths and street layout, some of

which are not fit for purpose given the number of houses served and the needs of service vehicles. The roading pattern in some parts discourages through movement which may be adding to some issues associated with safety and the benefit of having eyes on the street from passing traffic.

As the Addison area develops, Porchester Road should be able to take on more of a role as a mixed-use arterial, in association with the neighbourhood centre. This transition will be positive to neighbourhood employment and activity, as well as public transport. The design of the road will require attention to enable the corridor to adapt to changing demands.

### 3. *Open space*

Addison experimented with a range of small open space areas to help create amenity around clusters of medium density development. This arrangement, while generating visual amenity, reduces the wider community role of neighbourhood parks. The areas relationship to Bruce Pulman Park is ambivalent and a stronger embracing of the park in the design may have helped to create a greater sense of place. Earlier stages of the design relied upon several walkways to provide connectivity (in part a reaction to controls on the number of street intersections with main roads), but these walkways provide a limited form of connectivity in comparison to a street-based movement network.

## 2 Introduction

Auckland Council has requested an urban design review of the Addison development, situated in Takanini, as part of a study into the lived experience of the area for residents<sup>1</sup>.

Council's study focuses on the relative success of the urban design and layout from a safety, wayfinding, functionality and residential amenity perspective. It also explores factors that contribute to relatively high levels of car crime in the area, as reported by NZ Police. The aim is to identify learnings that could be usefully applied to future housing developments in fringe locations.

Addison was developed in the early 2000s and was seen to be innovative for its time, given its location, in terms of design and layout. Recent feedback from agencies such as NZ Police has raised some issues associated with emergency access, crime and safety, and car parking.

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### 2.1 Process

The urban design review has involved:

- Review of the 2007 Ministry for the Environment case study of Addison;
- Undertaking a site visit;
- Revisiting the 2007 evaluation and assessing the development against latest urban design criteria (such as those contained in the Auckland Design Manual);
- Provide a critique of the development's strengths and weaknesses in urban design terms and highlighting issues and possible solutions; and
- Identify learnings for future developments.

The review process began by identifying relevant urban design and planning documents from the time when Addison was being planned, discussions with council staff, several site visits and interviews with key players in the design and consenting of the development.

An initial draft report was prepared and amended based on feedback from council staff.

Important references include the Papakura District Plan (the former Residential 8 zone)<sup>2</sup>, Ministry for the Environment medium density case study criteria<sup>3</sup> and contemporary guides such as the Auckland Design Manual<sup>4</sup>. Figure 1 shows the study area.

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<sup>1</sup> Refer to Reid, A. Jennings, A. and Butler, R. (2019). *Living in Addison: An investigation into the lived experience of a master planned housing development in Auckland*. Auckland Council Technical Report 2019/023.

<sup>2</sup> For example: Section Three, Appendix 16C – Medium Density Housing, Design Assessment Criteria (Residential 8 zone). Sourced from:  
[http://www.aucklandcity.govt.nz/council/documents/districtplanpapakura/316\\_p16\\_takstructureplanareaappendices16c\\_res8\\_270910.pdf](http://www.aucklandcity.govt.nz/council/documents/districtplanpapakura/316_p16_takstructureplanareaappendices16c_res8_270910.pdf)



Figure 1: Addison study area

## 2.2 Background

Addison is in Takanini, South Auckland. A total of approximately 1200 homes are accommodated as at the end of 2019.

The study area has an approximate area of 92ha, translating into a gross density<sup>5</sup> of about 16 dwellings per hectare. This contrasts with suburban densities of around 8 to 10 dwellings per hectare gross. Net densities (dwellings per area of developable land) within the development area vary. Net densities are close to 15 dwellings per hectare in Stage 1, but in Stage 3 densities are closer to 30 dwellings per hectare.

The development process was initiated in 1999 as a direct response to the Auckland Regional Growth Strategy. This strategy identified a large future urban growth area in Takanini.

A Takanini Structure Plan was developed by Papakura District Council (PDC) in 2000.

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<sup>3</sup> Medium-density housing: Case study assessment methodology. Publication date: January 2012. Publication reference number: ME 1083.

<sup>4</sup> Source: <http://www.aucklanddesignmanual.co.nz/>

<sup>5</sup> Gross density in this case includes roads and local open spaces. The area does not include Bruce Pulman Park.



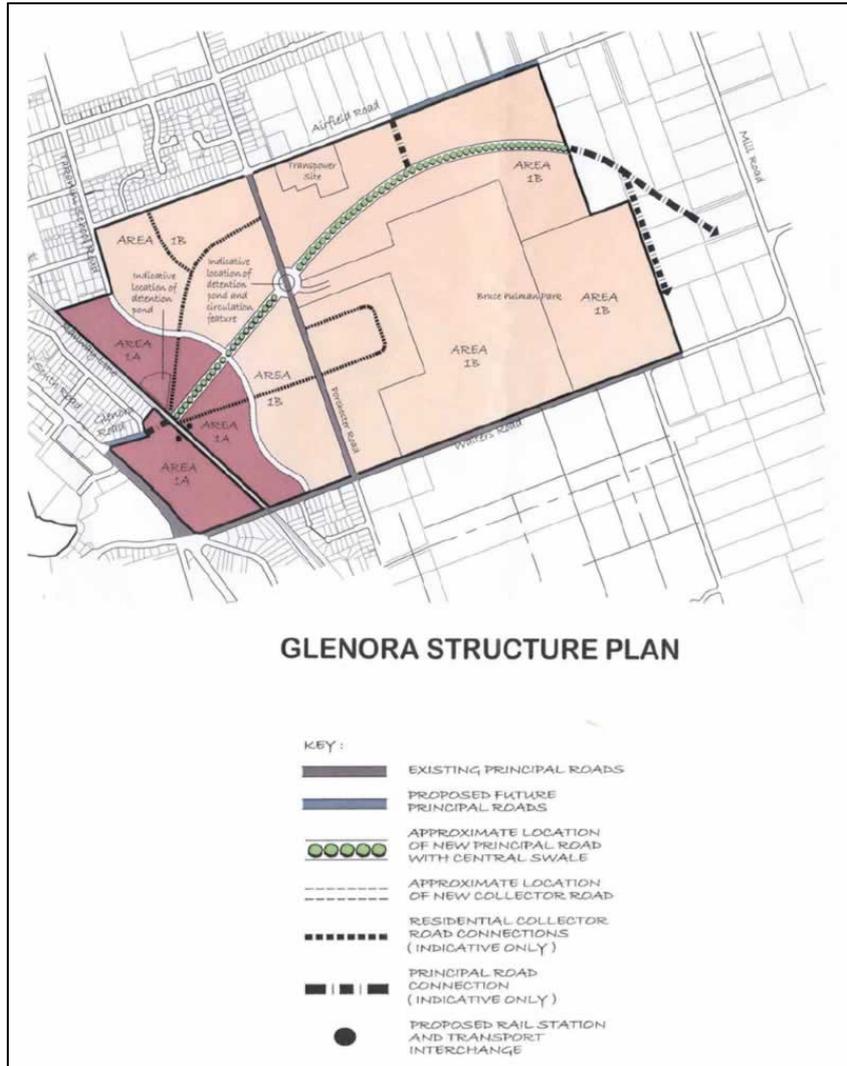


Figure 3: Glenora Structure Plan

The Residential 8 zone was applied to this area to specifically achieve medium density housing within close proximity to public transport routes, Bruce Pulman Park and mixed-use node areas in the Takanini Structure Plan.

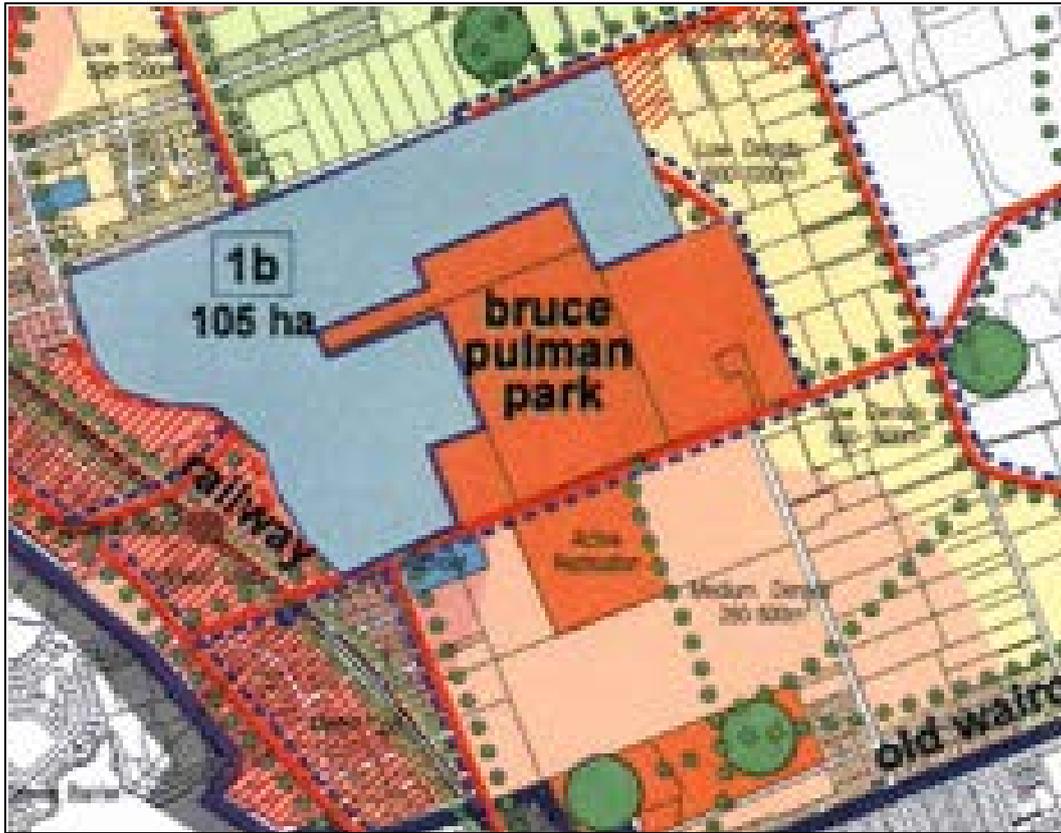


Figure 4: Plan Change 3

Under the Residential 8 zone provision, subdivision was a restricted discretionary activity, providing Council with considerable scope (discretion) with regard to the assessment and approval of subdivision designs.

Provisions for medium density housing were based on performance criteria rather than “rules”. This was an innovative approach at the time which was intended to give the developer more scope for responsive residential designs.

The influence of this discretion on urban design outcomes is discussed in the next section which considers urban design principles and how they were applied.

Plan Change 12 (Figure 5) was developed in 2007 and applied to Areas 1A and 1B of the Takanini Structure Plan. It modified the zoning pattern established by Plan Change 3 in response to changing circumstances. In particular, the Glenora train station had not eventuated and commercial development had become strongly established on the western side of the rail line at Walters Road and Great South Road. Plan Change 12 was made fully operative in 2013.

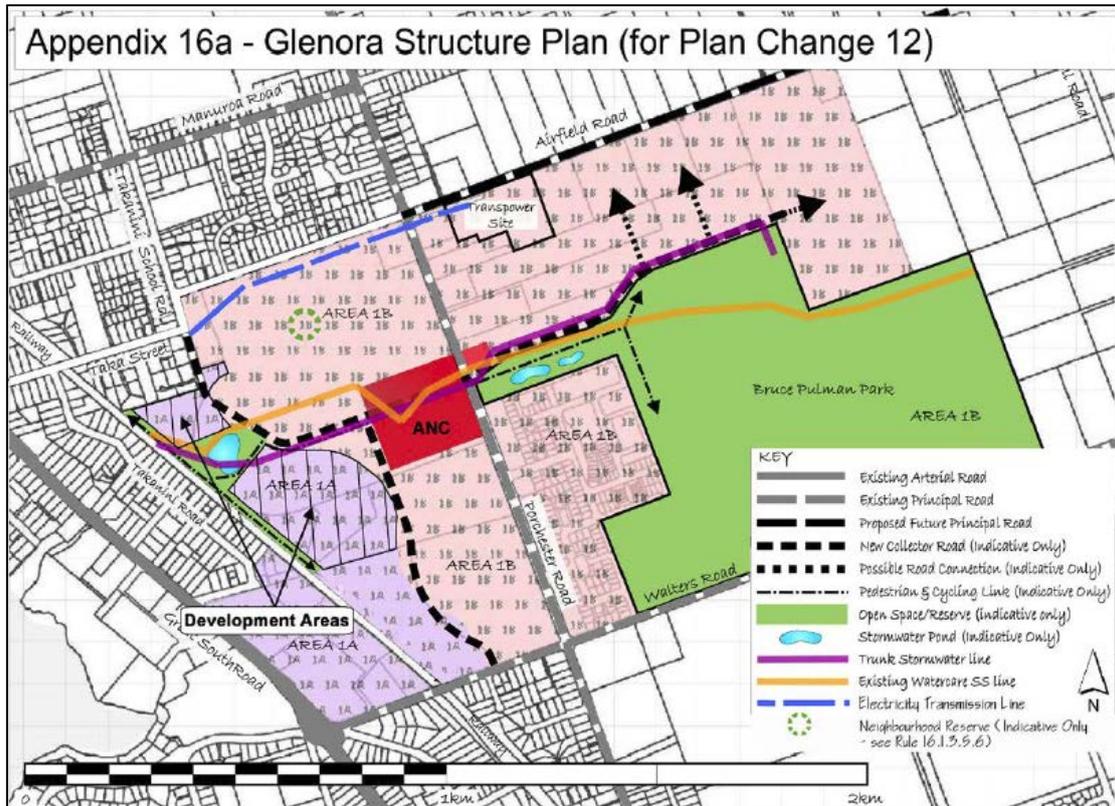


Figure 5: Plan change 12 to Papakura District Plan

Plan Change 12 identified a neighbourhood centre towards the middle of area 1b, fronting a revised east-west link. The area close to the proposed Glenora station was rezoned for mixed use development, and part of this area to the south subsequently formed expansion of the Takapuna commercial area.

A series of masterplans were then progressively prepared by developers. It is understood that at least three different major design stages occurred. These design phases can be discerned in the map in Figure 6 which is of the last major design exercise (the red outlined area).



*Figure 6: Masterplan for Glenora*

The masterplans largely follow the Glenora structure plan set out in Plan Change 12. The central neighbourhood centre is located at the 'cross roads' between Porchester Road, and the north-south and east-west collector roads (the area shaded light pink in Figure 6). A neighbourhood reserve is in the north-western quadrant, close to that shown in the structure plan.

## 3 Previous Assessments

This section briefly reviews previous assessments of the Addison development as a prelude to developing assessment criteria.

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### 3.1 Urban design protocol

In June 2007 the Ministry for the Environment (MfE) published an urban design review of the (then partly completed) Addison development<sup>6</sup>. This was one of several case studies used to help promote urban design and the NZ Urban Design Protocol.

The review was generally complimentary of the development, while pointing out several issues and potential compromises in the design.

It noted that Addison successfully generated demand for medium density living in an otherwise suburban environment. It also demonstrated several design features that set it apart from suburban style development:

- It provided an interconnected roading network;
- Building design emphasised an open interface between homes and street (no blank walls for example); and
- Road design sought to encourage walking and cycling and reduce vehicle dominance.

The assessment identified the additional important design elements:

- The use of Crime Prevention Through Environmental Design (CPTED) principles in the masterplan and residential super lots;
- Two-storeyed houses situated on compact sites that face the street or communal open spaces; and
- Incorporation of low impact stormwater treatment.

The MfE review noted that the concept of 'neighbourhood commons' was applied. These are small neighbourhood parks or open spaces of 500m<sup>2</sup> to 800m<sup>2</sup>, fronted by a small cluster of houses. Most of these parks were vested with PDC at the time, however the assessment noted that the council had reservations about the further establishment of small reserves and links in future development stages.

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<sup>6</sup> Urban design case study: Addison housing development. Publication date: June 2007. Publication reference number: ME 817. Sourced from <http://www.mfe.govt.nz/publications/towns-and-cities/urban-design-case-study-addison-housing-development>.

The review noted that the Takanini Structure Plan (2000) was a high-level document, while the master plan prepared by the developer was not a statutory document. Furthermore, some development preceded the master plan being prepared.

The MfE review correctly identifies that Addison deployed a range of design features that were considered innovative at the time. These features were to an extent a reaction against the perceived shortcomings of typical suburban development with convoluted roading layouts, wide carriageways, similar housing stock and 'hidden reserves.

The review was based on an assessment methodology that contained the following factors:

1. *Site context and layout*
2. *Building form and appearance*
3. *Street scene*
4. *Internal configurations.*

The assessment criteria had an emphasis on the design of buildings, rather than issues of neighbourhood layout. This reflected concerns often expressed by residents and community groups during consent processes about poorly designed medium density development on existing sites affecting established character and amenity. As a result of this emphasis, some layout and structural issues may not have been fully addressed, a point that has influenced the focus of this study.

In terms of layout, one of the assessment criteria referred to 'neighbourhood context', which was described as follows:

*The location of the development relative to meeting residents' needs (e.g. access to community facilities such as leisure centres, health care, and schools.)*

A 1 to 5 rating scale was used. For the above criterion, the rating at either end of the scale is as follows:

1. *No shops and community facilities within comfortable walking distance. No accessible public transport and sole reliance on car-based travel.*
5. *Close proximity to public open space and a comfortable walking distance to regional centres and community facilities. Development specifically designed to minimise car-based travel (e.g. remote car parking, car share scheme).*

The rating guide for the neighbourhood context criterion essentially addresses the concern that increased density will generate more vehicle trips in any given area, than suburban level development, unless the development is designed and located in a way that actively supports use of public transport, walking and cycling.

The Crime Prevention through Environmental Design principles for safety and security include:

- No front fences
- All the houses overlooking the street and/or other properties
- Ensuring rear access lanes have good sightlines
- Eliminating entrapment spots, and monitored security
- Visible and legible front doors
- Active habitable rooms at ground level located to provide visibility and outlook over the street.

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## 3.2 CHRANZ case study

A case study of the development commissioned by the Centre for Housing Research Aotearoa NZ (CHRANZ) and published in 2011<sup>7</sup> noted problems with car parking, with parked cars blocking streets, cars parking on verges and problems with rear access lanes, especially where garages are used for storage space, rather than for car parking. The authors also questioned whether the development should have proceeded in the absence of a decision as to whether a new or relocated train station was to be positioned at Glenora Road. That is, the review suggested that there was a lack of land use and infrastructure integration at the strategy level, and that this lack of integration had some influence on subsequent outcomes.

The case study highlights the issue of road design and road functions in a medium density environment. However, it perhaps over-emphasises the influence of rapid transit access on car ownership, and hence demands on road space for parking.

This suggests the current review could helpfully better understand the relationships between built form and road design.

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## 3.3 Auckland Design Manual case study

The Auckland Design Manual published by Auckland Council contains a case study prepared in 2014 of a curved row of terrace houses on Bruce Pulman Drive which forms a central element of the early stages of the development<sup>8</sup>. It identifies the positive design features of this group of terraced housing and notes that:

*These houses overlooking Bruce Pulman Drive in the Addison neighbourhood in Takanini are an important demonstration of how well designed, higher density housing can create a successful edge to a reserve and street – while also creating sunny private open space for the residents.*

The use of a rear lane is noted as an important feature “critical to the success of the project”, as well as the green space at the front of the dwellings. The case study correctly identifies the benefits to streetscapes of this combination, but perhaps underplays the long-term consequences for maintenance of small open spaces and the safety issues associated with rear lanes. These points are addressed in this review.

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<sup>7</sup> Cityscope Consultants (2011). Addison Case Study. Prepared for the Centre for Housing Research Aotearoa NZ. Wellington: CHRANZ. Sourced from <http://www.mfe.govt.nz/publications/towns-and-cities/urban-design-case-study-addison-housing-development>.

<sup>8</sup> [www.aucklanddesignmanual.co.nz](http://www.aucklanddesignmanual.co.nz)

## 4 Urban Design Criteria

This section identifies and discusses the urban design criteria against which the assessment of urban design outcomes of Addison was undertaken.

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### 4.1 Selecting criteria

A range of criteria can be used to assess the urban design qualities of greenfields urban development. However, there is no one set of 'industry agreed' guidelines, and urban design guidance has evolved over time.

The assessment of Addison needs to be undertaken within a framework of the criteria that were established at the time of its development, otherwise there is a risk of a 'post hoc' judgement where by the assessment of Addison considers more recent learnings and understandings. The final chapter in this report considers how urban design criteria could be modified to consider the learnings from Addison (and similar developments).

To identify urban design criteria that were current at the time that Addison was designed, it is necessary to review the main planning documents that applied in the early 2000s, in particular the Papakura District Plan. As these documents are focused on the broader topic of Resource Management, it is necessary to review them using an urban design 'lens'.

#### 4.1.1 Common urban design principles

Core urban design principles that are constant overtime<sup>9</sup> commonly cover matters such as:

- Support for more compact development
- Enabling a diversity of built form outcomes
- Promoting connectivity and permeability
- Supporting a sense of identity and safety.

The principles seek to ensure that development supports a functional and high amenity public realm.

Urban design generally recognises that application of these principles needs to occur across a range of scales (or layers) from the sub-regional scale down to the site level. For the purposes of this analysis, the 'mid-level' of urban structure is considered most relevant to the review. Structure refers to the roading layout, block layout and the open space network.

At this design level, design needs to look both 'upwards' to the regional context to help set broad parameters, as well as looking 'down' to the site level in terms of whether the structure is putting in place a framework that will support quality outcomes at a building level.

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<sup>9</sup> For example the principles contained in Ministry for the Environment's document *People Places and Spaces: A design guide for urban New Zealand*, published in 2002.

It is therefore useful to organise assessment into the following spatially-based layers:

- Regional context
- Block structure / layout
- Public space design – roads
- Public private interfaces.

Within this general context, for Addison, the most relevant source document as to the contemporary and place-specific urban design criteria is the Residential 8 zone provisions prepared by PDC in 2001. These provisions were specifically prepared to guide the development of the area. They incorporate a design-based approach to subdivision and development. They pre-date subsequent guidance such as the Ministry for the Environment's People, Places and Spaces: A design guide for urban New Zealand (2002) and the NZ Urban Design Protocol (2005)<sup>10</sup>.

The Residential 8 zone outcomes and criteria are organised into an RMA framework. Nevertheless, their content can be related to the principles and layers discussed above. The following sections identify relevant planning matters and comment on their scope and applicability to urban design outcomes.

## 4.2 Regional context

When considering how to develop a large greenfields area, urban design approaches recognise the need to take clues from the regional context; that is, where the area sits in the continuum between inner and outer urban areas.

For Addison, the most relevant criteria related to the regional context is the Residential 8 Zone objective, which is as follows:

**Density**

**1. Objectives**

*i.* To achieve forms of medium density residential development which are supportive of walking, cycling and public transport use as transport choices and which take advantage of the zone's proximity to public transport routes, the Addison Neighbourhood Centre and Bruce Pulman Park.

*ii.* To ensure that the establishment of medium density residential development (referred to in *i.* above) is not precluded by the establishment of low density residential uses.

Figure 7: Papakura District Plan: Residential 8 Objective

<sup>10</sup> <https://www.mfe.govt.nz/sites/default/files/urban-design-protocol-colour.pdf>

### 4.2.1 Comment

The zone objective essentially proposes a transit-oriented form of development. Implicit in the objective is a reaction against low density, car-oriented forms of suburban development.

Having said that, the objective refers to density associated with transport, town centres and large open spaces. This suggests there was an ability to provide for density across the site in several configurations. There was no need to concentrate density in one sector of the development (for example close to the Southgate centre).

Equally, the objective suggests a static form of development. There is reference to medium density development, which for the time, was a 'step up' in density. However, it is possible that there will be future demand for low to medium rise forms of apartments (e.g. four storeys adjacent to the Southgate Commercial centre). Whether the design has been able to respond to changes in density demands is addressed in the next chapter.

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## 4.3 Block structure / layout

In terms of a structure that responds to the regional context, the Residential 8 zone criteria provided detailed guidance on block structure and open space requirements. A block structure is the configuration of development areas (lots) formed by the roading layout.

### 4.3.1 Block structure

The road layout criteria of the Residential 8 zone (see Figure 8) cover accepted urban design principles of providing for a connected network of roads that create an appropriate block structure. Block structure is important in supporting neighbourhood connectivity. It is also important in setting the parameters for lots that ensure houses do not back onto streets and public spaces (high rear fences for example) and provide ample space for separation between the rear elevations of street-fronting housing.

A connected street network assists with accommodating the traffic demands of medium density housing, as well as enabling route choices and direct links to public transport and local amenities. The criteria refer to roads providing legibility and frontage to public parks.

To an extent, the text accompanying the guidelines provides more extensive direction than the associated policy or Design Elements. For example, the text / description relating to Design Element 1 refers to the point that on flat land, simple, geometric road layouts are likely to be more beneficial than 'spaghetti-like' layouts. However, this level of direction is not provided in the actual design elements (apart from a general reference to legibility).

**Design Element 1: Road, Reserve and Access Networks**

1. Subdivision design should achieve connectivity within and between neighbourhoods.
2. Street patterns should maximise convenient and direct access to passenger transport stops, reserves, community facilities and mixed use nodal areas.
3. Street patterns should be logical and contribute to the legibility of the area.
4. Street patterns should include roads which front the edge of Bruce Pulman Park, particularly along the northern park boundary.
5. Roads and other public spaces which front Bruce Pulman Park or extend up to its boundary should be designed to recognise, incorporate and extend walking, running and cycling routes into and out of the park.
6. Street alignments should maximise opportunity for lots with good solar access.
7. Safe pedestrian and cycle routes should be generally integrated with road and reserve design.
8. Subdivision design should help achieve an interconnected open space network.
9. Layouts should retain any existing mature trees, preferably in road or reserve, where these contribute to existing site amenity.

Figure 8: Road layout guidance

#### 4.3.2 Public open space location

Guidelines relating to open space requirements emphasise the need for frontage and visibility. There is reference to the open spaces being a focal point for neighbourhoods.

The Residential 8 zones set out the following policies (policy 16.1.1.2 (2)):

*Quality public open spaces which generally abut streets rather than residential sections and thus provide opportunities for passive surveillance*

*A structural open space and reserve network providing visual legibility within and beyond the zone, providing a basis (together with the roading network) for local and longer-distance accessibility by foot and bicycle, accommodating recreational and stormwater requirements, and guarding against crime by encouraging passive surveillance.*

The subdivision guidance for land zoned Residential 8 also includes the following statement:

### Open space layout

Reserves that are largely bounded by public roads often tend to be more secure, because of informal surveillance from the road and from the houses nearby, and are thus likely to discourage crimes against the person, vandalism, burglary, dumping, and littering. The necessary surveillance required to deter crime is attracted through other means, principally through high public usage of these open spaces (as well as clear sight lines from public roads.) In such locations, and clearly visible to as many properties as possible, they are likely to attract the maximum number of users and be more valued by the community. Ideally reserves should not directly adjoin residential lots.

*Figure 9: Open space guidance*

#### 4.3.3 Comment

The guidance provided by the Residential 8 zone provisions cover core urban design criteria. However, the guidance is at a level of generality that provides considerable scope at the development / consenting level as to how the principles set out should apply.

The disconnection between guidance and explanatory text is a feature in the section on reserves. The explanatory text clearly indicates a preference for open spaces to have a 'neighbourhood' recreation role, rather than see open space provide a narrower 'amenity' role to adjacent housing.

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## 4.4 Public space: road reserve cross sections

Road design (road reserve widths and cross sections) is a very important element of any subdivision design. Roads are the key public spaces in any new development.

Extensive guidance is presented in the Residential 8 provisions relating to road design. Indicative road cross sections are provided. Reference is made to road widths and cross sections needing to address/consider:

- Carriageway widths
- Traffic management
- Car parking
- Street trees
- Swales and other forms of stormwater management.

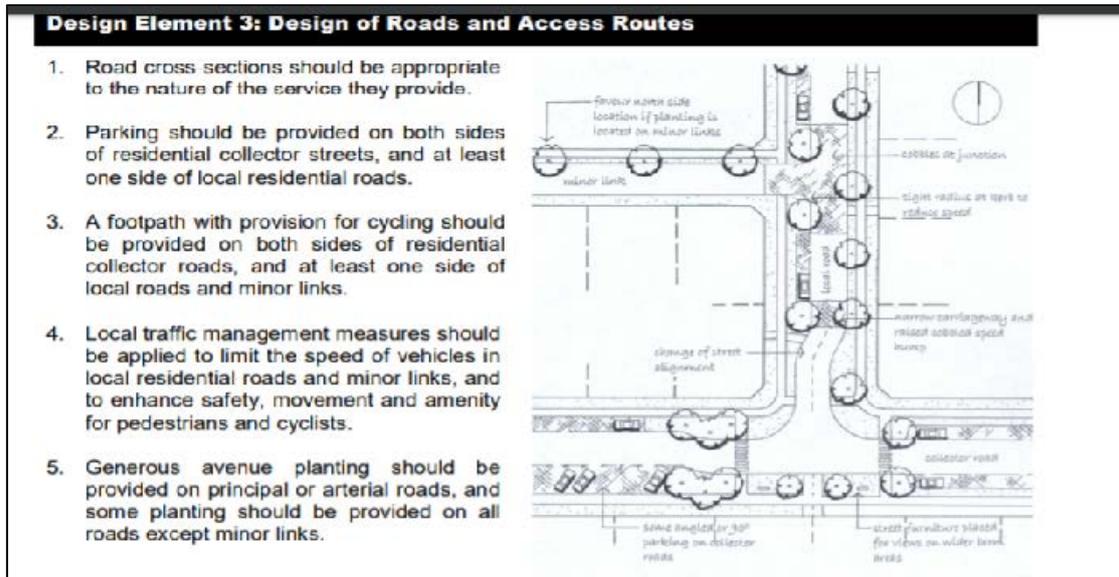


Figure 10: Road design guidance

A number of street typologies are set out, including:

- A 22m wide residential collector road, with a 11m wide carriageway
- A 18m wide local road with an 8m wide carriageway
- A minor link of 10m width, with a 5.5m wide carriageway
- A single lane road with 3.5m wide carriageway.

Wes Edwards Consulting (now known as Arrive) were engaged by the developer to assist with a review of the first stage of Addison in 2005. They undertook research into international best practices for residential street networks and the use of narrow streets. That work led to the first stage of Addison being granted consent.<sup>11</sup> It is understood that the report was prepared in response to concerns expressed by the Council as to road design considerations. Figure 11 is a key diagram from this work.

<sup>11</sup> . Wes Edwards Consulting (2005) *Liveable streets for liveable neighbourhoods*. Available on demand from author.

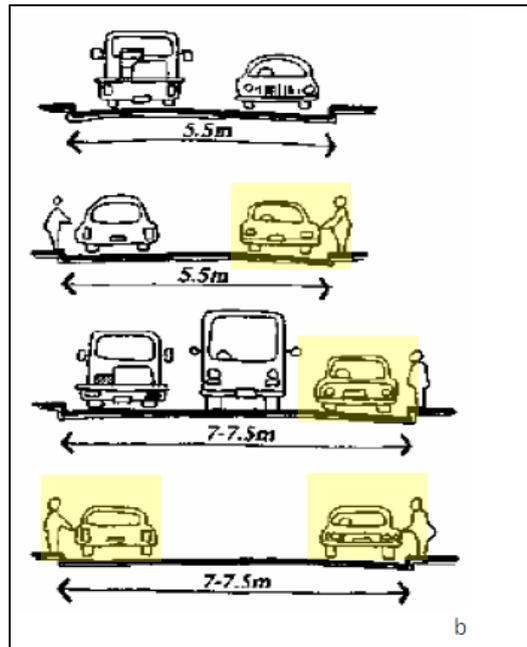


Figure 11: Road cross sections and parking

While not stated as such, there is an implied preference in the report for the 7m to 7.5m wide carriageway design. This cross section seeks to manage driver behaviour, as well as reduce the amount of land that needs to be devoted to roads. Parking may be possible on either side, or in some cases may be in indented parking bays. The assumed parking arrangements are highlighted in yellow in Figure 11. For the 7m to 7.5m wide cross section, if there is parking on both sides of the road, traffic is limited to a single lane.

The Papakura Zone 8 provisions and the applicant's own analysis both identify an 18m to 20m wide road corridor with 11m wide carriageway (allowing for 2 lanes of through traffic and 2 lanes of parked cars) as a relevant road cross section for residential areas. This format is common across many jurisdictions and provides considerable flexibility to accommodate a range of parking needs and traffic demands. However, concern can be raised around speed. If there is limited or no demand for on-street parking, then the 11m wide carriageway can visually appear too wide and too inviting for motorists to increase speeds.



*Figure 12: Suburban street*

Figure 12 is taken from the Wes Edwards report. It shows an 11m wide carriageway. The report states that this environment provides few incentives for motorists to drive at an appropriate speed. Introduction of build outs for trees creating indented parking bays, is one option to visually narrow the carriageway.

The photo below (Figure 13) is taken from Google Earth. It shows an 11m wide carriageway in an area of higher density development in an American city, with parking on either side. The adjacent lots do not provide any off-street parking. The street is one-way and is pedestrian friendly.



*Figure 13: Higher density street in United States of America*

These examples show the complexity of street design and the important relationships with built form. In a suburban context of single storey stand-alone houses on large sections with ample on-site car parking and no or limited street tree planting, 11m may be too wide. In the context of 3 storey terraces with limited or no on-site parking and large street trees, 11m may be appropriate.

#### 4.4.1 Comment

The guidance provided offers a range of design solutions in terms of road widths and cross sections. However, there is limited guidance as to when different cross sections should be applied, for example where the narrowest width of 5.5m should be applied.

The need to co-ordinate the design of vehicle crossing points, kerb side parking, street trees, utilities and street lighting is not mentioned, yet the co-ordination of these elements is very important to subsequent outcomes.

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## 4.5 Public / private interfaces

The design of housing is covered by Appendix 16C of the legacy Auckland Council District Plan (Papakura Section) titled: Medium Density Housing, design assessment criteria (Residential 8 zone)<sup>12</sup>.

Design Element 1 refers to the public face of the development, as it relates to the road or any other adjoining public space. The guidance notes that careful attention to design detail is required at this interface to avoid any adverse external visual, scale or safety effects, and to contribute positively to the amenity and enjoyment of the public space (see Figure 14).

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<sup>12</sup> Available at [http://www.aucklandcity.govt.nz/council/documents/districtplanpapakura/316\\_p16\\_takstructureplanareaappendices16c\\_res8\\_270910.pdf](http://www.aucklandcity.govt.nz/council/documents/districtplanpapakura/316_p16_takstructureplanareaappendices16c_res8_270910.pdf)

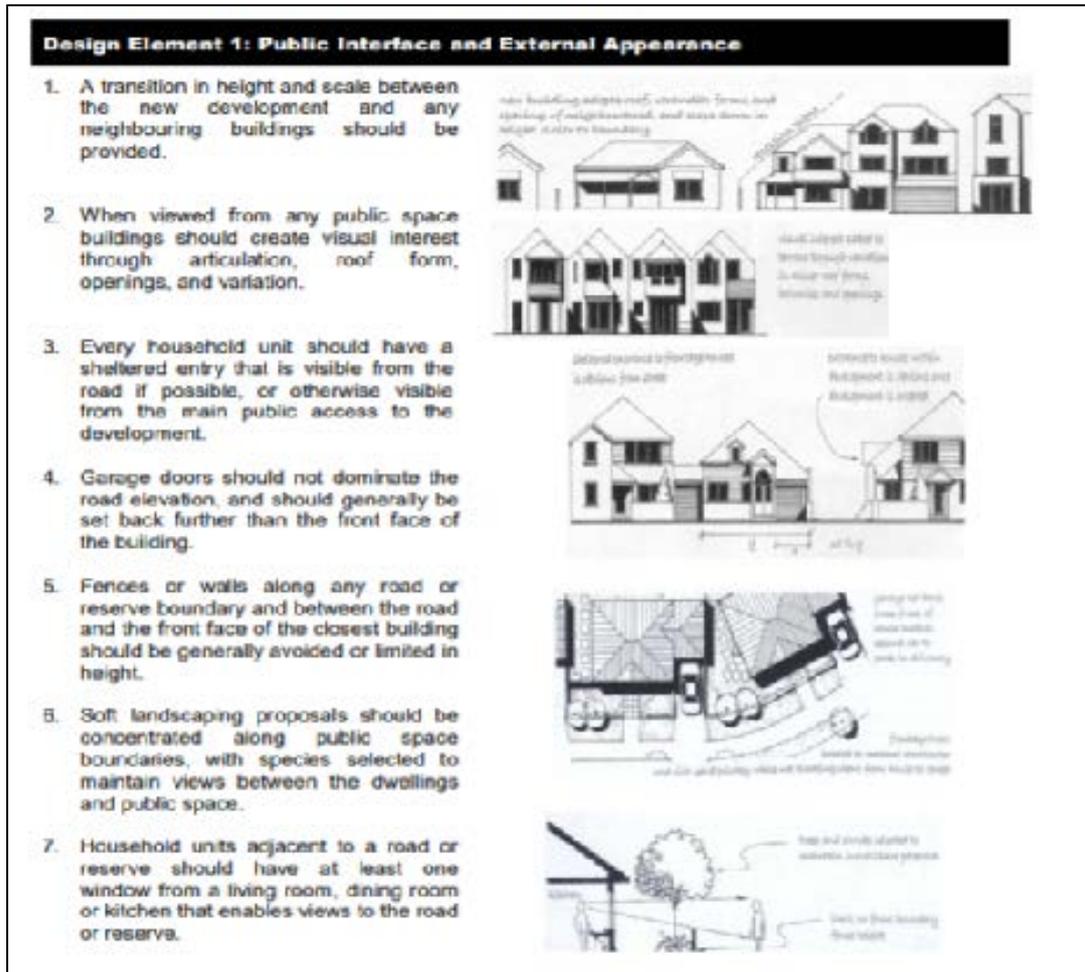


Figure 14: Design Element 1

#### 4.5.1 Comment

The guidance follows standard urban design advice that recognises the importance of, and benefits from, providing and maintaining open, interactive frontages between housing and street and open space environments.

The design and layout of rear lanes is not dealt with. It is understood that the developer and Council subsequently developed their own set of criteria. It has been possible to sight a copy of these guidelines.

## 5 Assessment

This section sets out an assessment of the development against the criteria set in the previous chapter.

### 5.1 Response to regional and sub regional context

When planning commenced in the late 1990s, the Addison development was on the periphery of urban Auckland. It is located around 25kms from the central city (marked by the blue star on the map below).

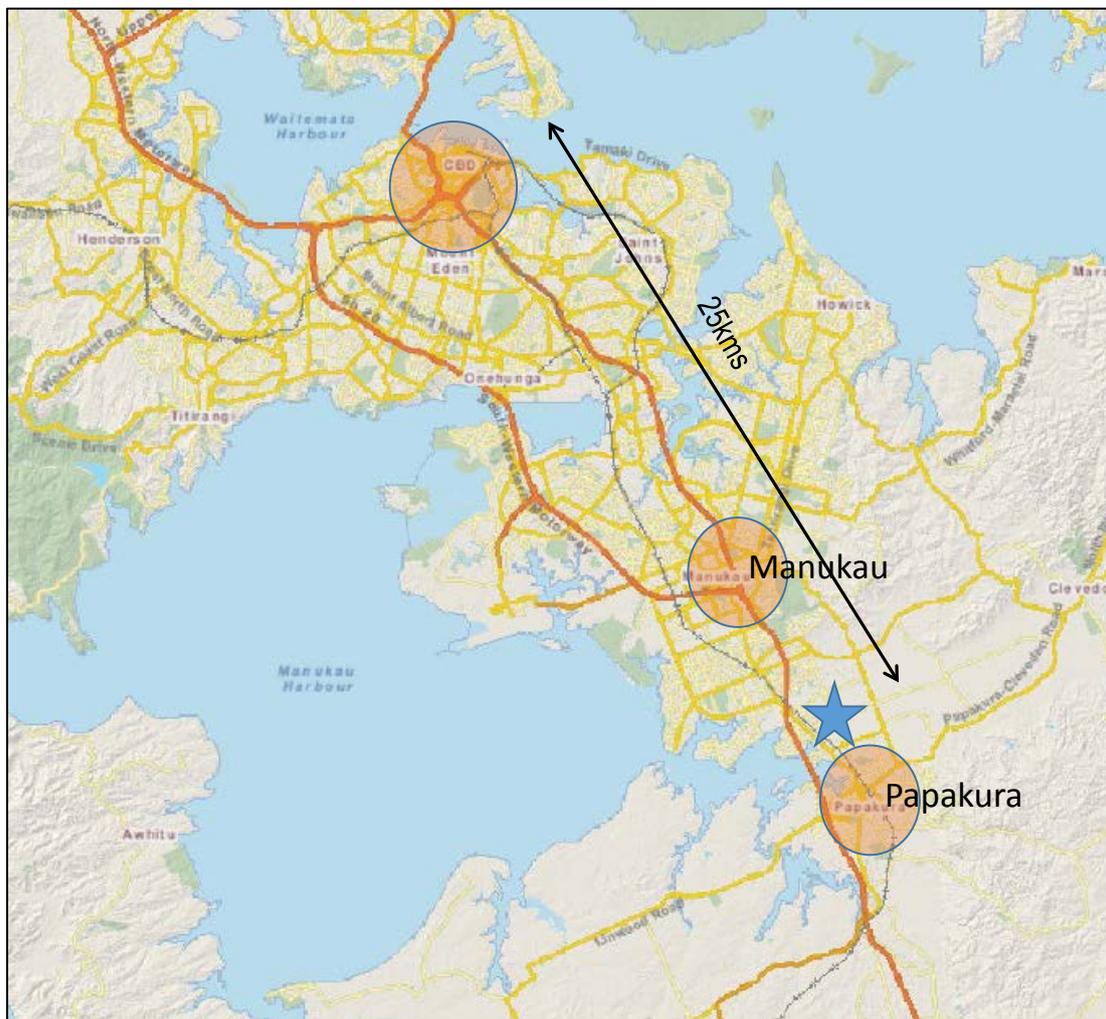


Figure 15: Regional context

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## 5.2 Regional influences on design

In general terms, as distance from the city centre increases, housing density decreases, and there is often a reduction in the diversity of housing types. In addition, car ownership rates increase. Urban designers tend to accept that there is a density gradient away from the centre, but within this general context, seek a greater mix and density of housing types.

In the late 1990s urban planning policy was in a state of transition. Policy was being driven by a strong push to limit urban expansion and to promote urban intensification. As part of this approach (enshrined in the 1999 Auckland Regional Growth Strategy) greenfields development was seen as an opportunity to promote and demonstrate more compact forms of growth, with the hope that this would stimulate demand for redevelopment of existing urban areas.

From a strategic planning perspective, important outcomes were:

- Compact development
- Transit-orientated development
- Greater choice / variety of housing
- Less car dominated environments.

As part of this approach an extensive greenfields area was identified in the Regional Growth Strategy to the east of the southern motorway corridor, at Takanini. The possibility of a new train station at Glenora Road is noted on the Growth Strategy Concept map. See Figure 16.

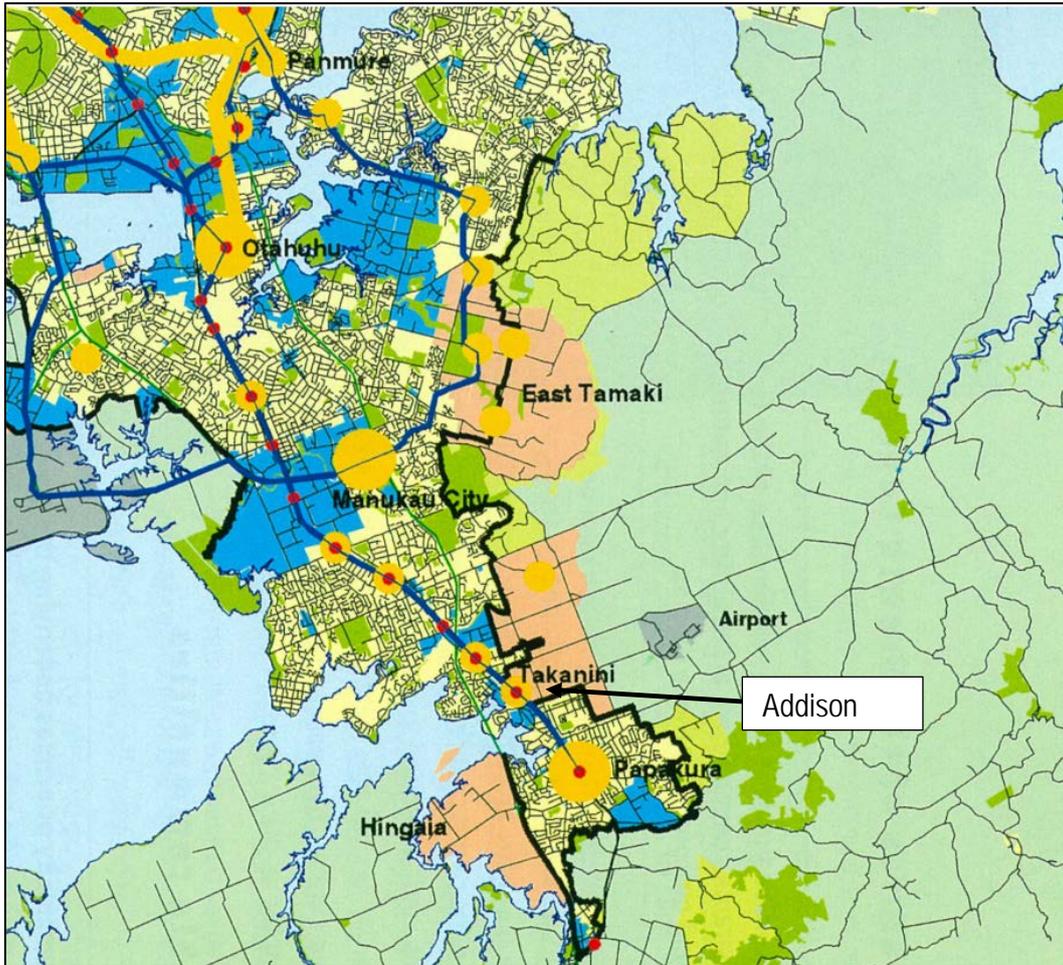


Figure 16: Regional Growth Strategy concept map (1999)

This policy 'push' towards compact forms of growth saw pressure for greenfields areas to take a step up the density gradient; that is to accommodate more intensive development than the areas position in the region, might otherwise suggest.

It is also noted in various documents from the time, that the appetite among home buyers for more intensive forms of living in such peripheral areas was untested. That is, the final density of development was not fully known, neither were likely occupiers (first home buyers, empty nesters versus families, for example).

From a development perspective, more compact forms of growth in peripheral areas like Takanini faced challenges:

- Reduced accessibility to central locations
- Inland – away from coast, area of high amenity
- Uncertain market for intensive living.

These challenges often saw developers offer a 'complete package' of streets, open spaces and house design. This was to give potential buyers some certainty over the future direction of a new development. To an extent, this leads onto a need to provide a point of difference, including a sense of exclusivity, from surrounding suburban development.

While not explicitly stated, PDC were keen to promote a wider range of households in their area, particularly middle-income households that could assist with establishing a more viable and larger rating and economic base within the district.

In urban design terms, the push towards density in peripheral areas saw a strategic miss match between transport and urban density outcomes. The need to increase urban density was apparent at the time and Addison demonstrated that there was a market demand for more intensive living environments. The shift in density seen in Addison (and elsewhere across the region) was potentially much faster than anticipated.

The increase in density was expected to be accompanied by a shift from car to public transport dominated travel patterns. This shift has been much slower to materialise than the density shift. In part this is likely to be as a result of a slow response in terms of upgraded public transport infrastructure. Funding and delivery of improved public transport infrastructure has been a follower rather than a shaper. Even so, habits and behaviours also play a part.

### 5.2.1 Sub regional influences

Turning to the more immediate context, Figure 17 shows the pre-development condition, with a sparse road network; the rail line with Takanini station to the north-west and an emerging centre to the south-west. Bruce Pullman Park is a major sub-regional open space area to the east.



Figure 17: Pre-development conditions

In responding to these conditions, the designers of Addison had a number of choices as to what would drive the structure and density response.

Figures 18 and 19 set out the alternative drivers of structure, being on the one hand access to the rail line at the proposed Glenora station and reinforcing the sub regional shopping centre

developing along Great South Road (as indicated by the circles in Figure 18), or on the other hand, a structure based around Bruce Pulman Park and the concept of a neighbourhood centre within the development area (Figure 19). The two maps show the land use zonings of the Auckland Unitary Plan.

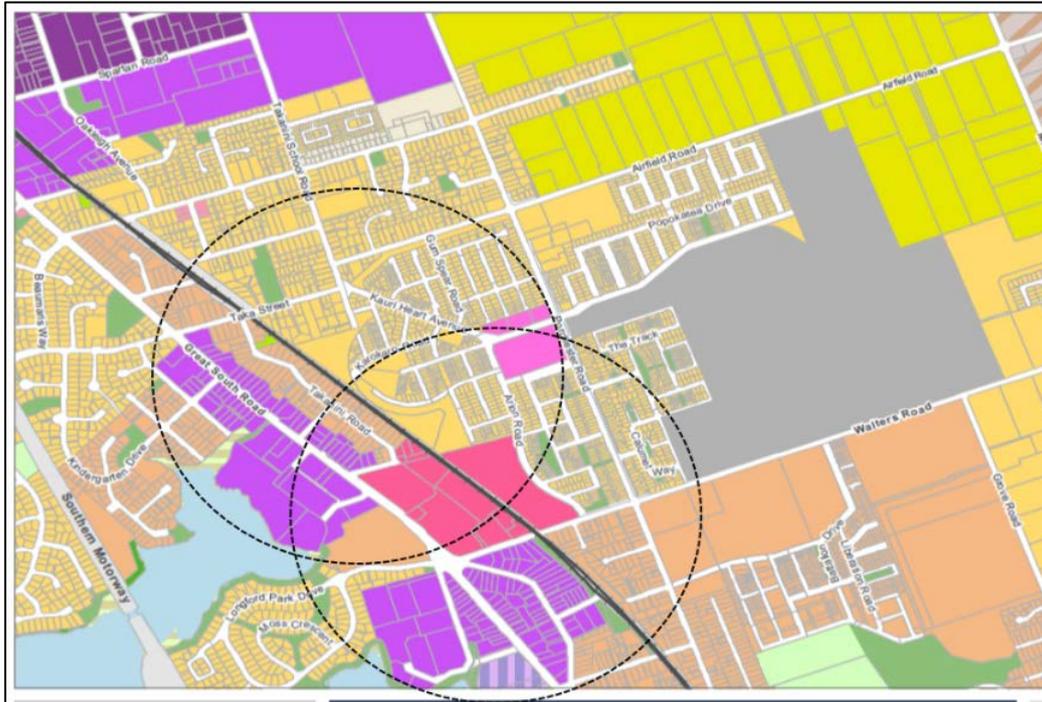


Figure 18: Sub regional drivers: rapid transit, commercial areas

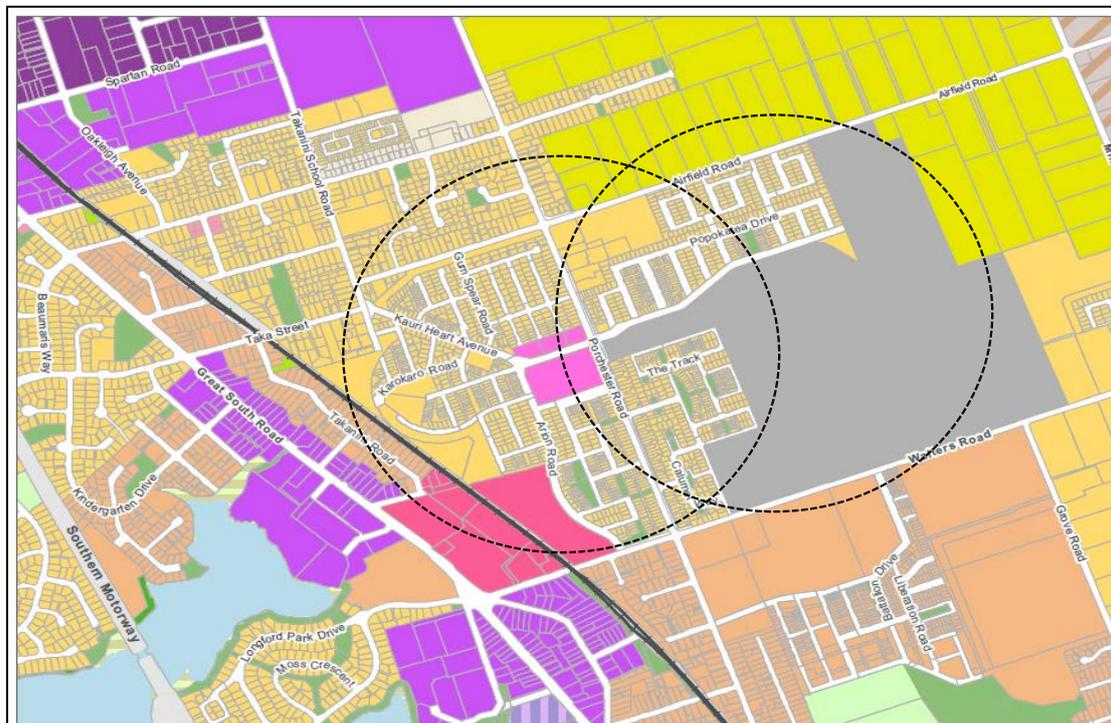


Figure 19: Local amenity drivers

The changing circumstances due to the removal of the proposed Glenora train station has meant that the second set of neighbourhood-level structural influences (neighbourhood centre and Bruce Pulman Park) have become more important as the development progressed.

The shift 'inwards' of the neighbourhood centre is an appropriate response to the Glenora train station not progressing. However, the layout of the first two stages to the south east has perhaps hampered some responses, while it is not clear if there was ever to be a sufficiently sized catchment to support the size of centre identified. In terms of layout, walking access to the proposed neighbourhood centre from the south-east is not direct, for example, while the design of Porchester Road is not conducive to easy crossing.

Over time, it is reasonable to expect Porchester Road to take on more of a mixed-use format. Options for small businesses to locate along the road would be positive for neighbourhood sustainability and public transport. The design of the road will need to adapt over time, with less of an emphasis on through movement.

The development's frontage to, relationship and accessibility to Pulman Park is muted in design terms. While Bruce Pulman Park itself lacks some character and amenity, reflecting its role as a regional sports park it is still the major amenity in the area. Road frontage to the park was achieved, which is helpful, but the street fronting the road in the first stages of development is only a minor road. From Porchester Road there is no strong vistas into the park, except for the intersection with Kuaka Drive where a remnant of a proposed larger swale / stormwater conveyance channel remains.

The design provided the ability to accommodate additional (future) density changes near the Southgate centre. This area has been rezoned for mixed use development, with commercial development predominating. Earlier designs contemplated more intensive housing such as apartments in and around the neighbourhood centre, but these concepts have not eventuated. At some stage some form of development will occur on the neighbourhood centre site, with a retirement village mooted to the north. A potential benefit of the over-provision of space for a neighbourhood centre is that it has left a large site that could accommodate apartment type developments.

## 5.2.2 Conclusion

In terms of the objective outlined, the area is appropriate for a greater density of housing than surrounding areas, having the features of proximity to large open space, commercial activities and public transport. The potential weakness is the overly ambitious approach to providing a less car dominated environment to support walking, cycling and public transport. Given the peripheral location of the site, car use and car ownership are always likely to remain high. In short, the unresolved urban design issue is reconciling inner city densities, but outer area rates of car ownership and car use. As subsequently discussed, the development only partially resolved these two outcomes.

The other weakness is an over emphasis on residential activities, and limited provision for mixed uses, particularly along Porchester Road. Alternatives to a neighbourhood centre do not seem to have been explored.

### 5.3 Block structure and layout

The focus of this set of criteria considers the extent to which the basic structure of blocks created by roads supports the intentions relating to regional context (including density), as well as support for quality development at the site level. The Residential 8 zone criteria referred to in the previous chapter essentially refers to these points.

Figure 20 shows the road layout and resulting block structure. The outcome can be described as a series of semi-connected pods. These pods, especially the two southern ones have limited legibility, having a disjointed grid. The northern two pods attempt a more regular pattern.



Figure 20: Road layout



Figure 21: Neighbourhood 'pods'

While the pods may be designed to limit 'rat running', they have the effect of also limiting through movement. A consequence of this is likely to be greater pressure on Porchester Road, which is becoming increasingly busy. Congestion is beginning to see some displacement of traffic into the pods as drivers seek to get around busy intersections. The secondary roads are not designed to cater for the traffic being diverted.

Urban design seeks to promote a flexible grid arrangement of roads, accepting that all roads have a through movement function, but within a hierarchy. The weakness of the Addison development is the limited 'connector' network; that is the roads that sit between Porchester Road / Walter Roads and local roads in the hierarchy. Connector roads provide through movement choices and strong connectivity. Conceptually, an eastern connector road that provided an additional (indirect) north-south route may have assisted with local circulation and park visibility.

Figure 22 shows this concept. The blue dashed line to the west indicates a possible western collector that could have complemented the eastern collector (shown black) and the east-west link formed by Kuaka Drive.

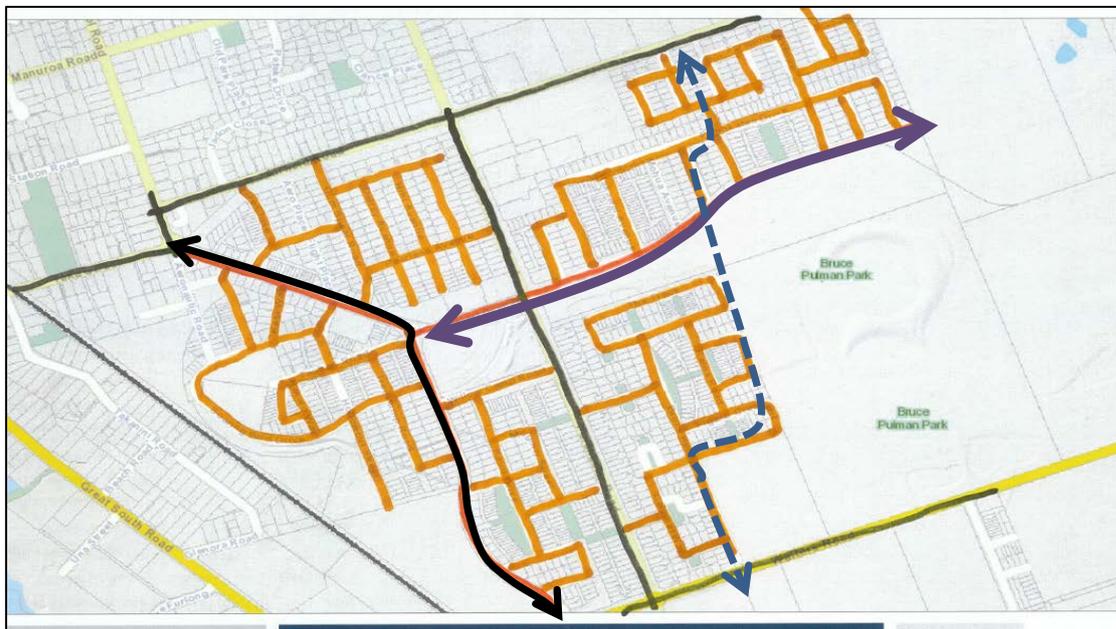


Figure 22: Missing western connector?

The disjointed road network appears to be designed to create an environment that supports the sale of housing product. That is, the road network sets in place the feeling of an enclave. To a certain extent this shifts wider public good outcomes associated with general movement through urban areas to the main roads in the area, and hence places a greater responsibility on Auckland Council to address the consequences.

The status of Porchester Road as an arterial road also limited the number of cross connections and required off-set intersections. This resulted in a number of walkway linkages on the western side of Porchester Road to maintain connectivity with roads on the eastern side. Generally, the use of walkway connections should be limited because of safety issues, especially if they provide access to bus stops and reserves. Crossing Porchester Road by pedestrians is likely to become

more problematic as traffic levels build, creating a degree of severance. This further reinforces a sense of four different pods and may limit some inter neighbourhood connectedness.

A further design choice was whether to concentrate commercial activities within a neighbourhood centre or enable more of a mixed-use pattern. The design adopted a centres-based approach. A feature of the area is that there are no mixed uses within Addison itself. Local services and activities in a mixed-use environment can reduce the need to travel out of an area, while they generate foot traffic that supports feelings of safety. While the Southgate centre is close by and walkable, for many residents, it is nevertheless a commercial area. Porchester Road could be a typical mixed-use corridor, generating some additional day time activity, and over time, it is likely that some mixed uses will appear. Porchester Road was identified in the Papakura District Plan as a Principal (Secondary Arterials). Through-movement of traffic is identified as the primary function. This may have led to reluctance to entertain mixed uses.

Turning to the extent to which the block structure supported housing designs that enable positive street interfaces, in general the structure of roads and back lanes creates very favourable conditions for dwelling designs that promote an active interface to the street (doors and windows facing the street, limited extent or no garage doors) and private rear areas. The two areas where there has been some compromise relate to some units being 'side on' to Bruce Pulman Park and the eastern frontage to Porchester Road. These two areas are highlighted in Figure 23.

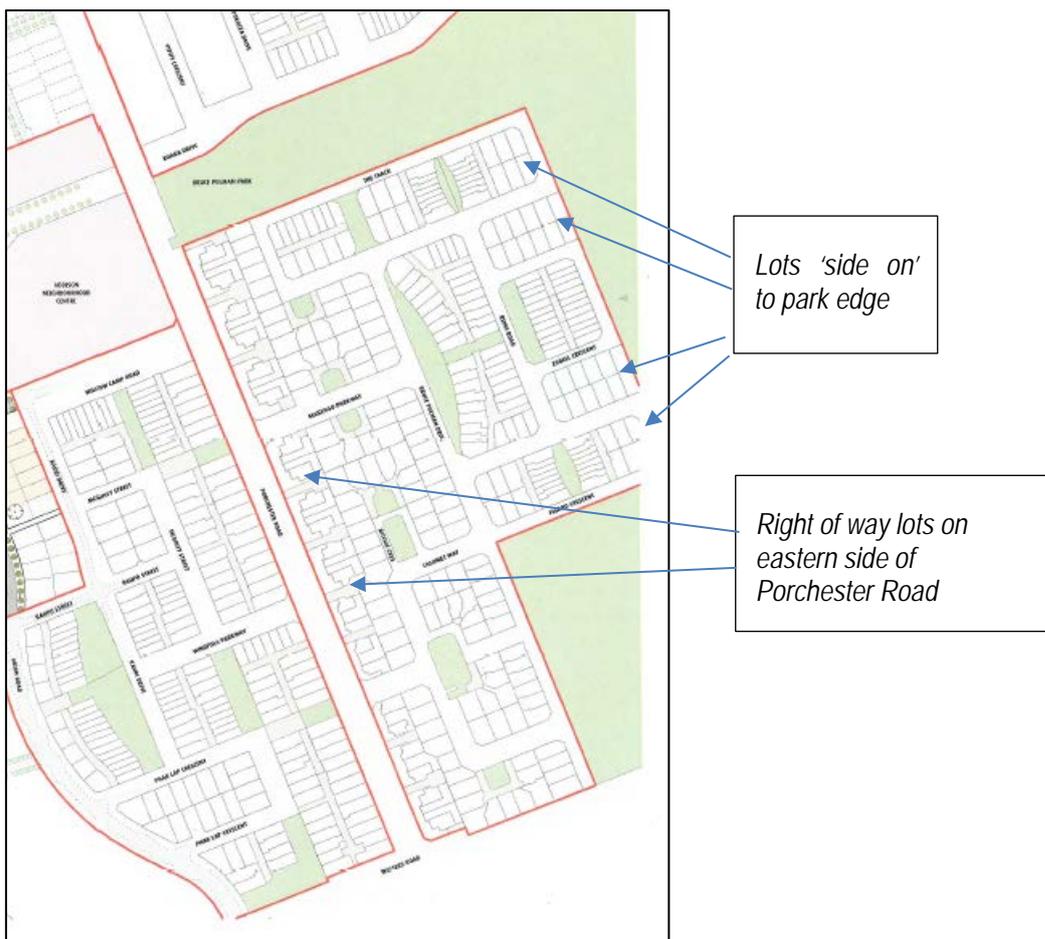


Figure 23: Block layout issues

The consequences of these compromises can be seen in the following photos



*Figure 24 Park interface responses*

Units that are side on to the park have planting on the park edge to retain privacy, but at the loss of a positive interface with the park. For those houses that front the small loop road, a positive interface is maintained.



*Figure 25 Porchester road interfaces*

Units are accessed by jointly owned right of ways to rear garages. While this ensures units still front the street, the on-site amenity of the units is compromised, while street amenity is interrupted by the right of ways that form narrow lanes

The western side of Porchester Road is a more successful resolution of the limited access condition, using rear lanes.

### 5.3.1 Public space: open space

The open space areas provided during the first phases of the development (the two southern pods) do not strongly accord with the criteria established in Residential 8 zone guidance. Figure 26 shows the range of open spaces in the two southern areas.

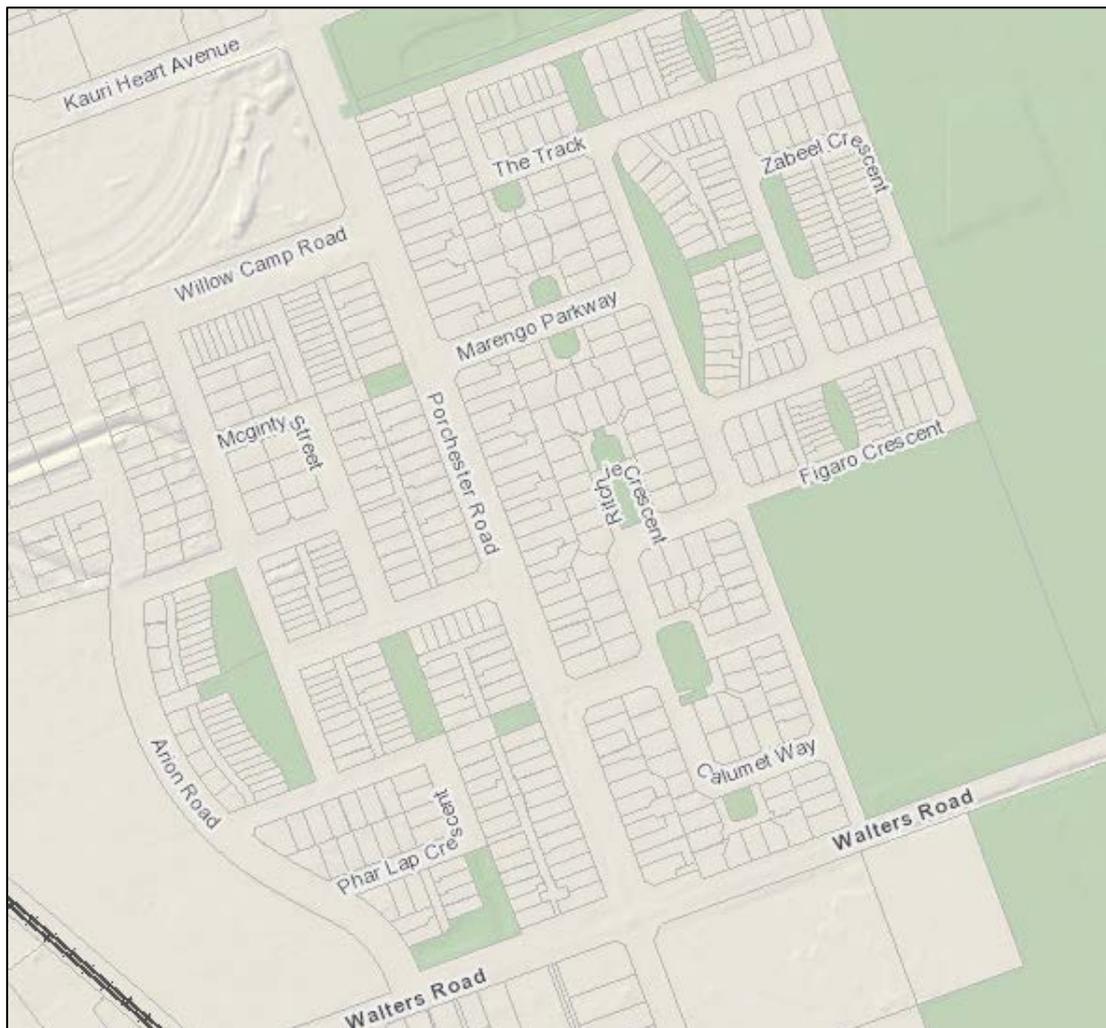


Figure 26: Open space areas – initial phases of the development

Some open spaces are designed to support the amenity of adjacent medium density development, providing for outlook and a green 'front yard'. This is the idea of small 'common areas' mentioned in the earlier case study reviews. These spaces add amenity to the adjacent development, but come at the expense of a fragmentation of the open space. As a result they have a limited neighbourhood amenity role, a weakness that is likely to become more apparent

over time. For example, there is no central visible and accessible public space that can cater for neighbourhood needs over time, whether that be playgrounds for children, space for teenagers (eg basketball courts) or outdoor meeting areas for older adults. The presence of the large Bruce Pulman Park may have influenced the open space design, with perhaps a consideration that a neighbourhood type reserve space was not needed as Bruce Pulman Park would provide this role.

Other open spaces act as pedestrian linkages. While the spaces may have been designed to promote walking and community interaction, experience of similar layouts shows that use of these spaces is often restricted by limited passive surveillance from adjoining housing and streets. This then creates safety issues. For example night time and after hours use of walkway only routes is often discouraged due to perceived safety issues. These routes also provide opportunistic means for criminals to avoid detection.

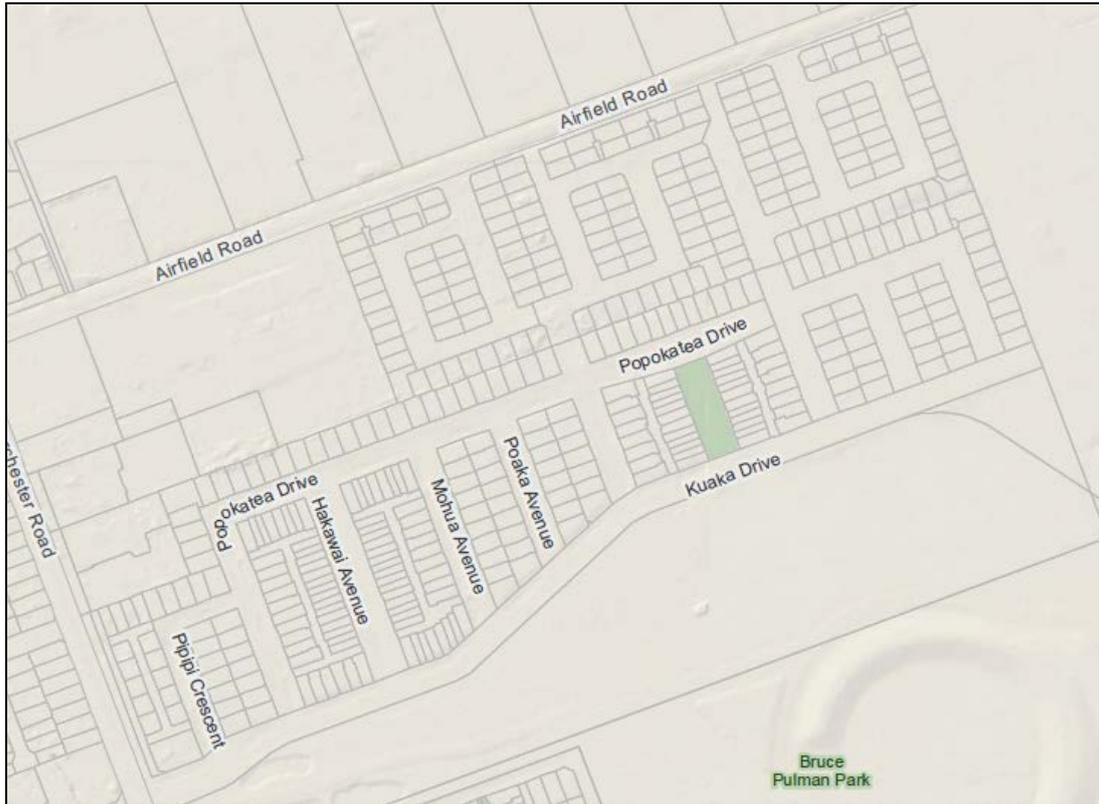
The landscaping response compounds the problems. The photo below shows the extent of screen type planting across the street edge of one of the green areas. This effectively creates a form of internal court for the houses fronting the green space, but does not control access into and through this court.



*Figure 27: Street-open space interface*

From an outcome point of view there appears to be limited functionality to the open space areas, with limited passive recreational benefits.

The two northern pods are possibly 'under done' when it comes to open space. For example, the north-eastern pod (sometimes referred to as the Avenues) relies upon swales and green infrastructure to provide a sense of openness within the development, although there is no functionality to these features as a recreational space.



*Figure 28: North eastern open space provision*

There is a stronger frontage to Bruce Pulman Park along The Avenues – i.e. Kuaka Drive, with the roads orientated to the north allowing for views down the roads to the open space. This helps to create a sense of openness to the park.

In the north-west, the latest plans (see Figure 29) show one larger neighbourhood park and a stormwater wetland. This arrangement of open space areas provides a stronger neighbourhood role for the open space. It also reflects the increasing cost of land and the likelihood that the initial stages of Addison had a relatively high provision of open space relative to density. Subsequently to make best use of open space contributions, one larger space is more effective than a number of smaller spaces.



Figure 29: North-western open space provision

### 5.3.2 Conclusion

The block structure has provided a suitable framework for housing designs, with most houses fronting streets and open spaces. There are a few cases where units are facing side onto a park interface, such as along Bruce Pulman Park. Perhaps the weakest block layout relates to the eastern side of Porchester Road where deep lots (and possibly access restrictions onto the road) have resulted in a number of dwellings being accessed via right of ways. This results in a poor living environment for these units.

Open space design for the initial stages shows a divergence from criteria established at the time. While the arrangement adopted may have supported the early take up of medium density housing product, the longer term consequences of high maintenance costs and lack of adaptability of the spaces is becoming apparent.

The more recent development to the north-west relies on a single space. The corollary of this is that street and house design have to shoulder more of the weight when it comes to the amenity of areas of medium to higher density development.

## 5.4 Road cross sections

The Addison development has an emphasis on narrower road carriageways with a predominance of 7.5m and 5.5m wide carriageways (and limited use of 3.5m carriageways), associated with a combination of indented parking bays and kerb side parking. The carriageway widths generally accord with the developer's advice on road design.

Addison was designed at a time of experimentation relating to residential road widths and cross section design. There was a strong move to reduce road widths to reduce the perceived dominance of cars in the neighbourhood context, as well as to compensate for more connected roading patterns that might otherwise result in more land being devoted to roading and less to developable lots. The incorporation of stormwater swales into road corridors was a further reason to reassess carriageway widths.

Previous reviews have noted that the developer sought to deploy different road designs to that commonly accepted by Papakura District Council, at the time. The developer sought their own advice (Wes Edwards: Liveable Streets for Liveable Neighbourhoods).

It appears that where kerb side parking areas are not marked out or parking is accommodated in indented parking bays it was assumed that some self-management of parking would occur so that roads were not unnecessarily blocked. However, a casual observation of Addison suggests that roads often become effectively one lane wide when heavily parked. The greater application of no-parking road markings would help.

The 5.5/6m wide carriageway option is used extensively in Addison. This cross section should only be used for short sections of road, either where no street parking is possible (such as no stopping lines are used), or perhaps where parking is unnecessary. Observation indicates that this carriageway width has been 'over used', for example in the north-eastern pod. Figure 27 shows one long stretch of road with a narrow carriageway width (marked with a yellow line). This results in a road that becomes frustrating to drive down, and which can block service vehicle access.



Figure 30: The Avenues roading pattern

The road highlighted in Figure 27 has numerous intersections along it, and it has a role in linking together a range of roads. This is important for neighbourhood movement and legibility.

In other cases, in order to accommodate swales and rain gardens for stormwater management, carriageway widths are generally narrow, and indented parking bays restricted in their application, within a 18m to 20m wide road reserve width.

#### 5.4.1 Conclusion

The review of outcomes suggests a complex set of influences on road design. These influences extend beyond the role of a road in a movement network. They extend into relationships between the role and function of the road and the adjacent building form and design. Factors that need to be taken into account include:

- The ability of a road design to accommodate changes in circumstances over time, such as more density than when original plans were developed, different household sizes, different rates of car ownership
- Assumptions about changing behaviours: Limited car parking would see more public transport use, walking and cycling, while people / households with lower car ownership will self-select to live in the area
- People using garages for storage, relying on the road to provide for car parking
- Correlation between use of rear lanes in developments and road designs that need to accommodate additional parking demands.

### 5.5 Public / private interfaces

Generally good 'interface conditions' (the visual and physical linkages between the front of a house and the street) have been established between dwelling units and adjacent road corridors at Addison. This has been achieved through ensuring windows and doors face the street, low planting and no high front fencing in front yards. Private covenants have probably assisted with the widespread maintenance of these interface conditions.

The open interfaces to the street may have helped to reduce some types of public / street crime and potentially crime on the property i.e. no front fences so visibility between front of houses and the street is improved.



Figure 31: Street interface conditions

Having said that, some street reserves block sightlines between dwellings and the street, with street tree planting at a height and scale that limits passive surveillance from dwellings. It is unclear if the street trees will grow to a point that their crowns rise above first floor levels.

Some dwellings lack enough transition space. Transition space provides a means of balancing the competing demands for passive surveillance of streets from occupiers of buildings, while maintaining a sense of privacy for occupants. Transition space may be in the form of a front yard setback or change in height between street level and an elevated floor level of the ground floor space. These types of measures avoid the need for high fencing or substantial screen planting along front boundaries.

In Addison, potential issues over transition space can be seen in the number of blinds drawn on windows facing the street during the day. While the use of blinds may be to control sun exposure, they may also reflect concerns over privacy.

An issue which is not clear, but potentially of some significance, is the extent to which properties are not occupied during the day, for example because occupants may be working or attending education. The positive safety benefit of residents having their 'eyes on the street' is therefore diminished during the day. To compensate for this, is the need to increase through movement by the wider community / general public generated by street patterns, mixed uses and open spaces.

The use of rear lanes is a feature of Addison. Rear lanes provide for vehicle access to the rear of properties, avoiding the need for constant vehicle crossings along street frontages, as well as street frontages being dominated by garages. Rear lanes are often associated with terrace type housing.

This design of the rear lanes was the subject of some debate between the developer and PDC as to safety, security and maintenance issues. Several arrangements are present, as set out in Figure 32 below.

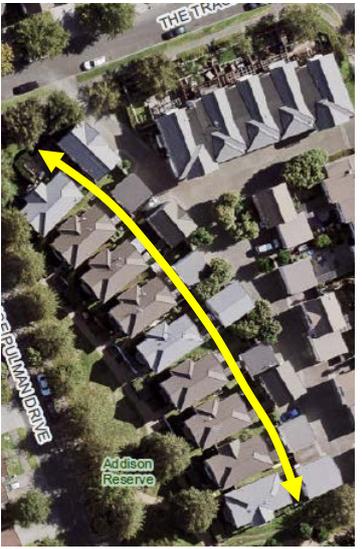
		
<p>This H shaped rear lane configuration limits visibility into the interior section. Multiple routes in and out may assist with circulation of vehicles but may facilitate some types of crime.</p>	<p>The curve in the rear lane restricts visibility along its length.</p>	<p>Likely to be the safest from an urban design perspective. The rear lane is short and its entire length is visible from one end to another from a public street</p>

Figure 32: Back lane configurations

Urban design advice would be to keep rear lanes short and to ensure that there is an open sightline from a street, from one end of the lane to another. Visual connectivity helps to promote passive surveillance from passers-by and improves the sense of safety.

The middle option presents some trade-offs in urban design terms. The curved row of houses forms a central focal point for the development. The group of houses terminates the view from one of the main roads in, and the open space is the largest reserve within the centre of this part of Addison. The curved facade helps to assimilate the row of terrace housing into the wider urban fabric, reducing visual repetition. Yet the associated curved rear lane limits sightlines into and out of the rear lane. The accessory units above garages are designed to mitigate potential safety and crime issues within rear lanes. They also provide housing choice. These are positive benefits, but casual observation of the lanes in Addison suggests that they may not mitigate all risks. This may be because they are occupied for only part of the day, for example. In other words, short straight rear lanes with accessory units is likely to be a better outcome than curved lanes of 'H' shaped lanes with accessory units.

Maintenance issues with Joint Owned Access lots associated with rear lanes are common. Generally, when a driveway gives access to two or more properties, then the responsibility for its maintenance is shared jointly by the owners of those properties. Where there are multiple owners, then it can be hard to reach agreement as to sharing of costs for maintenance or remediation (like additional lighting). An easement document or registering a set of covenants against the titles to the lots, specifying how the responsibility for maintenance of the driveway is shared is one way to address this. Addison has this in part.

A further issue with rear lanes is the flexibility to accommodate 'spill over' parking on adjacent roads. The CHRANZ case study noted:

*Rear access to garages has been designed to be safe and with units over garages providing eyes on the street that assists with this. However, the area does not leave room for cars to be parked outside garages and since many households use their garages for other purposes this creates a squeeze on parks provided elsewhere.*

This experience suggests that use of rear lanes should be correlated with street designs that can accommodate additional parking demands.

### 5.5.1 Conclusion

Generally, Addison demonstrates the benefits to street amenity of positive open interfaces between homes and streets. The absence of high front fences, doors orientated to the street and low planting in front yards creates a strong sense of amenity. The use of rear lanes assists with this outcome, however there are some design deficiencies, along with issues associated with the application of rear lane typologies and their flow-on effects into street design.

## 6 Lessons

Based on the assessment undertaken in the previous chapter, this section raises several questions and issues as to the lessons learnt.

### *Keeping structure plans and masterplans 'up-to-date'*

There was a structure plan in place to guide the development, but key features relating to this plan were modified as the development progressed, such as the Glenora train station not eventuating and the neighbourhood centre shifting to the east. Some of these changes required a revised structure plan, inserted by way of Plan Change 12.

The shifting context of the area highlights the costs and benefits of structure plans. On the one hand they provide some certainty on key features, yet on the other hand they can become out of date as development progresses.

Structure plans inevitably do not get to a level of detail or specificity over many of the design elements that matter at a neighbourhood or site level. The assessment of Addison suggests that a more detailed structure plan may not have had much influence on outcomes associated with road design, block layout and open space arrangements.

### *Stronger guidance around more legible and connected roading patterns*

A more connected, legible roading pattern may have helped to address some access, parking and crime issues, as well as improved neighbourhood amenity. Subsequent experience with places like Hobsonville suggests that concerns about excessive speeds, rat running and the like, with more legible, connected networks have reduced. However, issues over car parking and service vehicle access would remain.

### *Getting open space networks right*

The lack of a clear and consistent open space strategy is apparent. In the first stages the limited recreational role of the open space areas, their fragmented nature and their emphasis on providing amenity outlook areas for housing has likely seen little informal activity being generated by the open spaces, which in turn has potentially weakened outcomes associated with community interaction and 'eyes on the street'. Arguably, subsequent stages of the development lack sufficient open space, given the densities present. The final stages of the development has seen a larger central neighbourhood space proposed.

### *The importance of road widths / cross sections*

Addison was a period of experimentation over road design, with pressure to move away from prescriptive roading standards to a more performance-based approach. There was also a desire to 'front end' a shift away from private vehicle use towards walking, cycling and public transport use.

The review highlights complex issues associated with the interactions between land use and transport patterns, and determination of road functions at an early planning stage versus actual density and built form that eventuates.

To an extent, when considering roading patterns that suit medium density environments, urban design principles look to antecedents such as inner-city suburbs developed before WWII as to patterns of roads, blocks and activities that promote a range of modes and generate substantial community interaction. While inner city areas have narrow carriageways and often limited on-street parking, inner city areas have a more legible, simpler roading patterns and lower car ownership rates than Addison, and much higher availability of public transport.

A more over-arching theme relates to long term flexibility of roading networks to cope with changes in resident profiles, population densities, and modes of travel. There appears to be insufficient attention at design stage to 'adaptability' and 'robustness' to changing circumstances, such as:

- Greater density than anticipated
- Different households (big, small)
- Different rates of car ownership
- Terrace type housing and use of rear lanes.

In turn this suggests the need to build in some 'resilience' into designs and to co-relate road design to not just transport and safety functions, but also adjacent development types. For example, use of rear lanes, while improving street amenity, appear to considerably increase demands on streets to accommodate parking demands.

#### *Benefits of connectivity and activity*

An issue which is not clear, but potentially of some significance, is the extent to which properties are not occupied during the day. The positive safety benefit of residents having their 'eyes on the street' is therefore diminished during the day. To compensate for this, there may be the need to increase through movement by the wider community / general public, such as by way of street patterns, mixed uses and open space designs that encourage transit through neighbourhoods.

## 7 Revised Assessment Criteria

### 7.1 Rethinking urban design principles

Review of Addison, as well as other recent greenfields and larger brownfields subdivision and developments across Auckland known to the author, suggest the need for more fluid or dynamic approaches to the construction of urban design principles. At the same time, the review suggests the benefits of simplicity in design and layout that provides an element of adaptability to a design.

The review suggest that urban design principles need to be refined to better address:

- The dynamic, complex nature of new urban areas and the tensions with developers attempting to provide a static 'finished product' to buyers versus the organic evolution of neighbourhoods;
- Larger scale urban development's where the first critical design issue relates to layout and urban structure, often put in place well ahead of subsequent housing involving multiple players and investments in transit and other infrastructure;
- Managing the RMA related elements of a development, such as externalities, provision of public goods and infrastructure and time inconsistent preferences of market led development (such as the underweighting of the needs of future generations).

Urban design principles can be modified as follows, considering recent guides such as the Auckland Design Manual and the content of guides such as People Places and Spaces: A Design Guide for Urban New Zealand.

Principle	Description
Intensity over time (cf consolidation and dispersal)	<p>New urban areas need to support compact development. While developments are often responsive to changed preferences and acceptance of higher densities, urban structure is not as responsive.</p> <p>The design should accommodate changes in building density over time. Larger developments take many years to complete and over that time, prices, costs and preferences will change. In general, there is a step up in intensity over time. This then influences demand for road space, open space and other resources. Design should build in the ability for densities to increase over time.</p>
Increased diversity (cf diversity and adaptability)	<p>Market-led development can often emphasize a consistent product range to ensure marketability to selected target markets.</p> <p>Having a diverse range of lot sizes and building types helps support community outcomes over the longer term.</p> <p>Mixed uses create benefits for community interaction and local economic development. They also assist with dealing with interfaces along busy main</p>

Principle	Description
	roads.
Simple connectivity (cf integration and connectivity)	<p>Market-led development tends towards controlling access into and out of developments, limiting through traffic and relying on other routes to provide for through movement functions. This imposes costs on other urban areas and/or the public.</p> <p>The movement network should assist with managing and distributing trip patterns. Simple logical network patterns are preferable to overly designed, complex patterns, even if this may be less visually appealing when presented in plan form. Separated walking and cycling only routes should be limited to where they cross open space. Otherwise, safe walking and cycling should routes be incorporated into the road design to ensure safety for users.</p>
Natural legibility (cf legibility and identity)	<p>Market-led development tends to emphasise a separate identity to other development for marketing purposes. This can be at the expense of legibility for other users of urban areas and lead to over designed layouts within a development.</p> <p>Simple, coherent layouts are better than convoluted or overly designed layouts.</p> <p>A sense of identity comes from integration of the natural and built environments, open space and mixed building forms into a development.</p>
Integration (cf environmental responsiveness)	<p>The need to retain stream corridors, sensitively manage coastal edges and protect areas of native vegetation is generally recognised, the degree of integration varies. On-site management of stormwater leads to further integration issues.</p>
Resilience	<p>Design-led processes can tend towards a complete 'package' of streets, houses and landscaping. This can see the loss of resilience to pressures and changed circumstances than suburbs that develop more incrementally can display. This can make future adaptation to changed or different patterns of use very expensive to remedy.</p> <p>Flexibility and resilience to changing circumstances is fundamental to the success of neighbourhoods. Adaptability and resilience to change requires a degree of 'extra capacity' be built into neighbourhood design.</p>

From the above, the following urban design principles can be developed:

Principle	Guidelines
Greater intensity over time	<ul style="list-style-type: none"> <li>• Structure / block sizes can accommodate a range of housing types and intensities, over the long term.</li> <li>• Higher density residential development is planned for around neighbourhood focal points that include transit stops, commercial areas, schools, community facilities, green corridors.</li> <li>• Areas of taller development are identified, even if for the future. These places have space to accommodate transitions to areas of lesser height.</li> <li>• Areas likely to accommodate additional density have roading patterns that can cope with additional demands for car parking and access to open space.</li> </ul>
Increased diversity	<ul style="list-style-type: none"> <li>• Have a mix of useable section types, sizes, uses and activities, which facilitate diversity and adaptability.</li> <li>• The design can:               <ul style="list-style-type: none"> <li>➤ take additional density / height over time, over and beyond current plans</li> <li>➤ accommodate smaller infill type units like accessory units in some areas</li> <li>➤ accommodate and support mixed uses / small businesses, such as lots with frontage to main roads.</li> </ul> </li> </ul>
Improved connectivity	<ul style="list-style-type: none"> <li>• Roads provide movement choice and connectivity for residents, visitors and the general public, while balancing costs, safety, and privacy.</li> <li>• Ensure that there are multiple routes in and out of neighbourhoods. Connect new streets to existing streets in adjacent developments and plan for future connections to land that has yet to be developed.</li> <li>• Layout collector roads to be direct and continuous through the neighbourhood so dwellings are within 400 metres of transit.</li> <li>• Layout local street patterns so that development blocks are easily walkable – between 150 and 250 metres in length.</li> <li>• The design should integrate car, walking and cycling in the one network.</li> <li>• The design ensures the safety of pedestrians and cyclists by managing vehicle travel speed and provides equally for the four major modes (walking, cycling, passenger transport, vehicles) in a way that will appeal to the users of each.</li> <li>• Plan development based on rear lanes or rear parking areas at important neighbourhood focal points such as mixed-use activity areas, surrounding parks, greenspaces and areas of greater intensity.</li> <li>• Ensure streets in these areas can accommodate a range of car</li> </ul>

Principle	Guidelines
	parking demands (residents, visitors, local businesses).
Legibility and safety	<ul style="list-style-type: none"> <li>• A clear and consistent road hierarchy helps to create accessible, legible and safe subdivisions and helps people understand how to get to main routes and know when they are on them.</li> <li>• Building envelopes (height, density) help to mark key points.</li> <li>• Design carefully manages the difference between public space and private space so that ownership is clear at all times.</li> <li>• Avoid creation of separated walkway networks.</li> </ul>
Better integration	<ul style="list-style-type: none"> <li>• Avoid any changes to stream networks.</li> <li>• Ensure natural features/ resources are integrated into a connected network of open spaces and green corridors.</li> <li>• Design locates amenities where they have maximum exposure and accessibility and will attract users.</li> <li>• Make these networks easily accessible on foot or bike from homes throughout the neighbourhood through road layout.</li> </ul>
Improved resilience	<ul style="list-style-type: none"> <li>• Consider the long-term maintenance consequences of components that have a finite lifespan, and for any other burdens (in terms of maintenance needs, use restrictions or financial costs) that may impact on future residents.</li> <li>• Build in a degree of redundancy / spare capacity into the design of roads, open spaces and areas for community facilities to accommodate future changes, additional pressures.</li> </ul>

## 7.2 Re-assessment of Addison

Addison would perform well against many of the revised criteria presented above.

The overriding conclusion would be that Addison is a successful demonstration of medium density housing environments, but in getting to that point some short-term considerations have been given greater weight than long term considerations. These include:

- An overly complex roading pattern in some areas that is perhaps aimed at supporting initial confidence in the character of the development rather than a roading pattern that supports more enduring outcomes;
- Road design (e.g. carriageway width) that does not fully address the demands of associated development and the likelihood of changing household characteristics and demands over time; and
- Public resources within the development, such as open space areas, not playing a strong role as neighbourhood focal points.

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