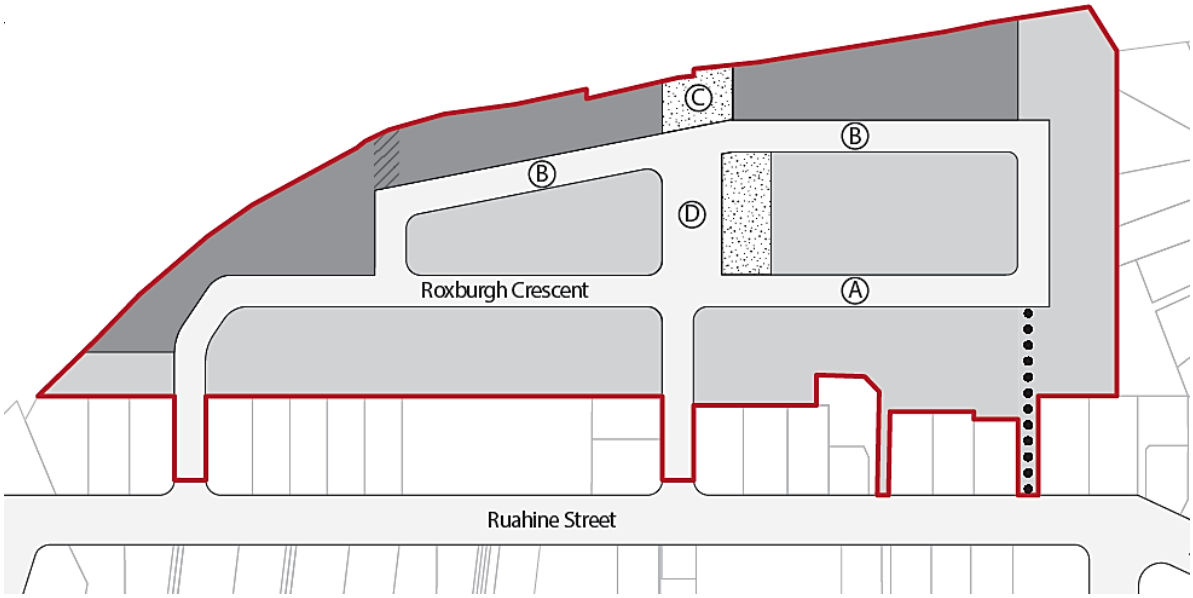
Roxburgh Crescent
Urban Design Report



Prepared for
Palmerston North City Council

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Contents

1 Introduction

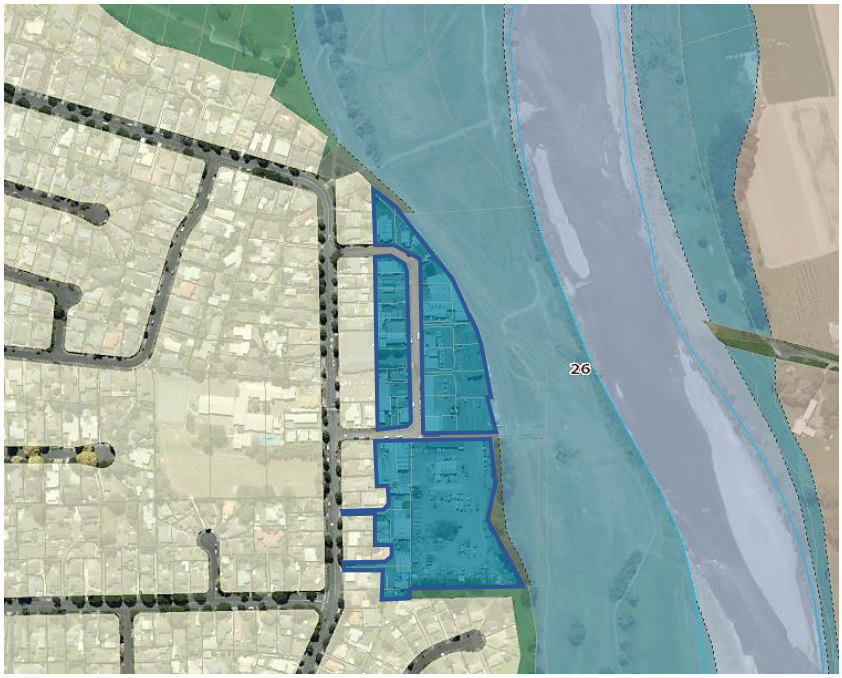


Fig.1 Existing Roxburgh Crescent industrial area indicated in dark blue (PNCC Operative District Plan *modified*).

This report describes development intentions for approximately 4.5 hectares of industrial land on Roxburgh Crescent in the suburb of Hokowhitu (see Fig.1). The report contains a Structure Plan that enables conversion to residential activities within a new Roxburgh Residential Area (RRA). The Plan is supported by a suite of design principles and spatial strategies, which are founded on a systematic analysis of site and context.

In 2018, McIndoe Urban Limited (MUL) was commissioned by PNCC to help devise a planning and development approach for the Roxburgh Crescent area. Several scenarios were prepared in consultation with major landowners. Following testing and evaluation, MUL identified a preferred Structure Plan that incorporates an extension to Roxburgh Crescent along with new local streets and reserves.

Following the release of a new National Policy Statement (NPS) on urban growth, MUL were asked to modify the Plan to accommodate higher density. The Roxburgh Crescent area does not qualify for inclusion within the new Medium-Density Residential Zone (MRZ). However, the final Plan relaxes some Residential Zone Development Standards and enables Multi-Unit Development. These provisions recognise the special opportunity presented by comprehensive planning and exceptional open space amenity.

The Plan contains a set of proposed development standards. These encourage compact lots and range of housing types including semi-detached and fully attached dwellings. The standards also recognise unique site features such as the stop bank and the river corridor.

2 Context

2.1 Introduction

Section 2 describes existing conditions and their implications for the redevelopment of land at Roxburgh Crescent. Spatial patterns are examined at three scales: site, neighbourhood and city-wide. This section also includes a brief history of the Roxburgh Crescent industrial enclave and an overview of strategic objectives for population growth and residential development in Palmerston North. Section 2 concludes with a set of findings that help to shape the design objectives and principles identified in Section 3.

2.2 Strategic context

2.2.1 Population growth

Over the next 30 years, population growth and household formation are likely to create an annual demand for over 400 new dwellings. Palmy's 2021 *Housing Capacity Assessment Report* and the Government's *National Policy Statement on Urban Development Capacity* (NPS-UDC 2020) give added impetus to the Council's proactive approach towards urban expansion and intensification. Both documents require PNCC to increase housing capacity. This imperative includes expanding housing options to provide smaller units and a wider range of dwelling types. The 2021 *City Growth Plan* also calls for "a more diverse range of housing types…[including] multi-unit options, particularly in brownfield developments".

2.2.2 Targeted growth areas

Over the next 30 years, much of Palmerston North's growth will occur as infill or within large greenfield subdivisions at Aokautere, Ashhurst, Kākātangiata and Whakaronga. Collectively, smaller development opportunities such as those at Mātangi (Whiskey Creek) and Hokowhitu also make a significant contribution to housing supply. The *Growth Plan* identifies Roxburgh Crescent as a further development opportunity, noting that a process is underway to rezone industrial land for housing. Like Hokowhitu, Roxburgh Crescent is a brownfield site in an established residential area with good access to existing services and ample recreational space. These attributes mean that multi-unit development and other sustainable housing forms are viable and consistent with the G*rowth Plan.*

2.3 Location

2.3.1 Absolute urban edge

Roxburgh Crescent is located on the eastern margin of Hokowhitu between Ruahine Street and the Manawatū River corridor (see Fig.2). As the crow flies, the site is less than 3km from The Square. The most direct route of travel between these points measures just under 4km. In comparison, the majority of Kākātangiata is more than 5km from the city centre, and new subdivisions at Aokautere are at least 6km away. Although relatively close to the centre of town, Roxburgh

Crescent might be termed “absolute urban edge”, because it occupies a persistent natural boundary between the built-up area and open landscape. The river guarantees the permanence of this relationship. On the eastern side of this waterway, the flood prone Staces Road area is unsuitable for urban development.

2.4 History

2.4.1 Oxbow lakes

The earliest comprehensive map of Palmerston North identifies the Hokowhitu area as “Native Land” (see Fig.3). The area is distinctive for its collection of oxbow lakes, the largest of which is identified as “Te Ngutu Lagoon”. These water features – valuable food sources for local Rangitāne – help to explain why Hokowhitu was slow to develop. The lagoon is still evident in the trajectory of Churchill Avenue and in the subdivision pattern and vegetation within the block bounded by Albert Street, College Street and Victoria Street.

2.4.2 Farm lots

Hokowhitu’s rural subdivision followed a different logic from that of adjacent urban land (see Fig.4). Instead of conforming to the town grid, farm lots were laid out diagonally. Elongated parcels ensured that each property had a river frontage. The long sides of the lots are parallel–or nearly so–and more-or-less perpendicular to the river.

2.4.3 Suburban lots

Hokowhitu’s contemporary spatial structure shows little evidence of this pre-urban subdivision pattern. By 1895, the area had been surveyed for suburban lots accessed from three streets: Manawatu Street, Pahiatua Street and Ruahine Street (see Fig.5). Streets and lots bear no relationship to earlier rural parcels, which are depicted on the Plan with broken lines. This lack of congruence suggests that the underlying farm lots were unoccupied or remained in single ownership. Albert Street (formerly Scandia Street) continues the town grid as far as the river. However, the rest of the street layout is irregular because it responds to the adjacent waterway. An orthogonal layout occurs locally at the junction of Pahiatua Street and Ruahine Street (previously Manawatu Street). Significantly, this more regular subdivision pattern includes the area of the proposed Structure Plan. It is also noteworthy that the relevant section of Ruahine Street approximates a north-south alignment.

2.4.4 Residential construction

Despite being subdivided for housing in the nineteenth century, Hokowhitu did not develop a suburban character until the mid-twentieth century. A 1956 aerial photograph shows residential construction on Pahiatua Street is well advanced, and there are pockets of houses on the western side of Ruahine Street (see Fig.7). The remainder of the area is still in agricultural use. A single industrial facility is set back from Ruahine Street behind a row of house lots. This site has direct access to the river, which may have been a source of gravel. The river itself has yet to be developed as a recreational resource.

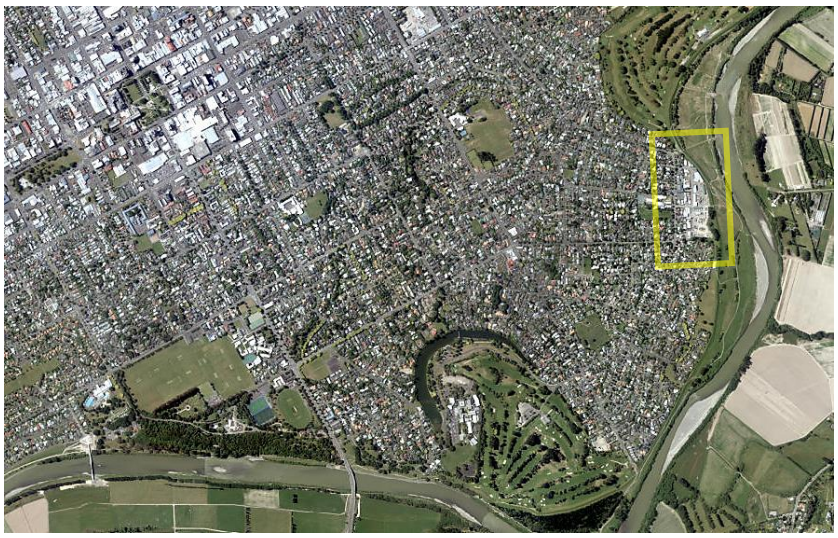


Fig.2 Location of Roxburgh Crescent industrial area (LINZ/Local Maps).

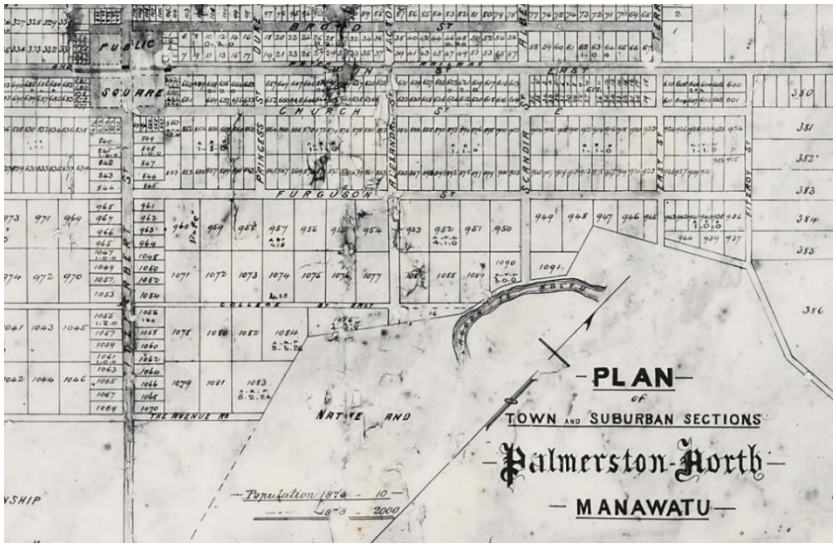


Fig.3 Plan of Palmerston North, circa 1878 (Heritage Manawatū).

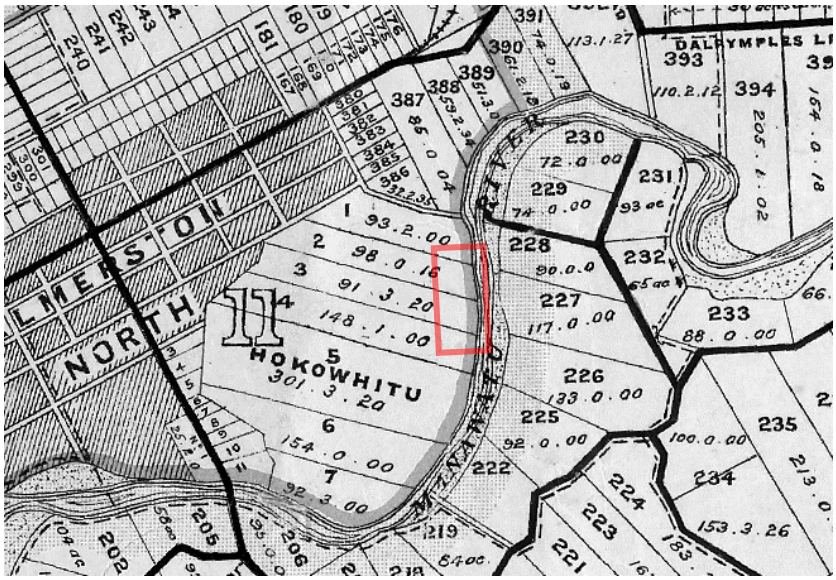


Fig.4 Farm lots, no date – Roxburgh Crescent area identified (Heritage Manawatū).

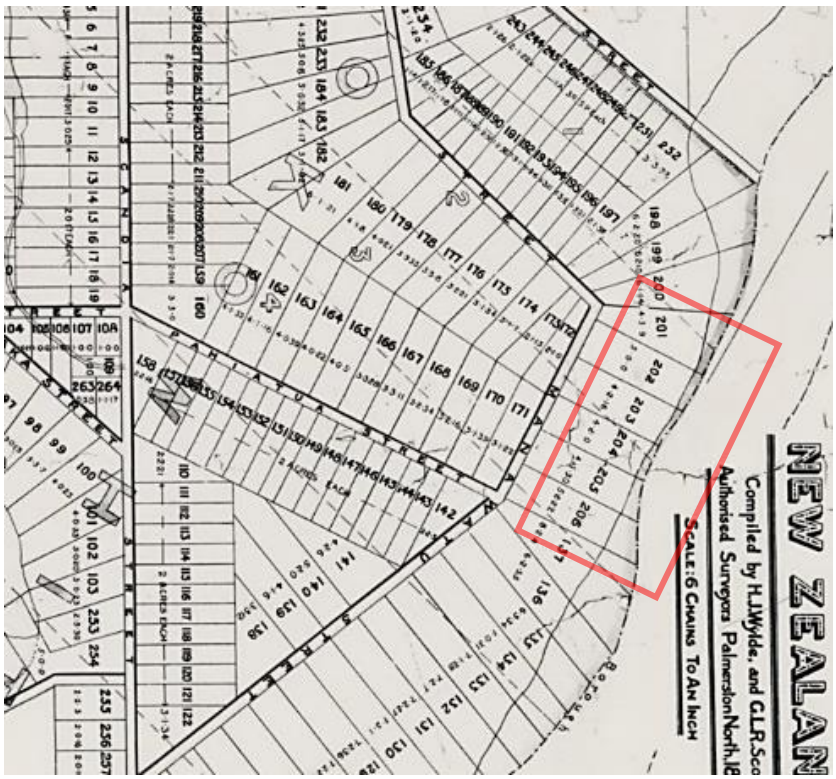


Fig.5 Plan of Palmerston North, circa 1895 – Roxburgh Crescent area identified (Heritage Manawatū).

Fig.6 Persistence of 1895 property boundaries within contemporary cadastral plan of the Roxburgh Crescent area.

Fig.7 Aerial photograph of Hokowhitu, 1956 (Heritage Manawatū).

2.4.5 Implications of historical patterns

Delayed suburban development helps to explain the anomalous location of industrial activities at Roxburgh Crescent. Persistent property boundaries inscribe a single cadastral grid on Pahiatua Street, Roxburgh Crescent and parts of Ruahine Street (see Fig.6). The shared geometry provides a common spatial structure for existing housing and new residential development within repurposed industrial land.

2.5 Urban structure

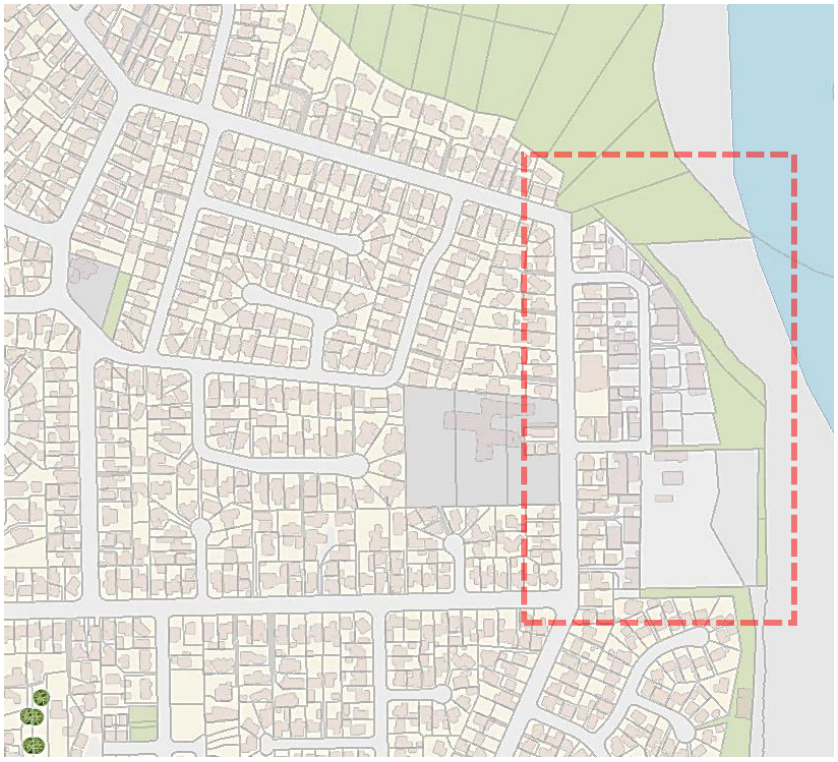


Fig.8 Cartographic base map with the Roxburgh Crescent area indicated (LINZ/PNCC Local Maps).

2.5.1 Street pattern

Hokowhitu lies outside the uniform street grid of the central city and older suburbs (see Fig.9). This orthogonal geometry typically ends at Te Awe Street in the south and Albert Street in the east. Beyond this area, residential development dates from the 1950s and 60s, when planners and surveyors favoured complex layouts containing curved streets and cul-de-sacs. Newcastle Street, Goodwyn Crescent and Surry Crescent exemplify these newer subdivision practices. Further examples are Waterloo Crescent, Dorset Crescent and Tilbury Avenue. Irregularity generally increases towards the river.

Fig.9 Grid fragments and non-orthogonal street layouts (existing industrial area indicated in pink).

In the neighbourhood of Roxburgh Crescent, this macro spatial structure is complicated by a partial return to orthogonality. The generators are Pahiatua Street and Ruahine Street, which intersect at right angles. These routes establish a local grid fragment extending from Roxburgh Crescent in the north to Antrim Place in the south. The grid's western outliers are Ascot Street and The Glen, the latter of which is only 100m from Hokowhitu's centre. This grid fragment is delineated in green above (see Fig.9). As a result, the site and its immediate environs possess a rectilinear spatial structure that lends itself to fine-grained subdivision.

2.5.2 Movement network

The local path network offers excellent north-south connectivity via Ruahine Street and an extensive system of walking/cycling trails within the river corridor. These include the Manawatū Riverside Walkway, which forms part of the Te Araroa Trail. By comparison, east-west connectivity is quite limited. There are few cross streets on Ruahine Street and industrial land blocks access to the river (see section 2.5.3). Public transport is readily available. Bus routes 109 and 110 run along Ruahine Street. These link the area with Hokowhitu local centre and The Square.

2.5.3 Open space network

To the north, the Ruahine Street reserve is contiguous with the Palmerston North Golf Club. To the south, Waterloo Crescent Reserve occupies a broad expanse of flat land outside the stop bank. The grounds of Winchester School provide a further recreational resource. Adjacent to the site, the river corridor is broad and offers extensive recreational opportunities. Consequently, the Roxburgh Crescent area is close to a range of open space amenities.

However, visual and physical access to the river is restricted. The 300m long Higgins property blocks physical connections to the stop bank. Almost 700m separates public access points at the Ruahine Street reserve and Ayr Place. The stop bank and the lack of east-west thoroughfares also limits visual contact with the river corridor. The Structure Plan provides an opportunity to improve public access to this open space amenity.

At its northern end, the site closely follows the stop bank. To the south, the intervening open space is up to 40m wide. The Riverside Walkway separates from the stop bank just south of the Ruahine Street reserve. So, most of the site's eastern boundary currently has little direct interaction with recreational activities along the river.

2.6 Urban fabric

2.6.1 Neighbourhood analysis

This section of the report surveys local residential fabric using PNCC's online cartographic map combined with historical records. Analysis occurs at two scales: neighbourhood and street-specific.

At a neighbourhood scale, the arrangement of property boundaries reveals a lengthy period of intensification but no overall plan. With few original streets (Albert, Manawatu, Ruahine), most of the initial suburban parcels are wide and very deep. As such, they invited further subdivision with cul-de-sacs serving mid-block locations and rear lots filling out remaining inaccessible sites. Fig.10 depicts the prevalence of cul-de-sacs and rear lots in the vicinity of the Structure Plan. These conditions reduce permeability and limit residents' engagement with the public domain.

The Roxburgh Crescent industrial area corresponds to five large rectangular lots from the original suburban subdivision. Fragmentation into smaller properties has already occurred. Along the western side of Roxburgh Crescent, parcels resemble house lots rather than commercial or industrial sites. Indeed, the subdivision pattern here is similar to that on Ruahine Street. The underlying lots are larger within the Higgins property on the eastern side of Roxburgh Crescent. However, these cadastral lines are less significant, because much of this land is in common ownership (see Fig.12). Over the years, Higgins have acquired additional lots on Roxburgh Crescent and Ruahine Street. The Higgins holdings are likely to expand onto surplus Horizons' land adjacent to the stop bank in the south-east corner of the Structure Plan.

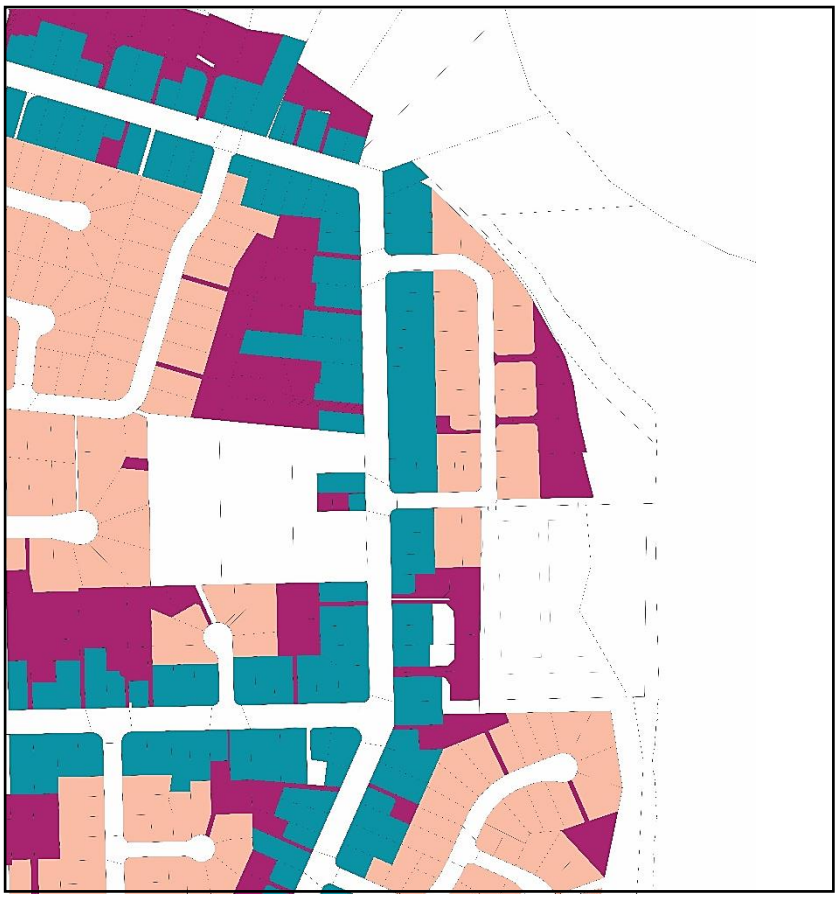


Fig.10 Rear lots shown in purple; front lots on major streets shown in turquoise; and front lots on minor streets shown in pink.

Fig.11 Typical residential fabric in Palmerston North – site layout is generally more regular on gridded streets and less regular on cul-de-sacs and curved streets.

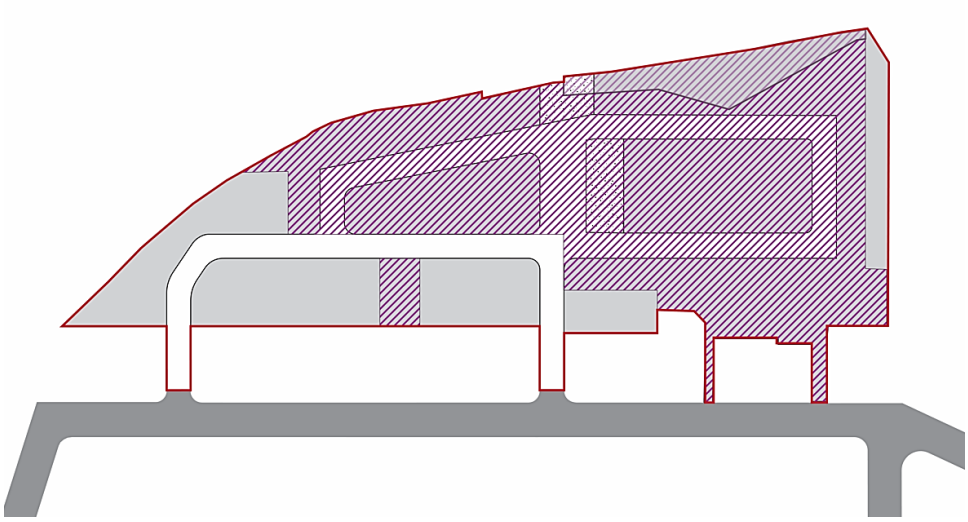


Fig.12 Property ownership – purple hatching identifies the extent of Higgins property within the RRA (lighter hatching indicates approximate extent of acquisition from Horizons).

Fig.13 Ruahine Street residential fabric – extent of built form and open space analysis (PNCC Local Maps circa 2020).

The Higgins property extends south of Roxburgh Crescent, taking in most of the remaining Structure Plan area. Altogether, Higgins control approximately two-thirds of the proposed RRA. This ownership structure creates a landbank, where the transition to residential development can be comprehensively planned and managed.

2.6.2 Lot and dwelling analysis

An investigation of Ruahine Street reveals the configuration of lots and buildings that characterise this neighbourhood (see Fig.13). The "desktop" analysis of residential fabric uses PNCC online cartographic information from 2020. As a result, all measurements and diagrams are approximate. Building dimensions should be treated with special caution, because aerial photography introduces parallax errors and typically records roof plans rather than actual footprints. Subject to these limitations, the cadastral map generates useful quantitative data about built form and open space in the vicinity of the Structure Plan. In most cases, generic patterns are noted rather than individual examples. So, inaccuracies are reduced by averaging sets of data. Furthermore, because the analysis focuses on typical layouts and dimensions, idiosyncratic developments are excluded from the survey. These outliers include irregular parcels, corner sites, multi-unit housing and dwellings that sit diagonally across their lots.

A generic residential property can be identified by averaging the dimensions from individual examples. On Ruahine Street, most front lots are 16.5m to 18.5m in width and 35m to 40m in length. A typical house has a primary volume measuring 8m by 13m. This is usually identified by a dominant roof form e.g., a single hip or gable. In most cases, the primary volume's long elevation faces the street – set back some 9m from the boundary. Approximately half of all dwellings also have a secondary volume that is visible to passers-by i.e., a projecting wing or bay. Its average dimensions are 3m by 6m and, once again, the longer side usually faces forwards on the lot. In this case, the front set back reduces to 6m. Deep rear yards are common and frequently measure 18m to 23m in length. Normally, there is a 3m to 4.5m yard on one side of the lot and a minimal setback (nominally 1m) on the other side. Fig.14 identifies the dimensions of a typical Ruahine Street property.

Individual properties differ from this standard lot by varying degrees. Lot width ranges from 15m to almost 21m. Length is even more variable. The smallest parcels are just 30m deep, whereas one property on the western side of Ruahine Streets measures 98m from front to back. Divergence from the mean is more significant when it corresponds to a particular location. This happens on the western side of Ruahine Street, where front setbacks are deeper, and houses are more likely to present end-on to the street. Secondary volumes are also less evident here. Adjacent to the Plan area, residential fabric is more regular partly because the subdivision pattern is uniformly orthogonal. Overall, the variations in layout are noticeable but not so large as to undermine the value of the standard lot diagrammed in Fig.14.

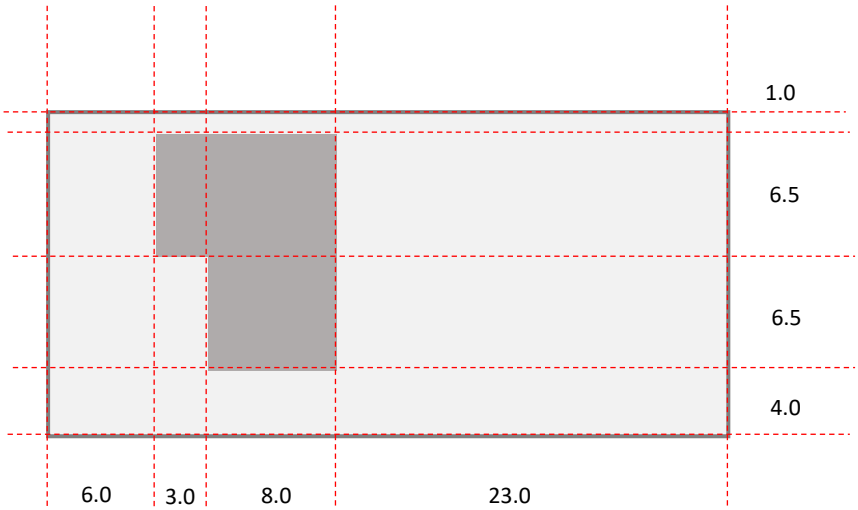


Fig.14 Typical 18m x 40m Ruahine Street lot and building footprint (dimensions in metres).

Fig.15 One and two-storey Ruahine Street houses.

Fig.16 Site photographs located on plan.

Most Ruahine Street houses are single storey with low hip roofs. Gables are less common – approximately one house in three – and more likely to be steeply pitched (30° or more). Whether hip or gable, roof forms tend to be complex because they incorporate one or more secondary volumes.

One in five houses has as second level. Two-storey dwellings are slightly more common on the western side of the street, where the ratio is one in four. In many cases, the second floor occupies just a portion of the overall building footprint. In these cases, the upper level appears as a distinct volume in the architectural composition. The palette of external materials is somewhat unusual. Corrugated steel roofs are prevalent, but fewer than a quarter of all houses are clad with timber weatherboards. Instead, rendered walls are the norm.

2.6.3 Streetscape analysis

Roxburgh Crescent forms a loop on the eastern side of Ruahine Street. House lots flank the streets' intersections, so both ends of the crescent have a residential character. However, corner properties face Ruahine Street and typically present tall fences to the minor street. This treatment gives a "side boundary" character to the Roxburgh frontages. It suggests a defensive relationship to the smaller street; perhaps a response to passing heavy vehicles and an untidy backdrop of commercial and industrial sites.

For most of its length, Roxburgh Crescent has a demonstrably industrial character and a strongly asymmetrical cross section. The eastern side of the street has a formed edge with a curb, a footpath and a consistent though intermittent building line. The frontage's defining elements are the two-storey Higgins office block and a 60m long shed with partially open sides.

The western frontage is strongly indented. Most properties have forecourts that open directly onto the right-of-way. These spaces vary in depth from just a few metres to approximately half the lot. The relationship between public and private space is unmediated because no footpath exists and there are few fences.

The typical building is a simple industrial shed with its gable end facing the street. Although many structures occupy the full width of their sites, scale is limited by subdivision into relatively small lots. As a result, street elevations approximate the dimensions of dwellings and gables are no taller than a two-storey house. The fine grain is enhanced by office accommodation, which forms a separate module on the front of many sheds. These secondary volumes invariably address the street and often exhibit domestic materials and details.

On both sides of Roxburgh Crescent, the ground plane is paved and devoted to vehicle access, parking and – less frequently – outdoor storage. The only significant vegetation is found mid-way along Roxburgh Crescent, where mature trees bracket an off-street parking lot.

Trees are also evident as distant backdrops to the north and south of the site. Principally, these occur within the Palmerston North Golf Club and the river reserve.

Ruahine Street has a traditional residential character. This is defined largely by street trees, grass berms, low front fences and leafy private gardens. In combination, these elements produce a layered streetscape defined by landscape rather than built form. One and two-storey dwellings are evident. However, most houses are framed by vegetation and situated well back from the public right-of-way.

Although Ruahine Street's cross section is more-or-less symmetrical, there are subtle differences between the two sides of the street corridor. To the west, properties are larger and more verdant. To the east, site coverage is higher, in part because there has been more rear lot subdivision.

Both sides of Ruahine Street contain multi-unit housing as well as some non-residential development. The latter includes Winchester School – midway along the western side of the street – and the more intrusive Reformed Church, which lies midway along the eastern side.

The Roxburgh Crescent industrial area has little visual impact on Ruahine Street. View shafts open onto industrial properties at the streets' intersections. The blank rear elevations of several sheds are visible across the Reformed Church carpark. Elsewhere along Ruahine Street, the neighbouring industrial facilities are screened by houses and vegetation. A discerning observer might notice the paucity of large trees on the eastern skyline. However, passing Higgins trucks and – periodically - the smell of asphalt provide the most tangible evidence of nearby industrial operations.

To the south, the Roxburgh Crescent industrial zone is flanked by residential properties on Tilbury Avenue. Occupied by state housing, the avenue has an open character with fewer street trees, low side fences and little – if any – demarcation of front boundaries.

Houses are modestly scaled but derive added stature from steeply pitched roofs clad with concrete or clay tiles. Compared with Ruahine Street, dwellings are more uniform in appearance and more conspicuous in the streetscape. Tilbury Avenue is enhanced by its curved trajectory: a configuration that directs attention towards dwellings on the avenue's concave outer arc.

Despite the relatively open fabric, adjacent industrial activities have little visible presence on Tilbury Avenue. The southern half of the Higgins site is less built up, and a strip of reserved land intervenes between this area and the rear yards of Tilbury Avenue properties. Lines of tall trees occur within the reserve and along the edge of the river corridor. Augmenting private gardens, the leafy backdrop helps to distance the Higgins operations and – conversely – signal the proximity of the Manawatū River (see also section 2.7.1).

2.7 Vegetation

2.7.1 Existing vegetation

There are no Notable Trees within the area of the proposed Structure Plan. However, the District Plan assigns this status to mature trees within the grounds of Winchester School and street trees on the western side of Ruahine Street.

The western side of Ruahine Street is generally more verdant than the eastern side. Most residential properties have visually significant vegetation within their front yards. In many cases, side boundaries are also heavily planted. These conditions mean that spatial definition of the street corridor depends on vegetation rather than buildings (see also section 2.6.3). Neither of these landscape patterns are so well established on the eastern side of the street.

Mature street trees are more prevalent on Pahiatua Street. This thoroughfare exemplifies the ideal of a leafy residential street. As such, Pahiatua Street indicates the future character of streetscape on Ruahine Street after existing street trees mature.

The Roxburgh Crescent industrial area is almost devoid of trees. Some large-scale planting occurs within the river corridor along the eastern edge of the Higgins property. A row of mature trees occupies an open space reserve at the southern extremity of the site. These trees help to mediate between the existing industrial activities and adjacent single-family housing (see also section 2.6.3).

2.8 Activities and amenities

2.8.1 Industrial activities

The Plan area is currently zoned for industrial activities. Except for roads, recreational reserves and flood protection areas within the river corridor, adjacent land is zoned exclusively for residential use.

Increasingly, Palmerston North's industrial activities are consolidated at Longburn or within a belt on the northern and eastern perimeter of the city. Small industrial enclaves such as Roxburgh Crescent are anomalous, especially when they have a close context of residential development. The only other examples of any size are the Goodman Fielder complex in Highbury and a pocket of industrial land on Featherston Street between Coromandel Court and Sierra Court. However, the latter location has acquired a retail focus in recent years.

The Roxburgh Crescent industrial zone is especially anomalous given its high-amenity location. The Manawatū River corridor and its associated recreational opportunities are described above (see section 2.5.3).

Riparian vegetation ensures that industrial buildings are barely discernible in distant views from the Pinfold Road area. Closer to the

site, the stop bank screens Roxburgh Crescent from the Manawatū Riverside Walkway and recreational spaces on the western riverbank.

The industrial area is conspicuous from some elevated vantage points. A formed pathway follows the top of the stop bank to a point part-way along the eastern boundary of the RRA. This section of the stop bank hugs the edge of the Higgins property. So, pedestrians and cyclists have a clear view of sheds and outdoor work areas. The latter provide activation and a degree of visual interest. However, the utilitarian scene contrasts jarringly with the expansive green landscape of the river corridor.

Further south, the stop bank peels away from the perimeter of the Higgins property. The intervening open space contains a row of large trees. At its widest point, this over-scaled "amenity strip" measures nearly 40m across. So, for observers on the stop bank, the southern half of the Higgins site recedes from view. (As previously noted, Higgins seek to purchase this land from Horizons.)

2.8.2 Local services and amenities

Two facilities give a spatial and social focus to the immediate neighbourhood. Winchester School occupies an attractively landscaped site on the western side of Ruahine Street. Directly opposite, the Reformed Church of Palmerston North has a less traditional appearance. With plain elevations, a low spreading roof and an extensive car park, the church's architectural character is more commercial than ecclesiastical. The Winchester Store at 577 Ruahine Street provides the neighbourhood with a modest retail facility. However, the area is only 1km from the centre of Hokowhitu, where a range of shops and services are available (see Fig.17). Pahiatua Street and Ruahine Street offer a highly legible connection between the two locations.

2.8.3 River corridor

Despite the advantageous riverfront location, there is limited physical and visual connection with the Manawatū River (see section 2.5.3). Industrial sites turn their back on the river corridor, creating an unsightly edge to the elevated section of the Riverside Walkway (see section 2.8.1). Along Roxburgh Crescent, a single dwelling faces the stop bank and waterway at first-floor level.

2.9 Site characteristics

2.9.1 Summary observations and implications for redevelopment

- Industrial activities are anomalous and disruptive given the predominantly residential character of Hokowhitu.
- Large parcels and low-cost buildings allow a comprehensive approach to brownfield redevelopment.
- Roxburgh Crescent is relatively central and offers good access to public transport and local services.
- Surrounding neighbourhoods contain many cul-de-sacs and a large number of rear lots; these reduce connectivity and limit residents' engagement with the public realm.

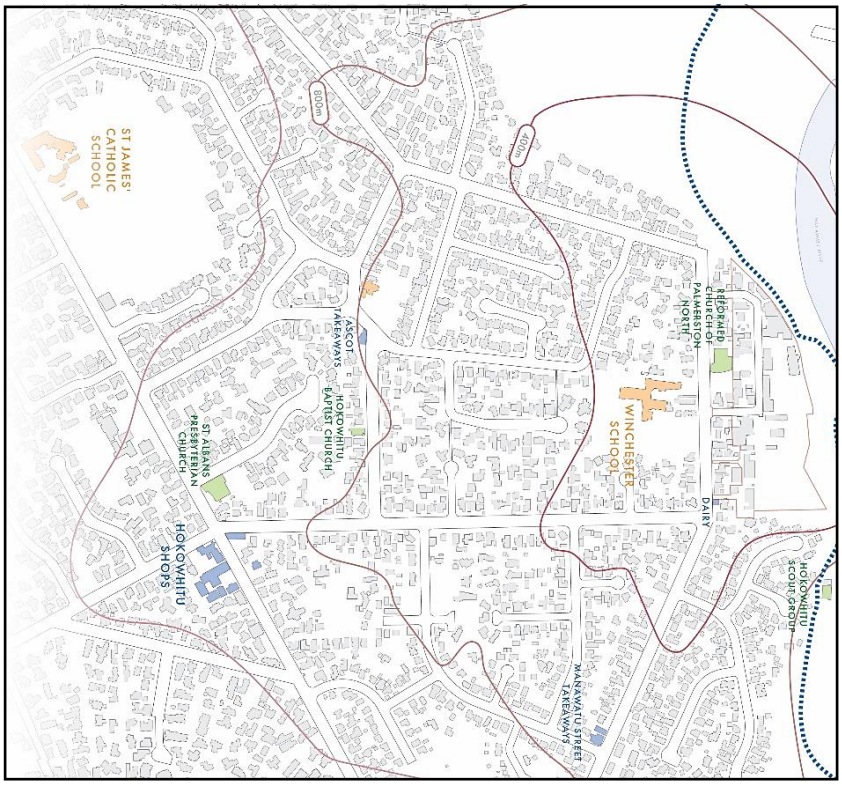


Fig.17 Local services and amenities with 400m, 800m and 1200m walking distances from Roxburgh Crescent.

- A single cadastral grid unites Roxburgh Crescent with Ruahine Street and the adjacent residential area.
- The local grid provides a common spatial structure for buildings and open spaces; this rectangular geometry is well-suited to subdivision into small residential lots.
- Ruahine Street residential fabric provides a guide to scale and modulation within any redevelopment of Roxburgh Crescent; spatial definition and streetscape character depend on vegetation as well as built form.
- Roxburgh Crescent industry is relatively inconspicuous to observers in nearby residential streets; it is possible for new housing to also have a low profile.
- The stop bank screens Roxburgh Crescent from recreational spaces within the river corridor; however, atop the stop bank, pedestrians and cyclists have a clear view of utilitarian buildings and workspaces.
- Existing industrial buildings have little visual appeal or architectural merit; consequently, they do not warrant retention.
- The site is almost devoid of significant vegetation; trees on the southern boundary mediate between industry and housing.
- The site is immediately adjacent to the river corridor, an area with off-road trails and abundant open space; however, industrial properties impede physical and visual access to these amenities.
- Elevated vantage points offer broad views of the river corridor and the distant ranges.

3 Planning and Design Intentions

3.1 Introduction

Section 3 records high-level objectives for the new Roxburgh Residential Area. Subsequently, these objectives are interpreted as a set of design principles and spatial strategies. Collectively, these inform the content of the Structure Plan.

3.2 Development objectives

3.2.1 Market relevance

The Structure Plan responds to demands in the local housing market having regard for projected population growth and Palmerston North's changing demographic profile. The Plan's approach is consistent with national and local strategic objectives including the city's recently identified growth targets. Responsiveness to demand is achieved by:

- Increasing development intensity compared with conventional suburban subdivisions.
- Dimensioning urban blocks to accommodate a range of densities, lot sizes and dwelling types.
- Enabling housing choices that attract a variety of residents and respond to changing market expectations.
- Enabling high-quality, multi-unit housing in appropriate locations.

Rationale:
National policies and PNCC strategies require Palmerston North to prepare for population growth. Demographic data shows a trend towards smaller households and more compact dwellings. Diminishing housing affordability also creates an imperative for greater housing choice, including medium-density multi-unit developments.

3.2.2 Staged transition

The Structure Plan allows for gradual transition from industrial to residential activities. Incremental change is accommodated by:

- Extending Roxburgh Crescent on its present alignment to form the main thoroughfare within a new path network.
- Respecting existing property boundaries unless these are inconsistent with good quality development.
- Creating a new open space reserve that improves public connections to the river corridor.

Rationale:
Approximately one-third of the site is already subdivided and host to a range of small industrial and commercial buildings. Re-zoning will encourage redevelopment by increasing land value. However, the transformation to residential use will be gradual and incremental. Prior to build-out, a high-quality public realm will provide a clear indication future character and amenity.

3.2.3 Liveable neighbourhood

The Structure Plan provides the framework for a liveable neighbourhood with a high level of local amenity. Positive neighbourhood attributes are achieved by:

- Developing a coherent, comprehensively designed system of streets and open spaces.
- Managing the relationship between existing and new residential development.
- Improving access to recreational opportunities including family-oriented destinations with activities for all ages and levels of ability.
- Supporting local services and providing a larger catchment for public transport.

Rationale:
A high-quality public realm complements higher-density development and compact private lots. Attractive streets and open spaces support walking and other active transport modes. These forms of mobility help to build a sense of community by promoting face-to-face encounters and the use of local services.

3.2.4 High-quality public and private outcomes

The Structure Plan encourages high-quality development outcomes in both public and private realms. Good outcomes are promoted by:

- Comprehensively planning a brownfield site that includes several large parcels of land.
- Providing a development framework that engages diverse stakeholders and remains effective over time.
- Building in flexibility to accommodate future changes in housing preferences.
- Requiring a positive interface between public and private domains.
- Integrating ecological repair and low-impact storm water management into the design of streets and public reserves.

Rationale:
Successful places are an amalgam of public and private investment. Exchanges between public and private domains are often the principal source of activation and visual interest within an urban setting. So, it is desirable to coordinate outcomes in each realm. One of the virtues of a structure plan is its ability to treat streets, open spaces and private lots as components in a single system.

3.2.5 Complementary relationship with existing residential fabric
The Structure Plan complements the established residential character of Ruahine Street. A positive relationship between new and existing is achieved by:

- Matching the alignment and orientation of new development to existing patterns.
- Providing good connectivity with the host suburb.
- Improving physical and visual links between Ruahine Street and the river.

Rationale:
Context-sensitive design begins with a shared spatial structure. Roxburgh Crescent belongs to the same cadastral grid as Ruahine Street and Pahiatua Street. Reinforcing this geometry helps to forge a connection between housing from different eras. A simple rectilinear layout introduces new line-of-site links between the existing built-up area and the stop bank. Increased east-west permeability helps to establish the river corridor as Hokowhitu's natural eastern boundary.

3.3 Design principles and strategies

3.3.1 Streets and open spaces form a coherent system.
The Structure Plan treats new and existing thoroughfares as single network. A coherent path structure is achieved by:

- Aligning new thoroughfares with existing rights-of-way.
- Focusing the street layout on an extended Roxburgh Crescent and a centrally located East-West River Connector.
- Establishing an explicit hierarchy of streets, giving each route a distinct character and a high degree of amenity:

    i. Roxburgh Crescent – 13m wide, this street is modestly scaled but possesses a formal streetscape with an asymmetrical cross section.

    ii. East-West River Connector – 20.5m wide, this street is associated with a public reserve that improves links to the river corridor.

    iii. Local Street – 13m wide, this minor thoroughfare has a more informal streetscape with an asymmetrical cross section.

- Ensuring that the street network is legible at each phase of development.

Rationale:
Streets and public open spaces are the primary organising elements for urban fabric. Frequently they are the only components that are fully controlled and predictable. As such, they play an important role in ordering subsequent development.

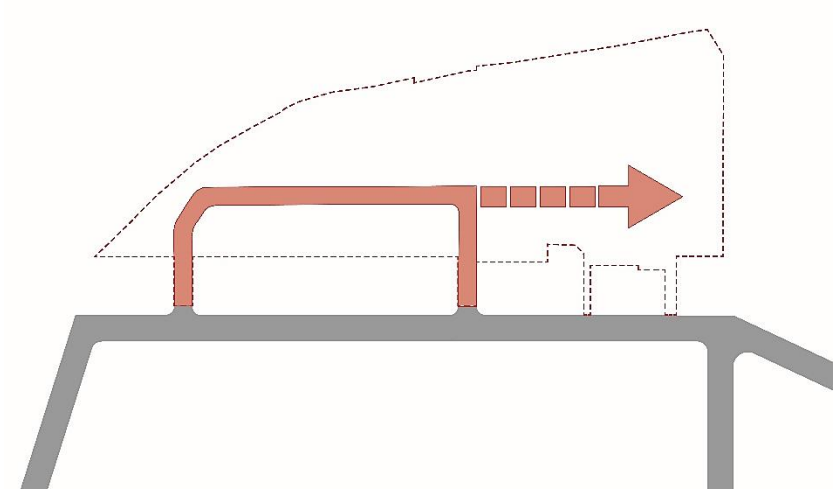


Fig.18 Extension of Roxburgh Crescent.

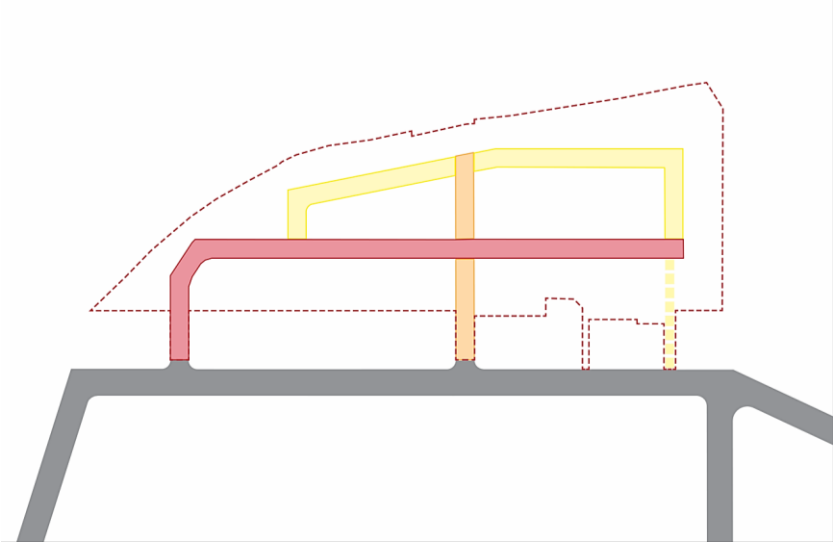


Fig.19 Hierarchy of streets and lanes.

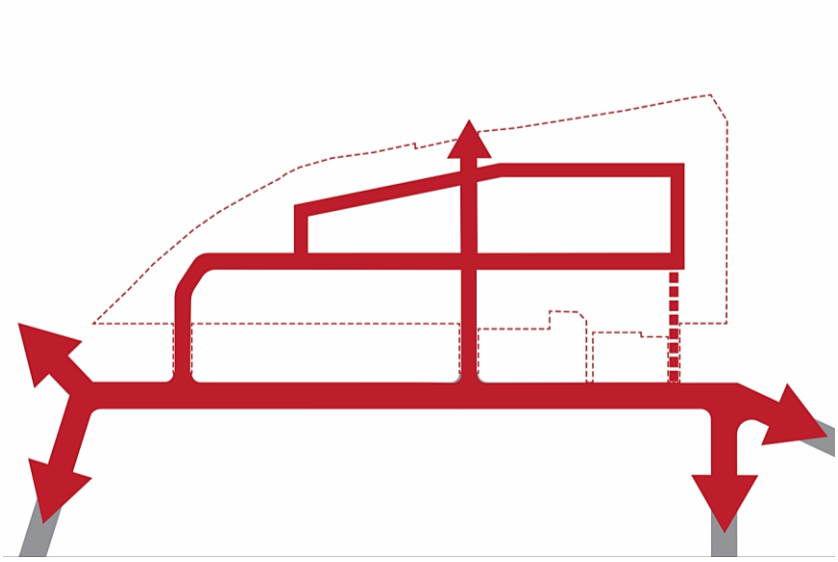


Fig.20 Connected path network.

3.3.2 A permeable path network is created.
The Structure Plan promotes greater connectivity and offers all future residents a choice of access routes. The following spatial design strategies help to create a permeable path network:

- Creating a joined-up street system.
- Avoiding cul-de-sacs.
- Providing good connectivity to surrounding residential streets and off-road trails.
- Creating a variety of recreational walking and cycling circuits.

Rationale:
Joined up streets foster social contact and help to disperse traffic. Having more than one access route improves resilience. Attractive off-road paths encourage active transport modes that substitute for private vehicle use. Recreational walking, jogging and cycling increase when people have access to multiple circuits of different lengths. These allow users to avoid back tracking and match their route to level of fitness and time available.

3.3.3 A new link to the river is provided.
The Structure Plan connects Hokowhitu more closely to the Manawatū River. The following spatial design strategies help to improve links with the river corridor:

- Providing a new physical and visual connection to the stop bank and the Manawatū River Reserve.
- Using the East-West River Connector and a new pedestrian/cycle access point to link Winchester School and Ruahine Street with the river.
- Introducing an inhabited edge and passive surveillance to the stop bank walkway.
- Using a pedestrian/cycle route to link Ruahine Street with the southern end of an extended Roxburgh Crescent.

Rationale:
The Manawatū River is a source of identity and Hokowhitu's main recreational asset. In its present form, the Higgins property isolates Ruahine Street and environs from the river corridor. A new east-west connection allows residents to sense the river's proximity and benefit from its recreational opportunities.

3.3.4 Public open space is located at the centre of the Plan.
The Structure Plan is a hierarchy of streets with public open space at its core. The following spatial design strategies help to create a high-quality open space reserve in the centre of the Plan:

- Replacing an existing reserve on the site's southern boundary with an equivalent open space in the centre of the Plan.
- Treating the East-West River Connector as the Plan's cross axis i.e., one of the site's primary organising features.
- Providing public carparks for visitors to the river.

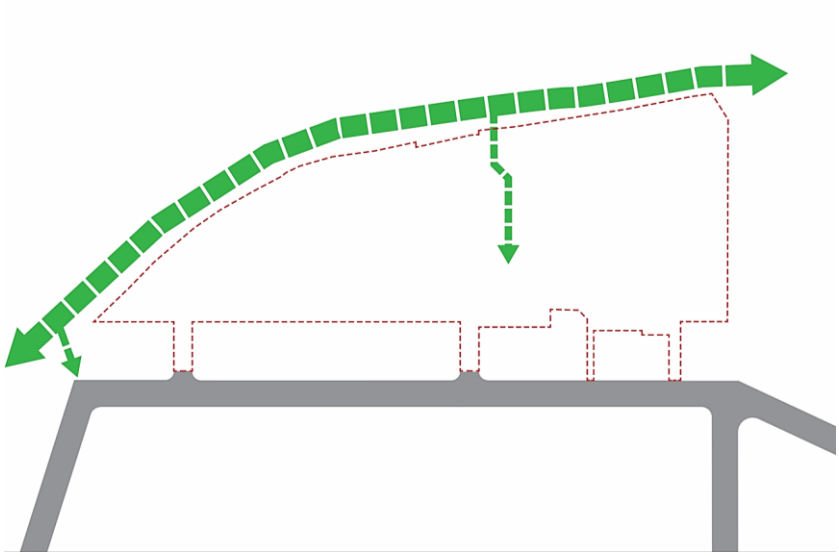


Fig.21 Off road connections to the river.

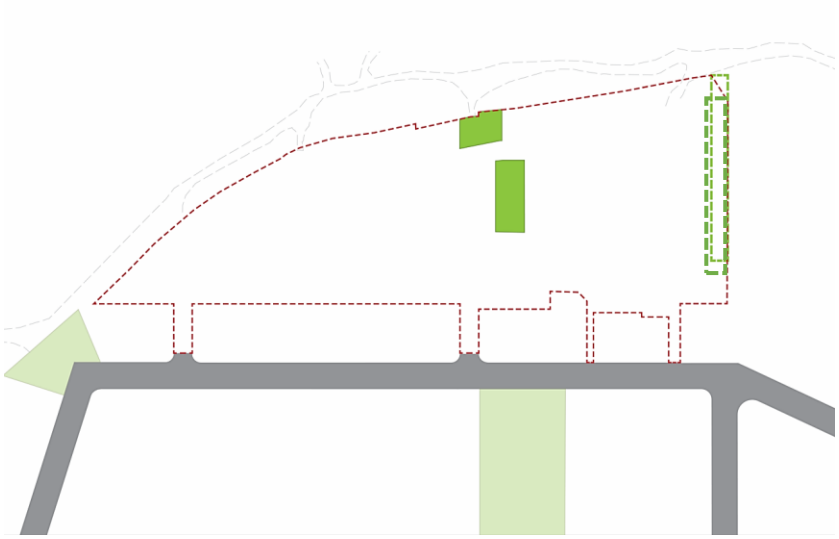


Fig.22 Relocated open space reserve.

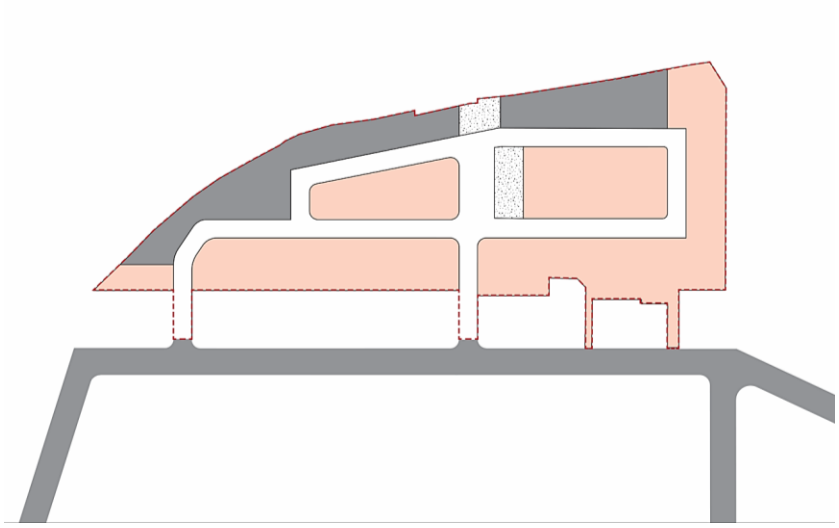


Fig.23 Taller dwellings along the river frontage.

Rationale:
Along with Roxburgh Crescent, the East-west River Connector is the principal organising feature of the Structure Plan. The Connector includes a 20.5m wide section of street adjacent to an open space reserve. The combination improves river access and brings visual amenity into the centre of the Plan. Given the proximity of Winchester School and the river corridor, access and visual amenity take precedence over active recreation.

3.3.5 A high-quality public realm increases amenity and value.
The Structure Plan gives primacy to streets and public open spaces including the river corridor. The Plan optimises these elements and uses them to shape subsequent private development. The following spatial design strategies help to create a high-quality public realm:

- Assigning priority to streets and open spaces and completing these early in the development process.
- Giving a simple high-quality treatment to the public realm.
- Integrating low-impact stormwater management features within streets and reserves.
- Providing unobtrusive visitor car parking.

Rationale:
High-quality open spaces and attractive streetscape play an important role in repurposing the site for residential activities. Early investment in public amenities adds value and encourages the redevelopment of industrial land. Streets and other public places are more likely to be successful if functional and aesthetic imperatives are addressed jointly.

3.3.6 Street layout assists subdivision into compact residential lots.
The Structure Plan treats public and private open space as a unified composition. A prescribed street pattern supports efficient subdivision into compact, high-quality residential lots:

- Dimensioning blocks to accommodate compact lots with regular shapes and efficient proportions.
- Accommodating differently sized lots that are suited to a range of dwelling types.
- Facilitating consistent front-to-front and back-to-back relationships among dwellings.
- Minimising the number of cul-de-sacs and discouraging rear lots.

Rationale:
The Structure Plan aligns spatial patterns at micro and macro levels. The smallest unit of urban fabric is the individual residential lot and its dwelling. The largest unit of composition is the street grid. Although the Structure Plan does not prescribe subdivision into individual lots, the Plan's street layout facilitates the creation of compact, regularly shaped parcels. Cul-de-sacs and rear lots are discouraged because they reduce engagement between public and private domains.

3.3.7 Residential development is more intensive and more diverse.
The Structure Plan's smaller blocks facilitate subdivision into compact, efficient residential lots. Although most Residential Zone Development Controls still apply, new planning provisions support greater housing yield and multi-unit development:

- Enabling smaller, regularly shaped lots with east-west orientations and consistent front-back relationships.
- Accommodating a range of dwelling types including semi-detached and fully attached dwellings.
- Upgrading stormwater infrastructure to enable greater site coverage.
- Relaxing some height recession planes.
- Increasing building height along the river frontage.

Rationale:
Palmerston North is obliged to match housing supply to projected demand. PNCC aims to include compact dwellings within a wider range of housing choices. Rectangular parcels are efficient, especially at higher densities. They pack together easily, and they tend to produce coherent outdoor spaces. Consistent front-back relationships become more critical when the distances between dwellings reduce. Proposed height recession planes allow a more built-up street frontage but reduce bulk at the rear of the lot where privacy, sun and outlook are important. The resulting envelope also encourages more complex massing and greater visual interest. Along the stop bank, taller houses provide a stronger custodial presence at the edge of the river corridor. Elevated living spaces afford occupants a better view.

3.3.8 Built form enhances character and amenity.
The Structure Plan manages relationships between neighbouring dwellings and between public and private domains. The following spatial design strategies promote cohesive character and a high-quality public realm:

- Providing a simple orthogonal framework for subdivision.
- Identifying distinct front and rear height recession planes that encourage more complex massing.
- Facilitating two and three-storey dwellings that sit forward on their lots.
- Ensuring dwellings face the street with active frontages that convey a sense of inhabitation.
- Creating a custodial presence on the stop bank by enabling taller dwellings with elevated living areas.

Rationale:
New housing is more likely to "fit in" if its layout conforms to the existing Ruahine Street grid. Dual height recession planes support visually interesting compositions containing primary and secondary forms. Street-facing doors and windows provide signs of inhabitation, suggesting human presence even if no one is visible. Passive surveillance improves safety in the public realm.

3.4 Indicative planning and design scenarios

Four design scenarios provide different interpretations of the principles and strategies identified in section 3.3. The preferred outcome (Scenario 4) informs the Structure Plan.

3.4.1 Scenario 1: Street & Short Cul-de-Sacs

The first scenario employs streets and cul-de-sacs to create a conventional low-density residential environment.

Fig.24 Design Scenario 1 – Street and Short Cul-de-Sacs.

Key characteristics:

Positive

1. Simple orthogonal layout.
2. Moderately legible street pattern.
3. Explicit path hierarchy.
4. Good external connectivity.
5. Improved pedestrian access to river corridor.
6. Central public open space.
7. Good front and back relationships to existing housing.
8. Few rear lots.
9. Few excessively deep lots.

Negative

1. Limited yield and little apparent variation in lot/dwelling type.
2. Possible lack of engagement with stop bank.
3. Limited internal connectivity.
4. Many north-south oriented lots.
5. Less public realm engagement on cul-de-sacs.
6. Central open space is south-facing.

3.4.2 Scenario 2: Street & Lane

Scenario 2 is a variant of Scenario 1. It employs streets and lanes to create a conventional low-density residential environment with a more permeable path network.

Compared with Scenario 1, Roxburgh Crescent and its extension remain largely unchanged. However, the landscape component of the East-West River Connector is longer and located on the southern side of the right-of-way.

Fig.25 Design Scenario 2 – Street and Lanes.

Key characteristics:

Positive

1. Simple orthogonal layout.
2. Legible street pattern.
3. Explicit path hierarchy.
4. Good internal connectivity.
5. Good external connectivity.
6. Some private vehicle access removed from Roxburgh Crescent.
7. Improved pedestrian access to river corridor.
8. Enlarged central public open space (north-facing).
9. Good front and back relationships to existing housing.
10. Positive frontage to stop bank.
11. Mainly east-west oriented lots.
12. Few rear lots.

Negative

1. Limited yield.
2. Little apparent variation in lot/dwelling type.
3. Some excessively deep lots.

3.4.3 Scenario 3: Smaller, more diverse lots.

Scenario 3 is a variant of Scenario 2 containing smaller lots and a broader range of dwelling types. A strong place-based character is achieved by matching the different housing formats to individual streets and open spaces. Larger parcels mediate between new and existing development on the plan's extremities. As in Scenario 1, the central reserve is on the north side of the East-West River Connector. Properties here are accessed via a rear lane allowing garages to be removed from the reserve edge. The reserve and the Connector continue west to meet Ruahine Street.

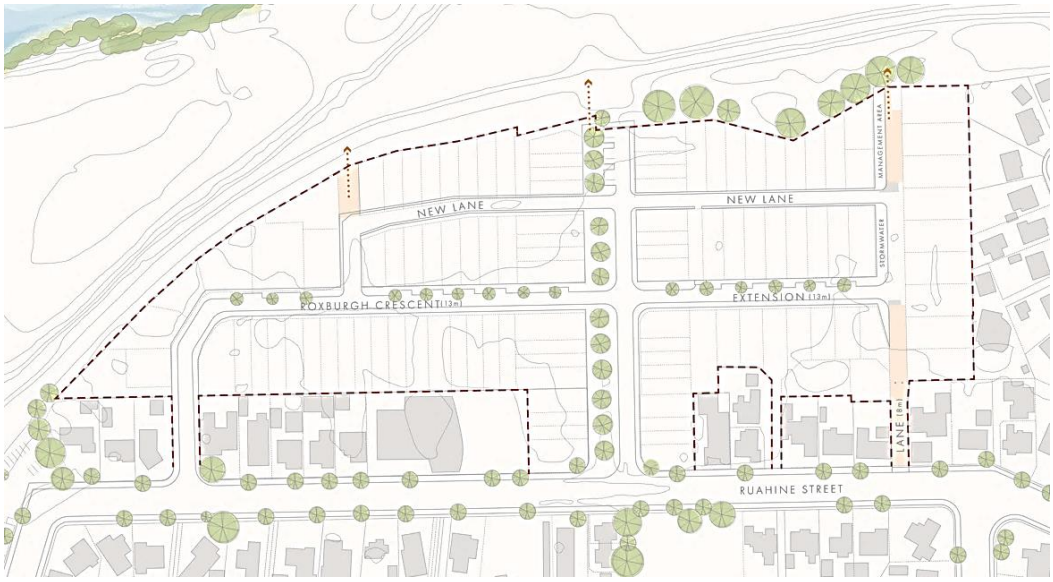


Fig.26 Design Scenario 3 – Smaller, more diverse lots, extended east-west axis.

Key characteristics:

Positive

1. Simple orthogonal layout.
2. Legible street pattern with explicit path hierarchy.
4. Good internal and external connectivity.
5. Some private vehicle access removed from Roxburgh Crescent.
6. Very strong link from Ruahine Street to river corridor.
7. Extended central open space.
8. Good front and back relationships to existing housing.
9. Positive frontage to stop bank.
10. Higher yield with a range of lot/dwelling types.
11. Mainly east-west oriented lots with few rear parcels.

Negative

1. Some excessively deep lots.
2. Disrupts existing residential lots on Ruahine Street.
3. Central open space is shaded by townhouses.
4. Prescribed lot types complicate planning provisions.

3.4.4 Scenario 4: Eastern extension with local street network.

Scenario 4 contains a new double-loaded local street, which substitutes for the lane in Scenarios 2 & 3. This change is made possible by extending the existing Higgins property onto surplus Horizons land. The spatial structure is simplified in several ways. Intrusions into Ruahine Street are avoided. So, the central open space is truncated and reverts to the southern side of the East-West River Connector. This route provides the only public link to the stop bank. Unlike Scenario 3, there is no attempt to match lot size and dwelling type to individual thoroughfares. However, building height varies. Three-storey dwellings are possible along the edge of the river corridor. Elsewhere, a 9m height limit comfortably accommodates two full residential floors plus a pitched roof.

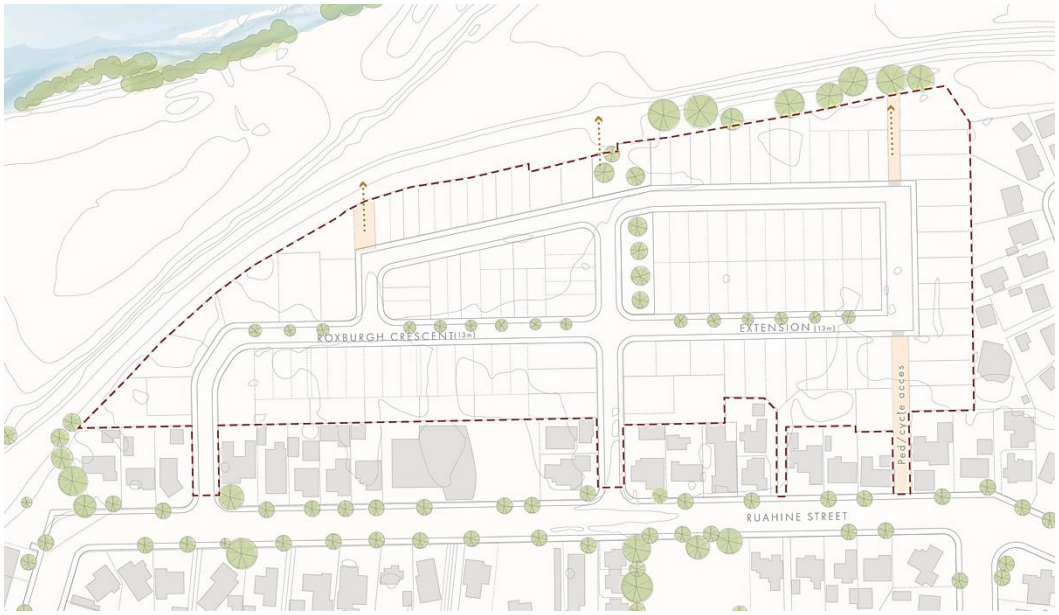


Fig.27 Design Scenario 4 – Eastern extension with local street network.

Key characteristics:

Positive

1. Simple orthogonal layout.
2. Legible street pattern with explicit path hierarchy.
3. Good internal and external connectivity.
4. Improved pedestrian access to river corridor.
5. Central public open space (north-facing).
6. Good front and back relationships to existing housing.
7. Potential for positive frontage to stop bank.
8. Higher yield with a range of lot/dwelling types.
9. Mainly east-west oriented lots with few rear parcels.
10. Minimal disruption to Ruahine Street properties.

Negative

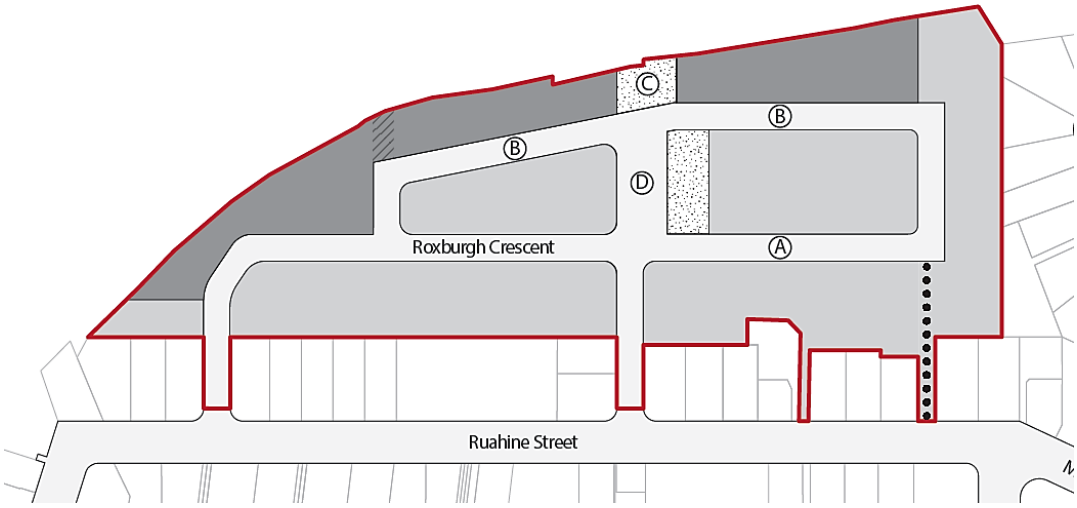
1. Weaker connection to Ruahine Street.
2. Less explicit place-based character.

4 Planning Controls

4.1 Structure Plan

The Structure Plan is a modified version of Scenario 4. It embodies the principles and strategies identified in Section 3. It reflects PNCC's preference for a single, generously scaled river access point. The modified plan reconfigures the central open space and provides for visitor parking on the East-West River Connector.

Figure 28 shows the Structure Plan in a diagrammatic form that is suitable for inclusion in the District Plan:



KEY

- Structure Plan area
- 9m max height
- 11m max height (Riverfront area)
- No build area / stormwater easement
- Open space
- Pedestrian and cyclist access

Ⓐ Extension of Roxburgh Crescent (13m wide)

Ⓑ New local street (13m wide)

Ⓒ Public Access to river corridor

Ⓓ Road reserve (20.5m)

Fig.28 Roxburgh Crescent Structure Plan diagram.

4.2 Development standards

4.2.1 Introduction

ODP Subdivision and Residential Zone planning provisions apply within the Roxburgh Residential Area. However, these are amended to include new standards that are tailored to specific site conditions and development potential.

The RRA is not included within the new Medium Density Residential Zone (MRZ). However, open space amenity and comprehensive planning justify more intensive land use. As a result, some Residential Zone rules are modified to enable smaller lots with two-three storey dwellings.

4.2.2 Minimum and maximum net site area

Within the RRA, the minimum net site area is 250m^2 and the maximum area is 500m^2. This compares with a 350m^2 minimum for the Residential Zone as a whole. So, the new constraints on lot size facilitate higher residential density.

At 45%, maximum site coverage exceeds that of the Residential Zone as a whole. Increased coverage is made possible by upgraded stormwater infrastructure along with best-practice design and environmentally sensitive water management. Planning provisions require a high proportion of each site to be permeable. When applied to compact lots, the 45% coverage limit promotes construction of two or three-storey dwellings. This outcome is consistent with PNCC's intention to achieve a modest increase in density relative to conventional residential development.

Higher density is justified by comprehensive planning associated with the Structure Plan and consolidated land ownership. Combined with a simple cadastral grid, these conditions provide greater scope to optimise subdivision and deliver a high-quality living environment on smaller lots. Higher density also recognises the exceptional open space amenity of the Roxburgh Crescent area. Proximity to the river corridor means that future residents will have ready access to outdoor recreation. The new East-West River Connector (D), open space reserve and river access point (C) bring this amenity into the core of the site. In this context, 250m^2 lots are appropriate.

Whereas the southern and eastern portions of the RRA are controlled largely by Higgins, ownership of the northern and western areas is more fragmented. Industrial activities occupy a series of small parcels between Roxburgh Crescent and Ruahine Street. Typically, these measure about 16m by 36m. One of the drawbacks of a reduced net site area is that these existing properties are susceptible to rear-lot development. Elsewhere within the Structure Plan, a new local street (B) divides the developable area into shallower blocks. Their dimensions encourage subdivision layouts in which almost every lot addresses a public thoroughfare. This outcome mitigates the effect of any rear lots along the western side of Roxburgh Crescent.

4.2.3 Maximum building height

Most of the site is subject to the Residential Zone's 9m height limit. However, a maximum height of 11m applies along the river frontage, where construction of at least two storeys is required. Here, pitched roofs may rise an additional 1m.

A 9m height limit comfortably accommodates two full-height floors plus a pitched roof. This cross-section is consistent with the vertical scale of two-storey dwellings among Ruahine Street's traditional residential fabric.

11m allows three-storey construction with generous floor-to-floor intervals and an elevated ground floor. In this case, the additional height encourages compact dwellings, higher density and a wider range of housing types. These include semi-detached units, fully attached terraces and walk-up apartments.

The 11m height limit also recognises the beneficial conditions that exist along the river corridor. Adjoining the stop bank, first and second-floor habitable rooms offer exceptional views and a sense of custodianship over the river corridor. Additionally, taller buildings create a more definite urban edge along the western perimeter of the open space.

The 11m height limit stops short of the Structure Plan's northern and southern extremities. Here, a maximum height of 9m provides a transition to predominantly single-storey housing on Ruahine Street and Tilbury Avenue. HIRB provisions provide further protection for existing residential properties on the perimeter of the Plan.

4.2.4 Boundary controls

Boundary controls combine standard Residential Zone separation distances with more lenient MRZ height recession planes. The hybrid provisions facilitate smaller lots with compact two or three-storey dwellings including semi-detached and fully attached units. However, development is less intensive than that allowed in designated medium-density residential areas. Compared with MRZ, RRA's bespoke development standards deliver a looser matrix of buildings and open spaces. Less bulky structures are placed further apart. A broad expanse of sky remains visible at the front and rear of each lot. In most locations, spatial definition depends as much on vegetation as it does on built form.

Within the 9m height area, HIRB controls accommodate compact two-storey dwellings on narrow lots. At the same time, the controls protect mid-block amenity by applying different height recession planes to the front and rear of each parcel. In the front two-thirds of the lot, recession planes commence 5m above the ground and incline inwards at an angle of 45°. The standard Residential Zone recession plane also inclines at 45° but commences 2.8m above the ground. This ODP control applies to the rear third of each lot within the RRA's 9m height area. For parcels longer than 45m, the more restrictive HIRB applies only to the rear 15m of the lot.

The RRA's dual height recession planes match those of MRZ. However, they are allied to the larger separation distances set by generic Residential Zone rules. The minimum front setback for a dwelling or accessory building is 3m. This increases to 6m for a garage that faces a road. Side and rear yards are at least 1.5m wide for dwellings and 1m for any accessory buildings. The proposed height limit and boundary controls create a viable two-storey building envelope on a representative 10m x 25m lot (see Fig.29). In this case, an upper floor can be accommodated as an "attic" level within a lowered roof form e.g., a mansard. The dwelling likely reduces to single-storey at the rear, where the junction of one and two-storey volumes adds visual interest.

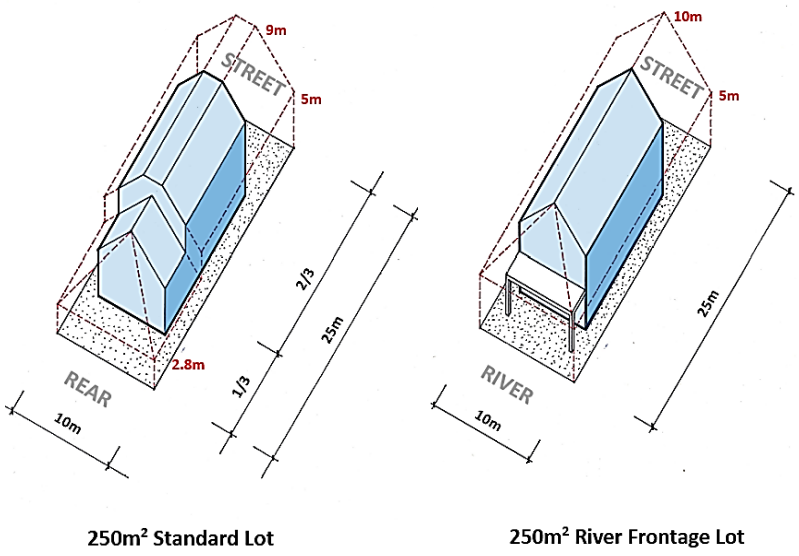


Fig.29 HIRB diagrams for indicative 250m² lots.

Managing the height and bulk of buildings in this way helps to maintain sunlight access and minimise visual dominance particularly in the centre of the block where privacy and amenity are often highly valued. Distinct front and rear height recession planes encourage the bulkiest building volumes to be located forward on the lot. Here, privacy demands are less acute, and the street corridor contributes to visual amenity and a sense of spaciousness. A more built-up street frontage also improves spatial definition and creates further opportunities for passive surveillance and signs of inhabitation.

Conditions differ along the Plan's river frontage, where the 11m height limit applies. Here, the more permissive height recession plane (5m and 45°) extends for the full length of each lot. The single HIRB condition reflects the fact that these parcels effectively have two frontages. Houses will address the street in some fashion because this thoroughfare provides the principal means of access. However, living areas and other major habitable rooms will likely face the river corridor. A more restrictive "rear" recession plane could limit accommodation precisely where it is most highly valued.

Additional height and bulk produce public benefits as well as private ones. Two and three-storey construction improves passive surveillance along the stop bank and helps to define the edge of a large open space. So, purely from a placemaking perspective, it would be counter-productive to impose more restrictive boundary controls along the eastern margin of the Structure Plan.

Placemaking and on-site amenity can be privileged here because the impact of development on neighbouring properties is less significant. River frontage lots have no rear neighbours. Confined mid-block open spaces – crucial for amenity elsewhere in the Plan – are replaced by unobstructed views across the Manawatū River. Under these circumstances, protecting sun, outlook and privacy on adjacent sites is less critical.

Rear lots pose additional challenges within the river frontage area. Much of this zone comfortably accommodates a single lot between Local Street B and the RRA's eastern boundary. However, the zone is deeper towards is northern and southern extremities. In these locations, back lots are possible. Ideally, subdivision plans will minimise the number of rear lots or – better still – avoid them altogether. If rear lots do occur, the subdivision layout will need to protect off-site amenity by preventing visual dominance and overlooking.

Throughout the Plan, boundary controls enable a broader range of house types including semi-detached and full attached units. No separation distance or height recession plane applies to conjoined dwellings along a common boundary. Under these circumstances, a pair of semi-detached dwellings – or a row of fully attached townhouses – is treated as one building.

The more restrictive height recession plane (2.8m and 45^{o}) applies along the boundaries of existing residential properties.

4.2.5 Frontage activation

Higher residential densities typically produce a greater sense of inhabitation than the traditional suburb. However, as the intensity of development increases, care must be taken to activate the street edge e.g., by avoiding vehicle-dominated frontages.

Existing planning provisions promote visual interest and support public/private interaction. These include Assessment Criteria for multi-unit housing, which provide useful guidance for all development within the RRA.

4.2.6 Private outdoor amenity areas

Performance Standards for Onsite Amenity generally match those for the Residential Zone as a whole. However, special provision is made for private outdoor space to be elevated above ground level. The RRA's 11m height limit anticipates three-storey dwellings with first-floor living spaces along the river frontage.

In this case, a well-oriented, generously proportioned deck or balcony may provide more outdoor amenity than a garden on the ground. Where properties adjoin the stop bank, an elevated outdoor area can deliver expansive views and support passive surveillance of the river corridor.

Owing to their constructed nature, balconies and raised decks may be smaller than their ground-level counterparts. With minimum areas of $8m^2$ (for dwellings with two or more bedrooms) and $5m^2$ (for one-bedroom units), these elements are large enough to serve as outdoor rooms. Amenity is assured because at least half the balcony must have a minimum of three hours of winter sunshine.

At the same time, these dimensions are sufficiently modest to allow decks or balconies to be incorporated in the overall architectural composition. In other words, these elements are small enough to be treated as integral parts of the building rather than components of the surrounding landscape. Additionally, under croft spaces will be more manageable if decks and projecting balconies have smaller footprints.

4.3 Provision for multi-unit housing

4.3.1 Multi-Unit Housing

The RRA is a Multi-Unit Housing Area (MUHA). MUHA Assessment Criteria apply to all developments of three or more dwellings. MUHA status is justified by proximity to the river corridor and other amenities including Winchester School and – at greater distance – Hokowhitu's local centre. So, Roxburgh Crescent is well-serviced and reasonably central.

Comprehensive planning provides a further justification for multi-unit housing. The Structure Plan imposes a coherent layout on streets and blocks. Additionally, some two-thirds of the site is in single ownership. This land bank allows coordinated development with better public and private outcomes. For the remainder of the site, ownership is more fragmented. However, the existing cadastral pattern is receptive to multi-unit development.

5 Conclusions

Findings are based on urban design considerations rather than RMA-related issues. The overarching conclusion is that residential redevelopment is feasible and desirable. The RRA does not qualify for inclusion within the MRZ. Nevertheless, the area can accommodate higher density than generally occurs within the Residential Zone:

1. The present Industrial Activity Zone is anomalous. PNCC has identified preferred locations for industrial activity to the north and west of the city. The pocket of industrial activity at

Roxburgh Crescent detracts from the residential character of Hokowhitu and the amenity value of the river corridor.

2. The site is well-suited to housing being flat, centrally located and framed by established residential development. The area has good access to services and amenities. These include public transport, schools, the Hokowhitu local centre and the exceptional recreational opportunities of the River Reserve.

3. Some two-thirds of the Structure Plan area is in single ownership. Given its size, the Higgins property allows a comprehensive approach to redevelopment. Key stakeholders have been involved in formulating and reviewing the Plan.

4. Comprehensive planning can produce a high-quality public realm with an improved visual and physical connection to the river corridor. The Higgins property currently blocks river access. One of the Plan's organising features is a new East-West River Connector, which links Ruahine Street to the Manawatū River by way of a new public reserve.

5. An eastward extension to the Higgins' property provides space for a new local street. This north-south thoroughfare facilitates subdivision into compact, well-proportioned, street-facing lots.

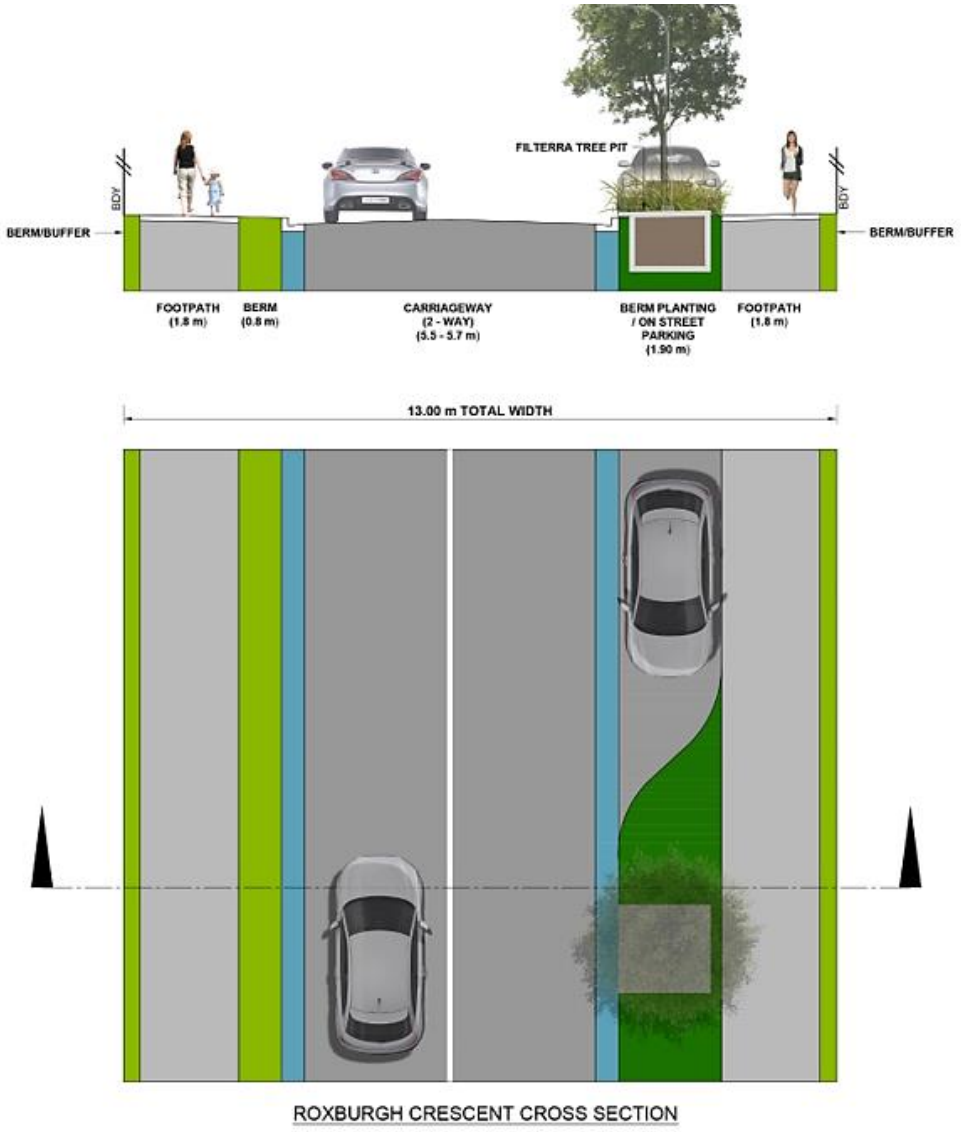
6. A comprehensively planned redevelopment can incorporate smaller lots with two-storey and – in some cases – three-storey housing. The effects of taller, denser buildings can be managed because the Roxburgh Residential Area is subject to a Structure Plan and targeted development standards.

7. In general, PNCC's existing Residential Zone Development Standards can deliver high-quality outcomes within the RRA. Departures from these provisions recognise specific site conditions and development potential.

8. Lots as small as 250m^2 are allowed. Height recession planes are less restrictive. A 9m height limit applies to most of the RRA – in keeping with the generic Residential Zone standard. However, 11m high buildings are permitted along the river frontage. Here, three-storey dwellings benefit from elevated views and bring an inhabited edge to the stop bank.

9. Different HIRB controls apply to the front and rear of most lots. Recession planes are less restrictive at the front of the lot, where streetscape augments private open space and a strong built edge supports spatial definition. Recession planes are more restrictive at the rear of the lot, where mid-block amenity needs to be protected. Mid-block conditions do not apply to the river frontage area. Here, the more permissive recession plane continues from front to rear because most lots have what amounts to a second frontage i.e., a common boundary with the Manawatū River Reserve.

Appendix



Indicative street cross section for Roxburgh Residential Area (PNCC Proposed District Plan Map 10.2A).