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01 Brief

Saddleback Planning Limited has been engaged to prepare an Urban Design Report in support of the proposed plan change to Variation 1 of the Proposed Waimakariri District Plan (**PDP**). The proposed plan change involves a site in the town of Kaiapoi composed of two distinct land parcels: the **North Block** and **South Block**. It is proposed to rezone this site as Medium Density Residential Zone (where they are zoned Rural Lifestyle Zone under the proposed district plan).

In support of this rezoning, it is proposed to introduce a new Outline Development Plan (**ODP**) for north-east Kaiapoi that ensures the site is developed appropriately.

I can confirm that Saddleback has worked closely with Momentum Land in developing the urban design principles for development in north-east Kaiapoi.

The following Urban Design Report describes the physical and statutory context of the proposal as well as the constraints applying to the site and how these matters have informed the development of the new ODP for the site and an Illustrative Masterplan (**IM**).



02 Wider Context

Greater Christchurch

Kaiapoi is one of the principal urban areas in the Waimakariri District, well connected to other large towns in the district such as Rangiora and Woodend/Pegasus.

The wider Waimakariri District is characterised by rural lifestyle development and agricultural activities, which Kaiapoi supports as one of the centres of commerce in the district.

State Highway 1 (SH1) runs through the west of the town carrying through to Christchurch. Because of this, Kaiapoi is an important satellite town within the Greater Christchurch area. As northern Canterbury develops, the towns of the Waimakariri and Selwyn Districts are beginning to form a larger metropolitan area contiguous with Christchurch City and residential development in these towns has begun to reflect that, with infill and medium density development becoming more common.

Bellgrove

There has been extensive development in recent years in nearby Rangiora. The Bellgrove development involves 1000 new stand-alone build sections ranging from between 330-1000m².

Ravenswood / Pegasus

Woodend to the north has also seen extensive residential development. The Ravenswood development involves 1350 sections with integrated open space networks and a dedicated town centre and commercial park.

A separate town has also been developed to the east of Woodend, the town of Pegasus has been comprehensively designed and is being progressively developed.

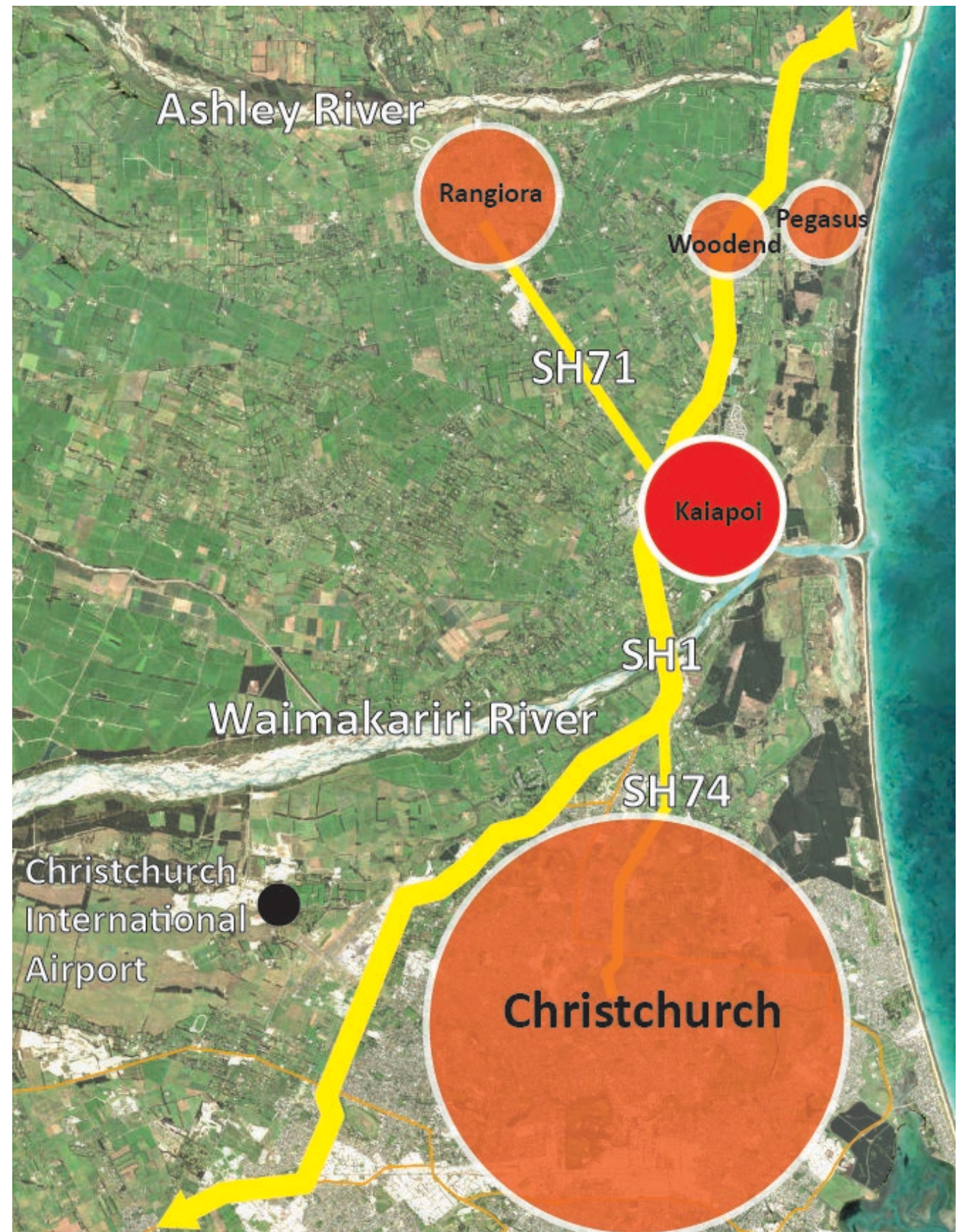


Figure 1. Kaiapoi is the second largest of a block or rural towns in Waimakariri that are satellites to Christchurch proper.

03 Historical Development

Early Development

The original town developed on the banks of the Kaiapoi River, growing around a freezing works and wool mill. As the town expanded from this original urban core, it became a town of two parts. The south bank continued to reflect the industrial/commercial heritage with peripheral residential development. The north bank however became dominated by residential development by the time of the earliest available historic imagery (1940-1945).

First Expansion

Up to the 1960s the town expanded to the north and south along the main highway (Williams Street) passing through the town centre. Post 1970, after the construction of the State Highway 1 extension which bypassed Kaiapoi, development to the north and south stalled and Kaiapoi began expanding to the east and west. In regard to North Kaiapoi, development post 1970 was focused on residential neighbourhoods bulging east along the river.

Development to the North

While Kaiapoi has seen little further development to the south, development to the north began again following notification of Proposed Waimakariri District Plan in 1998 by the Waimakariri District Council (WDC). Expansion to the north-west was constrained by recreation and amenity spaces such as the Kaiapoi Lakes Reserve and the Kaiapoi Golf Course and a natural urban boundary was formed by the Ruataniwha River (see Figure 10). As such, the decisions version of the plan identified areas of low-yield rural land considered suitable for urban growth to the north-east of existing development.



Figure 2. Aerial imagery from the 1940s shows Kaiapoi's original compact urban form concentrated around the town centre on the banks of the Kaiapoi River (Source: ECAN GIS).



Figure 3. The latest aerial imagery shows the spurs of development to the north and west that have occurred in recent decades (Source: ECAN GIS).

04 Recent Development

Nearby Development

Subsequent to the residential zoning of north-east Kaiapoi becoming Operative, new urban development in the area has been managed by a structure planning process (outline development plans), which have informed future plan change processes.

Development of north-east Kaiapoi began in 2010 with Moorcroft Estate (300 dwellings) and Sovereign Palms (approximately 1,000 dwellings). In 2010, north-east Kaiapoi was considered able to provide sufficient development capacity for Kaiapoi for the next 10 years.

Canterbury Earthquakes

The 2010–2011 Canterbury Earthquakes resulted in 1,048 dwellings in Kaiapoi being ‘red zoned’, and at the same time a substantial increase in demand in the local housing market, with the ‘usually resident’ population increasing by 56% (approximately 10,200 people).

Beachgrove

In 2012, a structure plan for a new development to the east of existing development in north-east Kaiapoi was approved. This development is now known as “**Beachgrove**” and has become the kernel of future development in north-east Kaiapoi. Figures 4-7 illustrate the nature and character of housing in the development, and provide good examples of the future of medium density development across north-east Kaiapoi.



Figure 4. Beachgrove today.



Figure 5. A main thoroughfare in Beachgrove.



Figure 6. A residential access road in Beachgrove.



Figure 7. The interface between development and reserve space in Beachgrove.

05 Statutory Context

Policy Framework

Ongoing development in the Waimakariri District is informed by a hierarchy of statutory and non-statutory guidance including:

- The National Policy Statement on Urban Development 2020.
- Our Space 2018-2048.
- Canterbury Regional Policy Statement (**CRPS**).
- Waimakariri 2048 District Development Strategy.

In a nutshell this hierarchy of policy directs the district council to create more compact urban environments in existing urban areas in the Waimakariri District that enable more people to live where there is good access to:

- Employment.
- Transport connections.
- Community facilities and open space.

Zoning

Under the notified PDP Kaiapoi's urban area has been zoned General Residential with pockets of commercial, industrial and open space zoning in line with existing development patterns. An exception to this is the North Block and South Block. While this site is either wholly within the urban area of Kaiapoi or within identified urban growth areas, the site has been left in Rural Lifestyle Zoning.

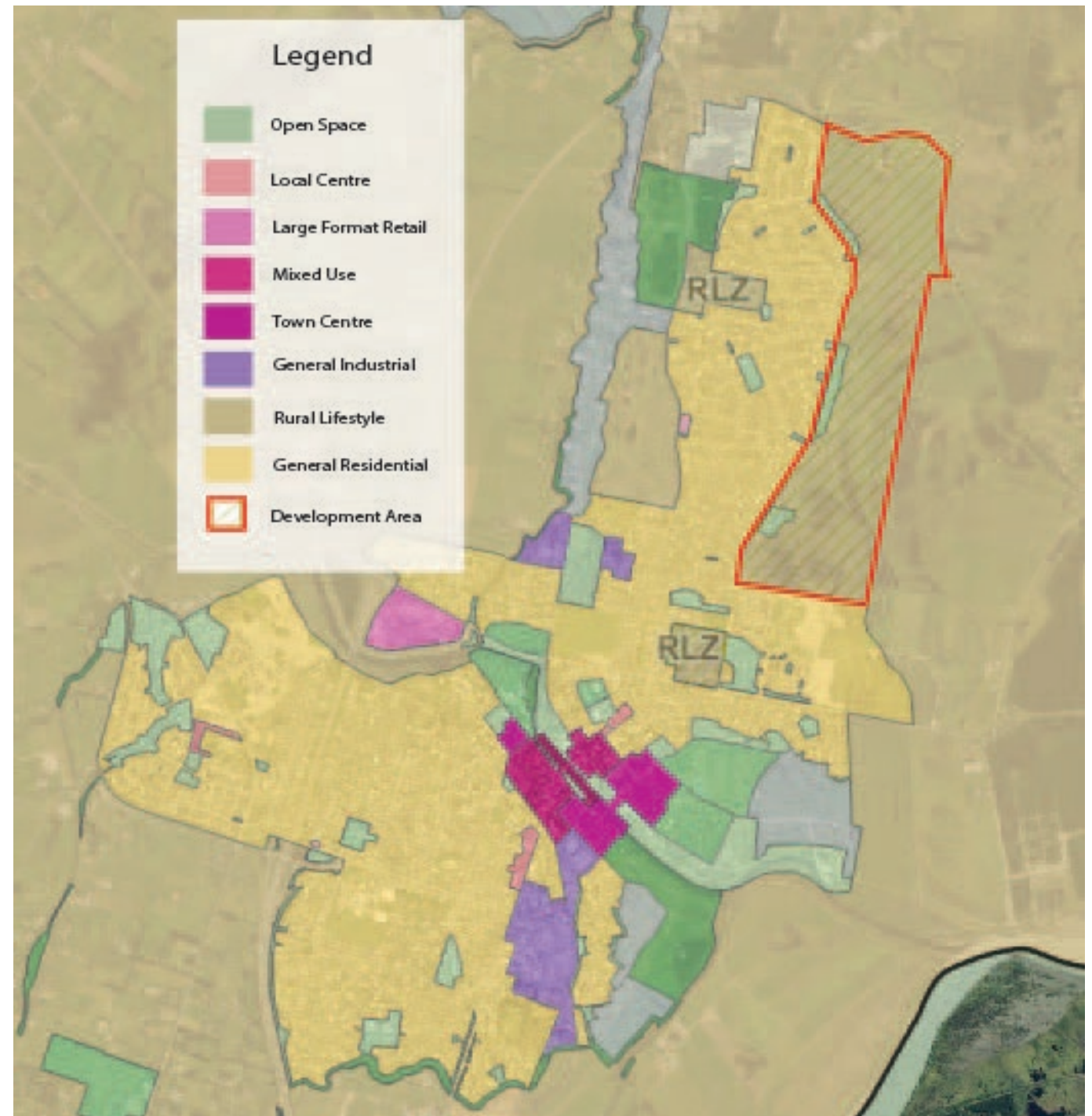


Figure 8. Kaiapoi is dominated by residential zoning, reflecting its role as a satellite town for commercial activity in Christchurch (Source: Waimakariri District Plan Maps).

06 Urban Development

Gravity of Development and Transport Connections

To 1970, development in Kaiapoi was dictated by the relationship between Williams Street and the Kaiapoi Town Centre – development occurring around Williams Street and feeding into the town centre area. However, the construction of State Highway 1 has lessened the importance of Williams Street as a highway passing through to Christchurch and it has become an arterial feeding the east-west links (Beach Road and Ohoka Road).

Development in the town is increasingly focused on the strategic east-west links feeding State Highway 1 interchanges to the west of the town. The most significant east-west link in north Kaiapoi being Smith Street-Beach Road which runs from the rural land in the east and feeds State Highway 1 in the west. As a result, Williams Street has become one of a number of feeders connecting Kaiapoi's residential neighbourhoods to Smith Street-Beach Road.

Town and Neighborhood Centres

Commercial development in Kaiapoi was historically concentrated around the town centre on the banks of the Kaiapoi River. However, as development has extended to the north and west residential neighborhoods are now capable of supporting smaller neighborhood centres.

Town Centre Character

The historic 'heart' of Kaiapoi (as detailed above) is the town centre which exhibits some character values, however given the distance from the site and lack of cohesive aesthetics these values are not considered sensitive.

Suburban Character

The existing residential neighbourhoods of Kaiapoi have a relatively homogenous suburban character. The built environment consists of detached weatherboard and brick dwellings generally built in the 50s through the 70s. Northern and western Kaiapoi have seen more recent development, generally infill development in northern Kaiapoi and greenfield development west of SH1 in western Kaiapoi.

Despite sporadic built development with some heritage value, the character values of Kaiapoi's residential neighborhoods are not considered sensitive.

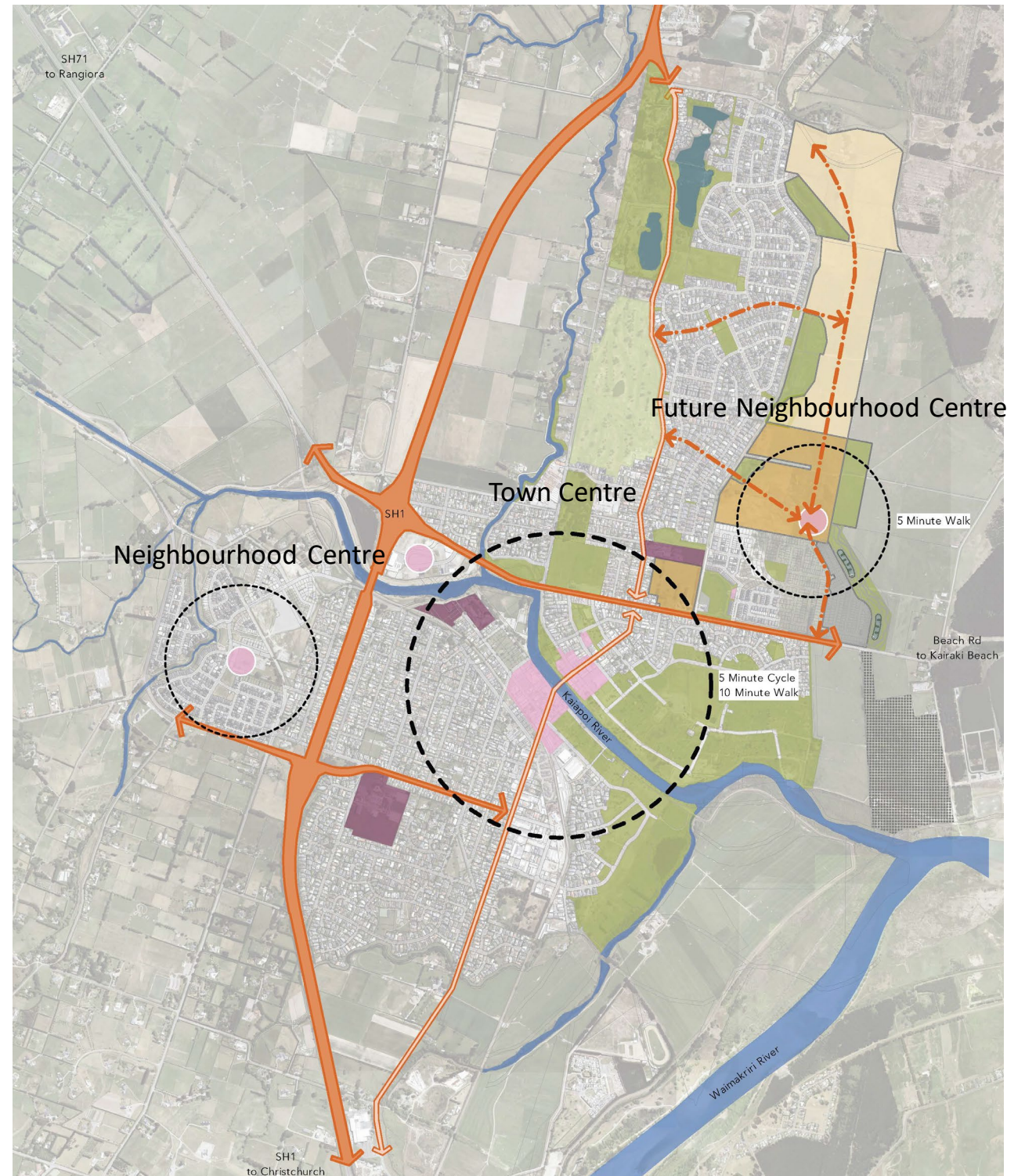


Figure 9. The 'gravity' of Kaiapoi has drastically changed from the historical focus around a north-south thoroughfare passing through the town centre to east-west feeders connecting to SH 1.

07 Recreation Spaces

Open Space Network

While south-west Kaiapoi is an urban townscape with small pocket parks distributed throughout residential neighbourhoods, north Kaiapoi is characterized by larger public green spaces. This is partly due to the large area east of the town centre that was red-zoned after the Christchurch earthquakes and demarcated as recreation space. This pattern is reinforced by the strip of open space running along the eastern bank of the Ruataniwha River. (Kaiapoi Lakes Reserve/Kaiapoi Golf Club/Kaiapoi Domain).

This pattern is anticipated to continue in the north-east of Kaiapoi as McIntosh's Reserve adjacent to Beachgrove is extended North and open space is established in future development area to the north of the North Block.

Active Travel Connections

The open space network developing in north-east Kaiapoi is characterized by both the large size of open spaces and the legible connections between these spaces.

Figure 10 demonstrates the active travel network that links existing and future open space. The green dotted lines represent contiguous areas of open space and direct connections through the streetscape that represent a dense active travel network and consolidated recreation space.

The active travel network not only links open spaces but also provides pedestrian linkages between other urban amenities such as neighbourhood and town centres.

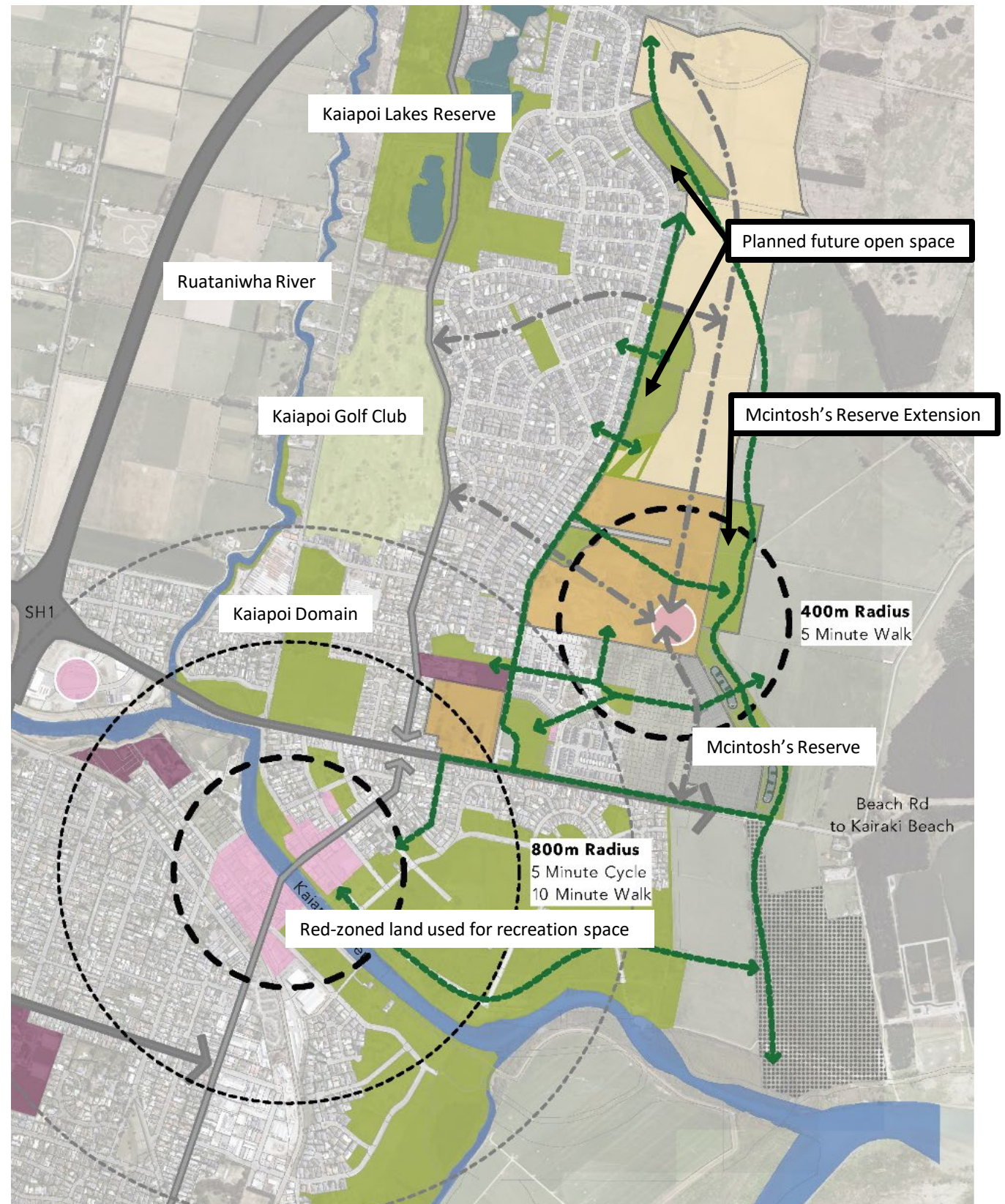


Figure 10. Open spaces and the existing and potential active travel network across North Kaiapoi.

08 Key Considerations

Natural Hazard

Due to the low-lying nature of Kaiapoi on the banks of the Ruataniwha and Kaiapoi Rivers, flooding hazard is a significant concern for any urban development in the area. As such a key constraint is stormwater inundation which demands a comprehensive mitigation strategy.

Other Major Residential Developments

North-east Kaiapoi is already undergoing significant residential development and any new development must be responsive to the developing urban context from a connectivity and infrastructure perspective.

The Changing Gravity of the Town

Historically the urban form of Kaiapoi has been arranged around Williams Street, however the shift of gravity towards the east-west links demands a different transport strategy that directs traffic generated towards future development towards Beach Road rather than Williams Street.

Changing Demographics

As Kaiapoi is subsumed within the Greater Christchurch area it increasingly functions as a dormitory suburb for commercial activity in Central Christchurch. A consequence of this is changing demographics in the town towards young families and professionals that have different expectations regarding residential amenity. This suggests that there should be less focus on on-site landscaping and more public amenity spaces such as reserves and community facilities.

Airport Noise Contour

Under Variation 1 to the PDP the entire South Block and 2/3 of the North Block is subject to the Christchurch International Airport noise contour qualifying matter. This establishes a minimum allotment area of 200m² per dwelling within the noise contour.

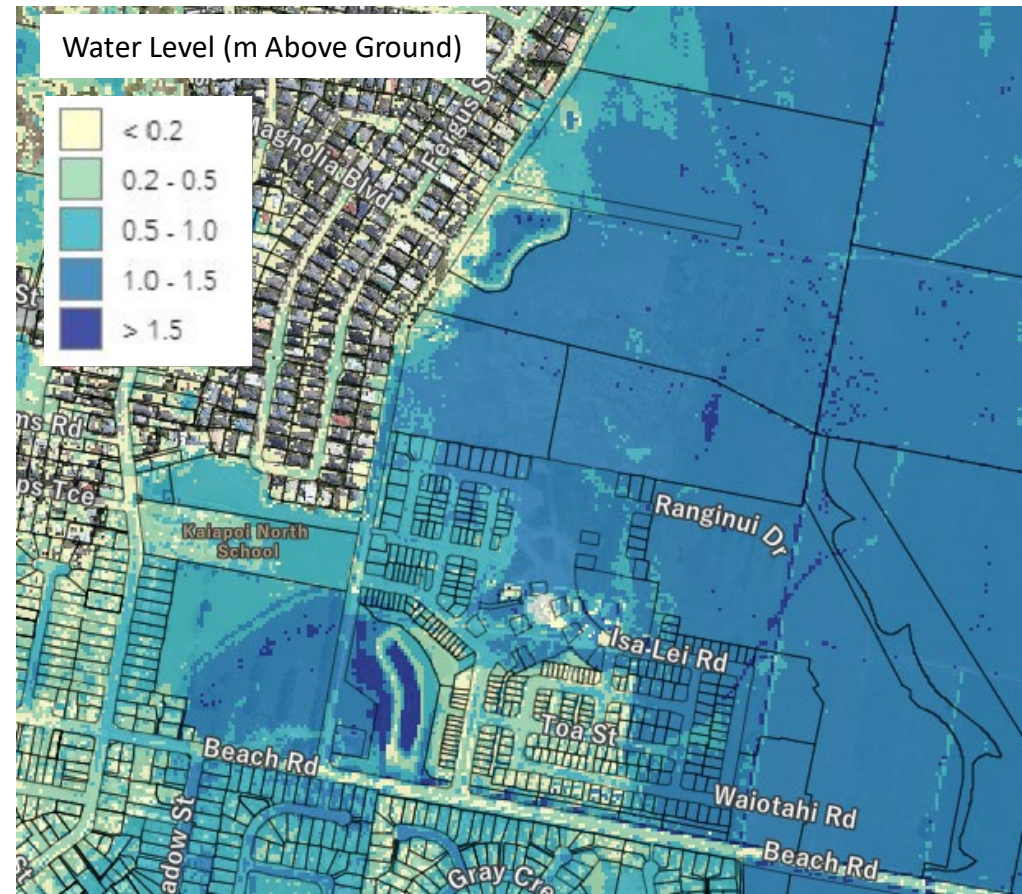


Figure 11 Flood mapping

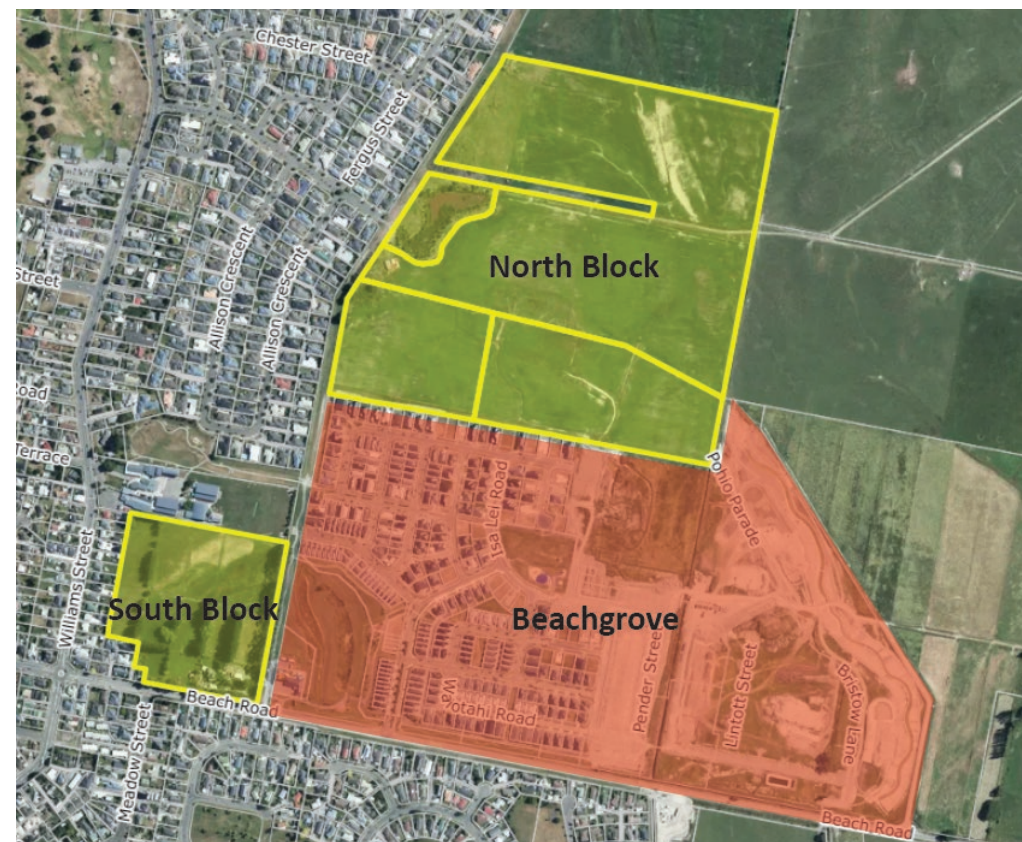


Figure 12 The site relative to existing development across Beachgrove.

09 North Block

Site

The North Block is a 28ha parcel of land (excluding the Council reserve at 29 Magnolia Boulevard) immediately east of the urban edge of North Kaiapoi and north of Beachgrove. Under the Waimakariri District Plan (WDP) the area is Rural Zone. Under the PDP this area is within the Rural Lifestyle Zone.

The North Block is a flat site sitting in pasture with scattered scrub. A Council Reserve occupied by a large stormwater pond (approximately 4,000m²) and pump station is located within the site along the western boundary at the terminus of Magnolia Boulevard – one of the main entry routes from Williams Street to the west. Paper Road runs adjacent to the western boundary and partially bisect the site.

Surrounding Environment

The North Block is surrounded by:

- The Beachgrove development, a comprehensively designed medium density development currently under construction to the south. Under the operative district plan this area is Residential 2 Zone. Under the PDP this area is Medium Density Residential Zone.
- The existing residential neighbourhoods of north-east Kaiapoi to the west, a suburban area characterized by single-storey detached dwellings on large lots. Under the operative district plan this area is Residential 2 Zone. Under the PDP this area is Medium Density Residential Zone.
- Pasture and wetlands to the north. Under the operative district plan this area is zoned Rural Zone. Under the PDP this area is Rural Lifestyle Zone. Note that this area is earmarked for future residential development under the Kaiapoi Outline Development Plan (KODP).
- Pasture to the east. Under the operative district plan this area is Rural Zone. Under the PDP this area is Rural Lifestyle Zone.

Natural Hazard

During periods of intense rainfall, the North Block experiences stormwater inundation. These stormwater flows drain to the east towards the adjacent agricultural land before discharging into the river.

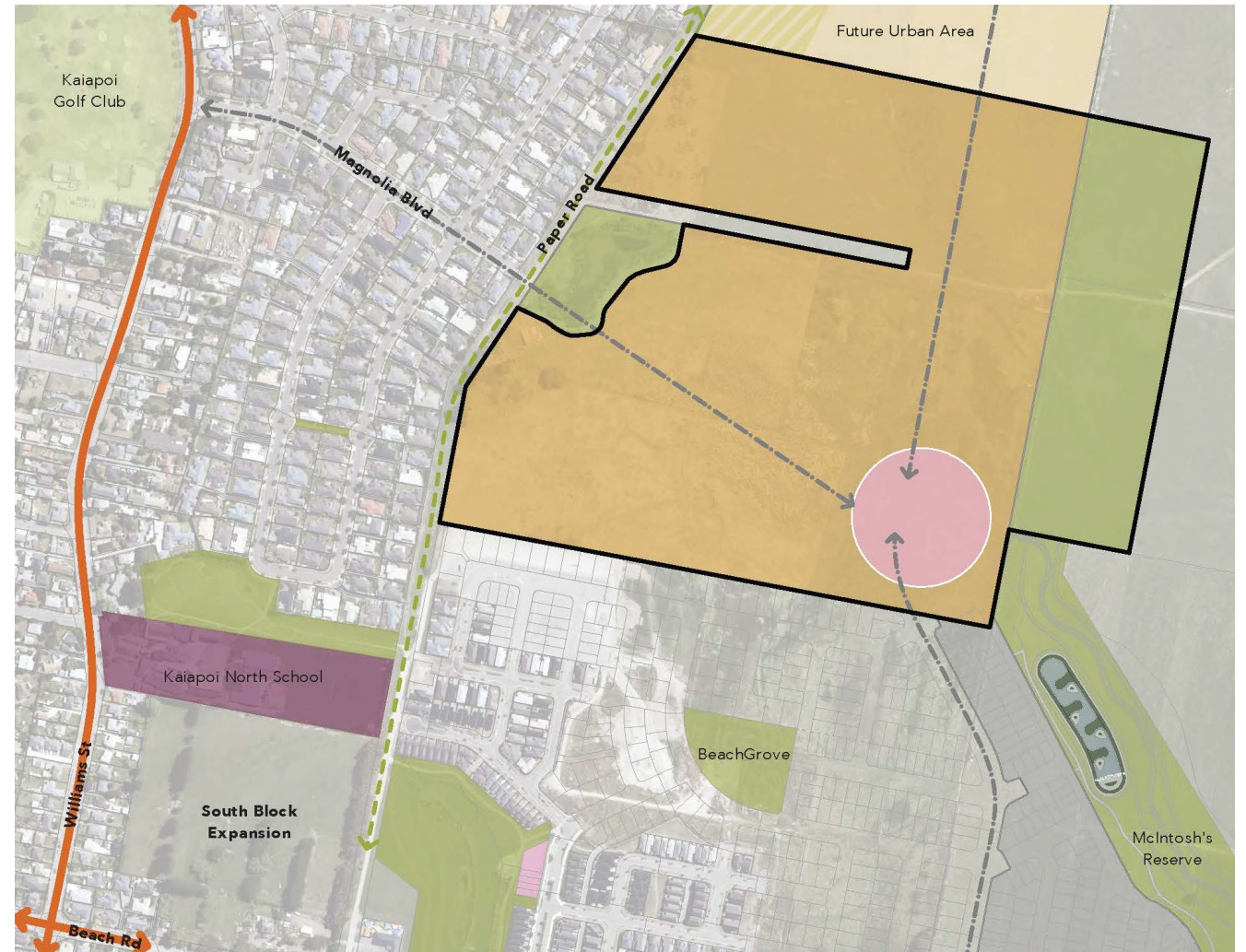


Figure 13. The North Block is part of an identified future development area to the north of existing development at Beachgrove.

10 Site: South Block

Zoning

The South Block is on a 6.04ha parcel of land north of Beach Road fully enclosed by existing urban development. Under the Operative district plan the north block is zoned Rural Zone. Under the PDP this area has been zoned as Rural Lifestyle Zone.

Site Characteristics

The South Block is a flat site in maintenance grazing with mature shelter plantings along the southern and eastern boundaries and scattered throughout the site.

Surrounding Environment

The South Block is completely subsumed within the existing urban landscape of Kaiapoi. This includes:

- The Kaiapoi North School and Moorcroft Reserve to the North.
- Beach Road (an arterial to the motorway to the west) and existing suburban neighborhoods to the south.
- The Beachgrove development to the east. The South Block is not immediately adjacent to any residential development in Beachgrove and is separated from residential properties by a large stormwater reserve and Paper Road.
- A strip of residential properties backing onto the South Block to the West.

Natural Hazard

During periods of intense rainfall, the South Block experiences stormwater inundation from waters displaced by surrounding development. Stormwater drains from the South Block to the stormwater management reserve to the east along Beach Road.



Figure 14. The South Block is wholly subsumed within existing residential neighbourhoods in northern Kaiapoi

11 Zoning and ODP

Zoning

Under Variation 1 to the WDP, the North Block and South Block have been zoned Rural Lifestyle Zone. Momentum opposes this zoning and seeks relief to have this land zoned as MDRZ. This would enable residential intensities commensurate with the urban growth anticipated for north-east Kaiapoi .

Outline Development Plan

To support good urban design outcomes across the site in line with the statutory context, and to respond to the identified constraints and key considerations, Momentum also proposes the inclusion of a new Outline Development Plan (ODP) for north-east Kaiapoi.

This indicative ODP provides certainty about the general location of trunk road infrastructure, the stormwater mitigation strategy and the location of neighbourhood centre and reserve space. Furthermore, the arrangement of the plan is conducive to implementing certain kinds of block layouts and vehicle access that further support good urban design outcomes.

In summary the ODP requires:

- Trunk Roads that key into existing trunk infrastructure in Beachgrove to the south, Magnolia Boulevard to the west and the future development area to the north.
- Recreational amenities distributed throughout the site which augments stormwater mitigation infrastructure to create significant integrated open space amenity.
- The placement of a neighbourhood centre at the intersection between primary vehicle corridors and in close proximity to existing development in Beachgrove.

These requirements support:

- The use of north-south block patterns that offer a high level of onsite residential amenity and streetscape activation.

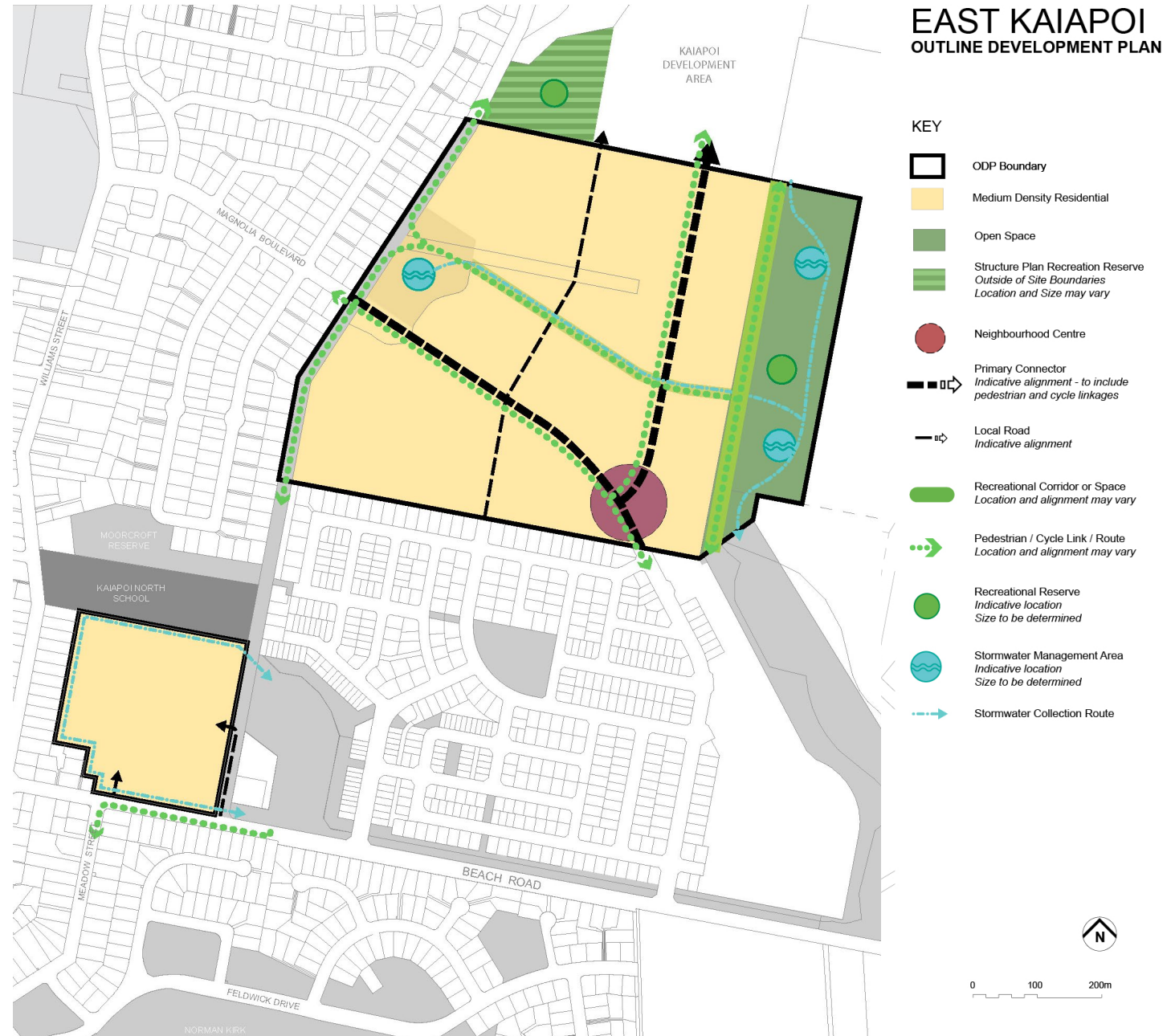


Figure 15. The ODP is designed to integrate with existing and future development and infrastructure.

12 Development Efficiency

Net Density

For the purposes of this assessment, residential density (dwellings per hectare / dph) is 'net density' in accordance with the definition under the CRPS: the area which includes local road and reserve areas but excludes major district level infrastructure – arterial roads and stormwater management areas (such as McIntosh's Reserve).

As this definition of net density includes public amenity spaces such as reserve areas, it is important to distinguish net density (which is consistent across different forms of residential development) and development efficiency (which changes relative to the density of development).

Development Efficiency

All levels of density are impacted by a number of factors – urban and environmental context, the intended socio-economic market, site (or block or lot) shape and the ability/desirability to accommodate building height. Additionally, as residential density increases, so too do the requirements for local roads / open space (more compact housing = more demand for public amenity). Consequently, what is commonly referred to as 'development efficiency' (or the area utilized for private residential lots) declines with density.

Figures 16-18 are examples of increasing development intensity within residential developments across the country. These examples demonstrate the increasing need for public amenity as development density curtails the size and flexibility of private outdoor living spaces.

For example, typical residential development exhibits development efficiency of:

- 75% for low density
- No higher than 65% for medium density.
- As low as 50% for high density.

This is an important consideration for the purposes of deriving the maximum theoretical yield of a development, (i.e. for medium density development no higher than 65% of a site is actually available for residential allotments).



Figure 16. Low density development in West Melton, Selwyn.



Figure 17. Medium density development in Rangiora, Waimakariri.



Figure 18. High density development in Hobsonville Point, Auckland.

13 Yield Calculation

Beachgrove

The yield achieved across Beachgrove's various stages has informed the calculation of predicted yield:

- Stages 1–4 all feature a single dwelling per lot up to 18.5 dph.
- Stages 5 and 6 involve 187 dwellings over approximately 11ha – a density of 17dph with site sizes ranging from approximately 230m² to 530m².
- Approval is now being sought for Stages 7 and 8 feature much higher densities (173 dwellings over approximately 6.9ha – a density of 25dph). These stages will involve generally smaller lots – 230m² to 450m², with an average around 300m².

The higher densities involved in Stages 7 and 8 are supported by higher public amenity through the formation of the McIntosh's Reserve and associated active travel (walking and cycling) pathways as well as the completion of amenities including playgrounds, reserve areas and childcare facilities. Consequently, this shift towards higher densities is anticipated to continue.

Predicted Yield

For the purposes of calculating the predicted yield across the North Block and South Block, a range of dph has been used, based on the yields seen across the various stages of the Beachgrove development. This yield range has been tested against the IM. The airport noise contour is not considered relevant to this calculation as allotments would be greater than 200m² regardless of the qualifying matter.

Maximum Theoretical Yield

For the purposes of calculating the maximum theoretical yield across the North Block and South Block, a maximum possible development efficiency for medium density development of 65% has been used as a starting point, and lots of 200m² within the airport noise contour have been the basis for deriving a maximum theoretical yield.

As 1/3 of the North Block is outside the airport noise contour, the maximum theoretical yield in this area has been derived using an assumed dwelling density of 35 dph (the upper range of medium density development).



Figure 19. Beachgrove scheme.



Figure 20. Artists impression of Beachgrove adjacent to McIntosh's Reserve.

14 North Block IM

Yield

As the North Block is significantly larger (developable area of 30ha), it needs to function as a ‘complete community’ providing a wide range of typologies and lifestyle options including a higher level of amenity. As such:

- Provision of higher amenity takes time to deliver;
- Allowance also needs to be made for the mixed-use Neighbourhood Centre and market limitations on apartment-style living;
- Further distance from the Town Centre, and lack of certainty on public transport provision, will make private motor vehicle use more likely .
- Higher amenity also means development efficiency is reduced.

Based on yields seen across Beachgrove, it is reasonable to assume a density range of 20-30 dwellings per hectare, delivering 600–900 dwellings. This aligns with the IM, which delivered 586–854 lots.

As for maximum theoretical yield, application of a 65% development efficiency, 200m² site sizes under the noise contour (650 allotments) and, 35 dph across the balance of the site (350 dwellings) would result in a yield of 1000 dwellings.

Transport and Recreation Networks

The site can support a more intense network of streets, open space and active travel connections – all of which provide amenity and support modal shift towards walking and cycling.

Stormwater Infrastructure

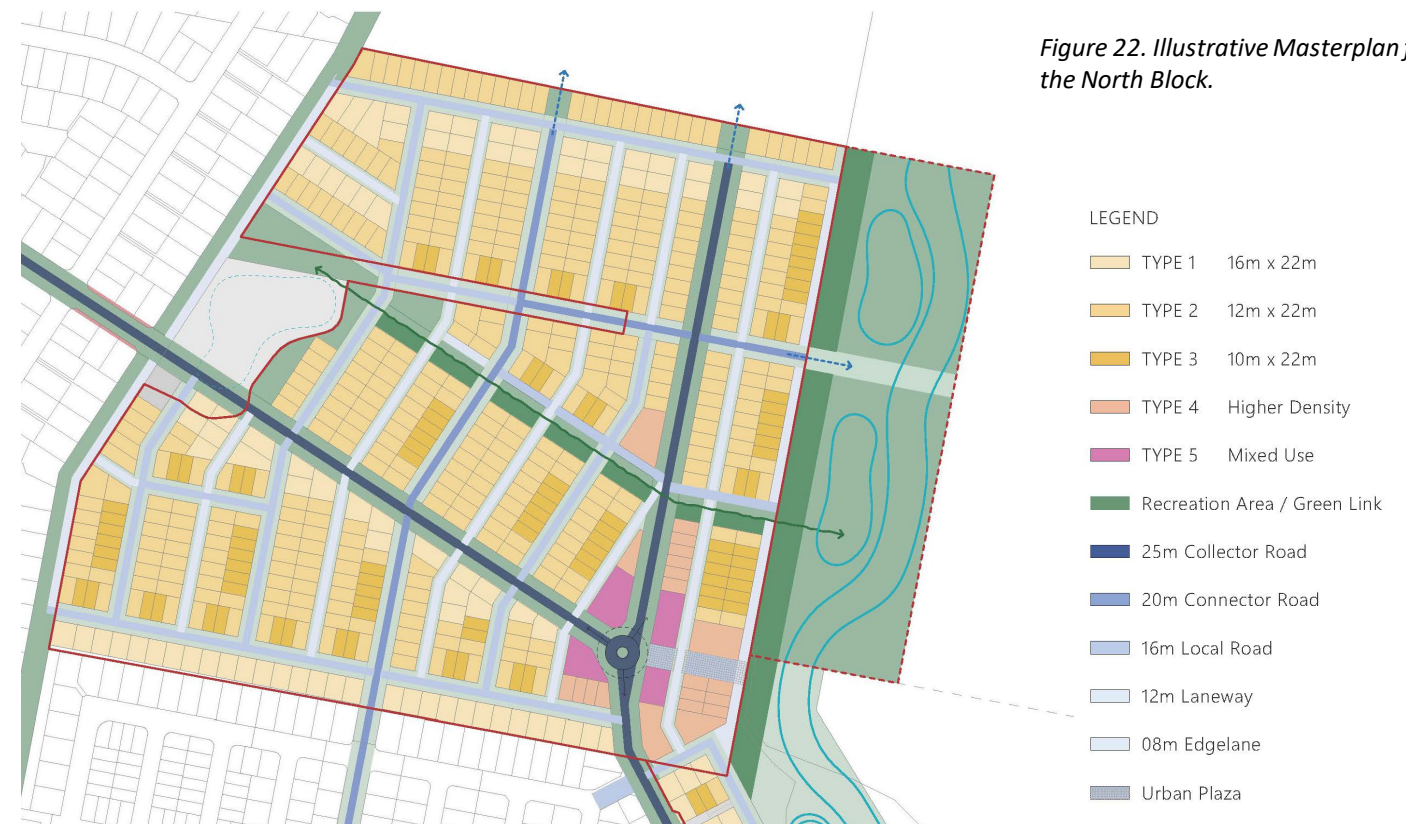
The open spaces provide a logical stormwater mitigation solutions similar to the existing stormwater management reserve to the east of the South Block. The eastern reserve space continues the pattern of McIntosh’s Reserve which will provide stormwater detention and drainage as development continues to the north. In general, these environments also provide a high level of amenity which supports more-intense urban form.

Block Structure

The high-level roading structure indicated in the ODP provides the bones of a dense street network of north-south running blocks. The north-south orientation has advantages for medium density development including increased streetscape activation and better solar gain.



Figure 22. Illustrative Masterplan for the North Block.



15 South Block IM

Proof of Concept

Given its small and discrete nature the South Block can easily accommodate a medium density development with a high level of amenity while leaving the roading details to be resolved at the resource consent stage. Notwithstanding the above, an indicative structure has been shown in Figure 24 to demonstrate feasibility.

Yield

The South Block covers 6ha but (less the required stormwater area) has a developable area of 4.8ha. It features good proximity to existing services and is a short walking distance to the town centre. As such, it is my opinion that a potential net density yield range for this site would be 20–30 dwellings per hectare, as seen across the various stages of Beachgrove, or 96–144 dwellings.

Should the Site be developed to the maximum density provided for within the MDRZ (65% development efficiency and 200m² minimum allotments, 156 dwellings could be developed on the site.

Amenity

Given the access to open space in the surrounding area and the proximity to the town centre, providing additional public open space or mixed use development within this site is not considered necessary.

Stormwater Infrastructure

Stormwater will drain from the South Block to the adjacent stormwater management reserve in the east across the unformed road. Stormwater design essentially provides a landscape buffer around the entire site. This area can either be contained within private lots or provided as common amenity area.

Block Structure

As demonstrated in Figure 17 a north-south block structure can be implemented across the South Block.

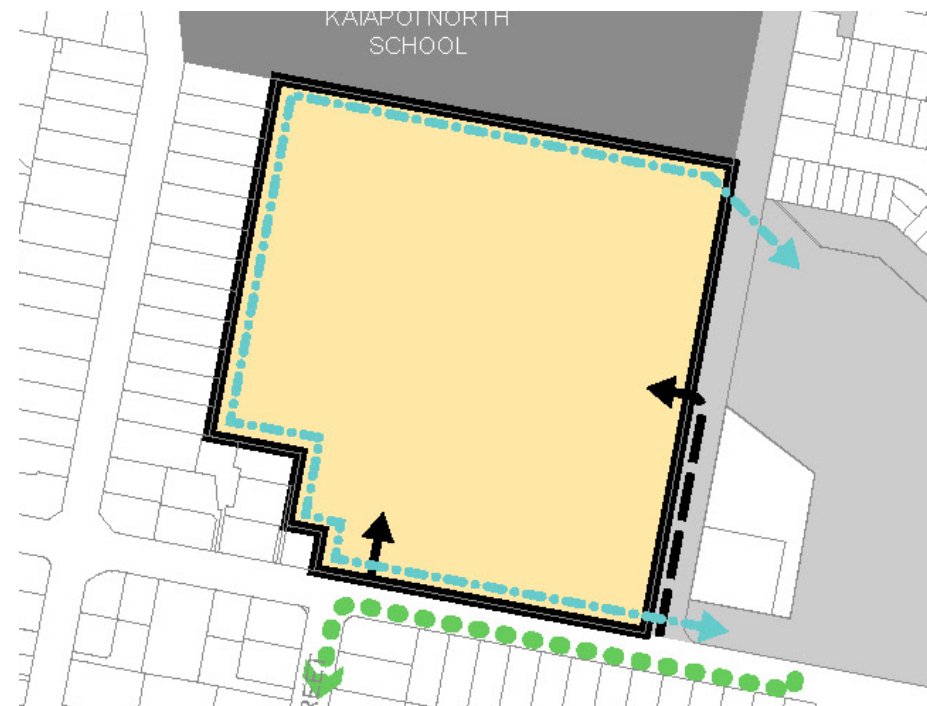


Figure 23. ODP for the South Block

- ODP Boundary
- Medium Density Residential
- Local Road Indicative alignment
- Pedestrian / Cycle Link / Route Location and alignment may vary
- Stormwater Collection Route



Figure 24. Illustrative Masterplan for the South Block

16 Transport Network

Transport Network Integration

The proposed trunk road (collector roads) network keys into existing thoroughfares across Beachgrove and north Kaiapoi's existing neighbourhoods, extending from Beachgrove in the south through to the future development area to the north and extending Magnolia Boulevard right through the development. This arrangement supports convenient access to SH1 and central Christchurch via Beach Road. A consequence of the primary road framework is that local roads can fan out in a roughly orthogonal pattern from the central intersection. The intersection also provides a natural focal point for the proposed mixed-use Neighbourhood Centre.

Legibility

The transport network is responsive to existing and proposed features of the urban environment such as the neighbourhood centre and open space. Combined with the orthogonal road arrangement, this creates a highly-legible urban environment.

Supporting Residential Densities

The transport network supports the densities enabled by the proposed zoning by utilizing an appropriate network and hierarchy of streets, access lanes and active travel pathways to provide convenient vehicle and pedestrian access across the whole site. The fine 'urban grain' reduces the need for private motor vehicles, enabling higher densities.

Modal Shift

The legible street pattern, fine-grain street network (which increases the permeability of the urban environment) and extensive open space network supports a modal shift towards walking and cycling. In particular, the logical connection between the existing council reserve in the west and McIntosh's Reserve in the east provides a widely accessible and attractive pedestrian connection to both the proposed neighbourhood centre area and through to Beach Road.

South Block

The South Block is connected to Beachgrove and the North Block via the open space running north from the South Block's eastern boundary and the Kaiapoi Town Centre via Beach Road and Williams Street.



Figure 25. The transport concept plan demonstrates how the requirements of the ODP provide the bones of a efficient and integrated roading layout.

17 Infrastructure / Amenity

Stormwater Infrastructure

The proposal utilises a combined blue/green infrastructure strategy to accommodate stormwater within open spaces (see Figure 14). Stormwater flows generated across the site will be diverted into an existing stormwater management areas next to Magnolia Boulevard and Beach Road and to the new McIntosh's Reserve which will run the length of new development in north-east Kaiapoi.

This approach facilitates a wholistic approach to stormwater management that will allow for increase in ground levels of residential allotments (mitigating the flood risk stormwater poses to the site).

Defensible Boundary

The placement of reserve space on the eastern boundary of the North Block both creates a defensible boundary preventing further encroachment into the highly productive soils to the east and provides an appropriate transition space between the urban environment of the North Block and the rural land to the east.

Edge Lanes

Edge lanes provide an important function in support of both activating the expansive stormwater/open space areas and delivering higher residential densities. They enable active frontages and ensure a higher level of CPTED outcomes.

Neighbourhood Centre

The placement of a neighbourhood centre area at a conveniently located intersection of the primary Collector Roads will provide local amenity to future residents. As already described, this centre is connected to the rest of the development via open space and active transport networks.



Figure 26. The renders of McIntosh's Reserve Demonstrate the high level of public amenity available to future residents.



Figure 27. An active travel route in McIntosh's Reserve.



Figure 28. An edge lane in Auckland's Te Atatu Peninsula.

18 Open Space Provision

Open Space

The ODP identifies a number of new public open spaces across the site (see Figure 14) and future development will otherwise be supported by existing open spaces in north-east Kaiapoi.

The inclusion of extensive green spaces is necessary to support the increased density enabled by Medium Density zoning and the integration of this open space with movement networks supports modal shift towards active transport.

North Block

The North Block is linked to adjacent existing and planned open spaces via a network of pedestrian and bicycle connections, lessening the need for internal open spaces. In particular, a greenway running through the heart of the North Block directs residents towards the planned extension of McIntosh's Reserve to the east. McIntosh's Reserve acts as both a stormwater management area and a centrepiece recreation space in north-east Kaiapoi.

South Block

The South Block is nestled between existing open spaces in all directions, ensuring adequate recreational amenity will be provided for future residents.



Figure 29. Open spaces in close proximity to the North Block.

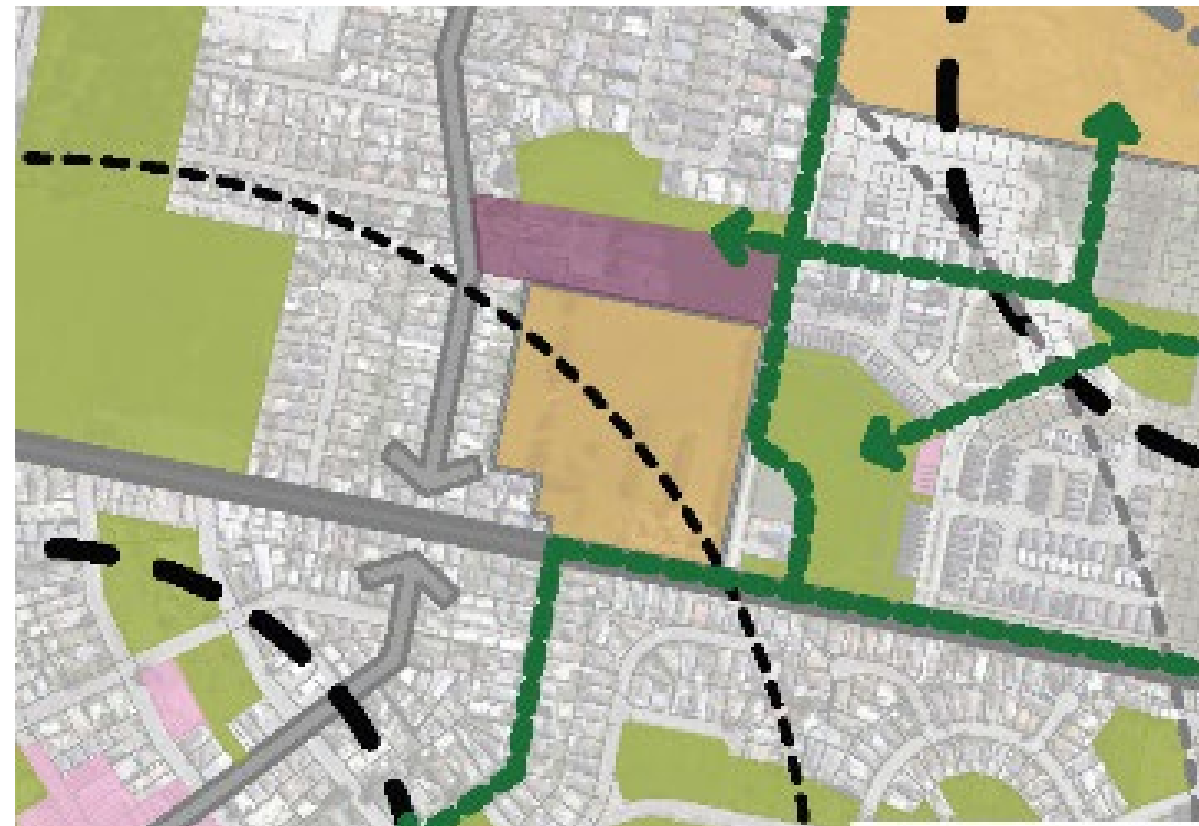


Figure 30. Open spaces in close proximity to the South Block.

19 Block Structure

PDP

In general, the internal amenity of the North Block will be supported by the objectives, policies and performance standards of the MDRZ, which will require appropriate treatments of the streetscape and an adequate level of onsite amenity. However, several of the features of the proposed ODP further support the amenity values offered across the site.

North-south Blocks

Across the North Block the general arrangement of the road network as defined by the ODP supports a subdivision pattern formed out of long, narrow blocks running from the north to the south.

North-south blocks support lot designs which achieve solar access throughout the day (eastern aspect in the morning, western in afternoon) as well as solar access from rear yards regardless of the orientation of the lot.

Wider Narrower Lots

A north-south block pattern allows for shallower, wider lots that offer:

- Enhanced overlooking of the street (CPTED);
- Greater separation between vehicle crossings, enabling more on-street parking and landscape amenity;
- A wider range of building design and configuration option and living spaces.

Overall Amenity

The block pattern and lot shape provide a high level of on-site amenity, and when combined with the open spaces, more than compensates for any potential loss of amenity related to more dense subdivision schemes than already experienced in Kaiapoi.

South Block

While a detailed IM has not been prepared for the South Block, Figure 19 demonstrates that a similar block structure and lot configuration could be applied to the South Block.

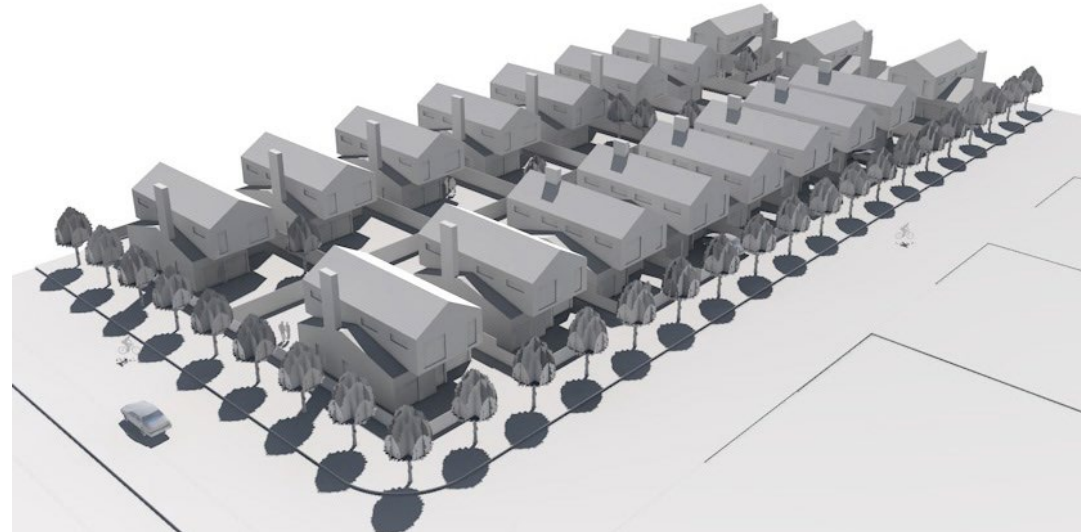


Figure 31. A mass blocking render demonstrating the potential form of future medium density development across the site.

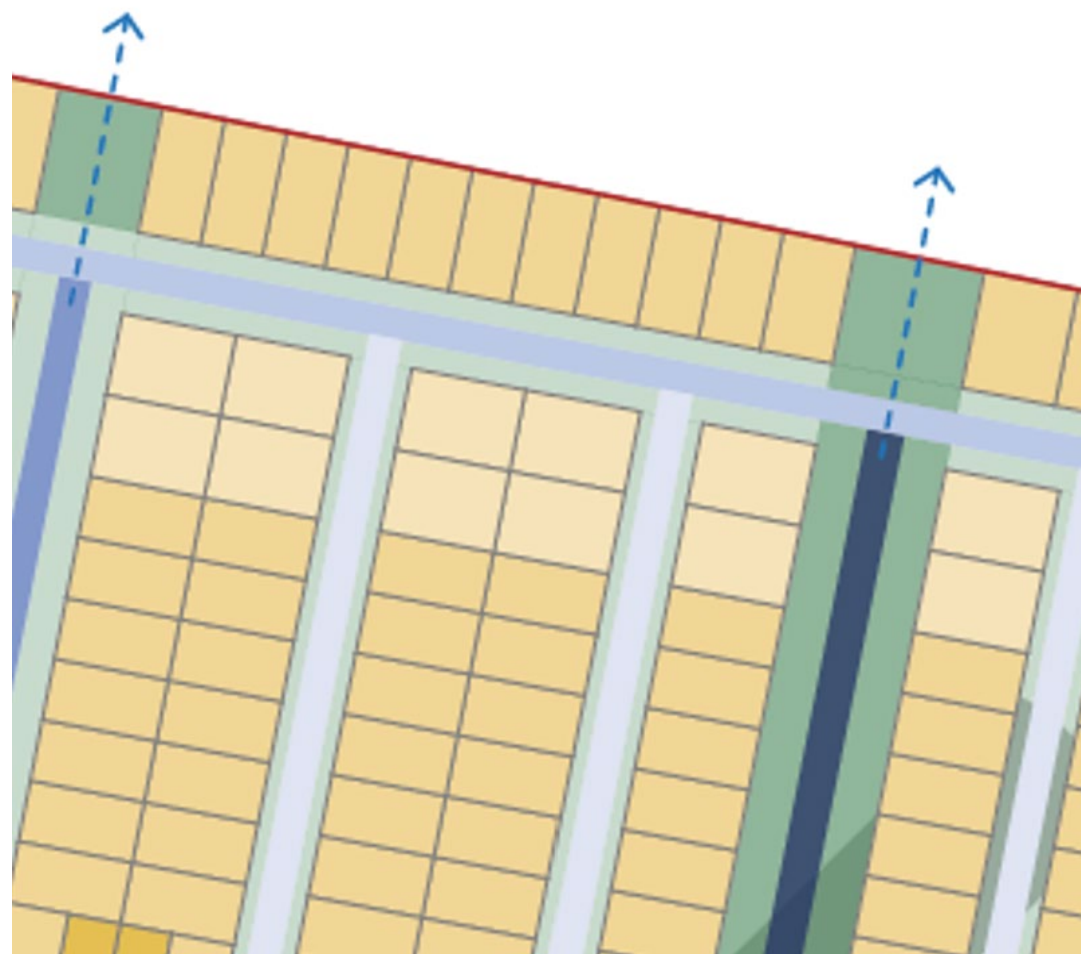


Figure 32. The north-south blocks provide good solar gain for all lots regardless of orientation.