SUNFIELD CONCEPT MASTERPLAN

Urban Design Assessment

11 February 2025

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Contents

FIGURES

This Assessment has been prepared by Studio Pacific Architecture, on behalf of Winton Land Limited (WLL)

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The report has been reviewed by Michael Lowe – Urbanist, Studio Pacific Architecture

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1. PURPOSE OF THIS DOCUMENT

1.0.1. This Assessment has been commissioned by WLL and forms part of the application for Fast-track Approval for the Sunfield masterplanned community. The purpose of this document is to provide an objective urban design assessment of the development against recognised and accepted best practice urban design principles.

1.0.2. This Assessment should be read in conjunction with the following key documents.

(i) Sunfield Masterplanned Community - Concept Masterplan (SCM) dated February 2025 – Studio of Pacific Architecture
(ii) Sunfield Open Space Strategy dated February 2025 – Studio of Pacific Architecture
(iii) Wai Mauri Stream Park dated February 2025 – Studio of Pacific Architecture
(iv) Sunfield Design Controls + Design Guide for Local Hub Precincts dated February 2025 – Studio of Pacific Architecture
(v) Residential Precinct dated 05 February 2025 - Studio of Pacific Architecture
(vi) School Precinct Concept Masterplan dated February 2025 - Studio of Pacific Architecture
(vii) Sunfield Design Controls and Design Guidelines for Residential Precincts dated February 2025 – Studio of Pacific Architecture
(viii) Town Centre Concept Masterplan dated 06 February 2025 - Winton
(ix) Sunfield Design Controls and Design Guidelines, Town Centre dated 06 February 2025 – Winton
(x) Employment Concept Masterplan dated 06 February 2025 – Winton
(xi) Sunfield Design Controls and Design Guidelines, Employment Precinct dated 06 February 2025 – Winton
(xii) Aged Care Precinct Masterplan Homehill dated 06 February 2025 – Winton
(xiii) Aged Care Precinct Masterplan Lilyburn dated 06 February 2025 – Winton
(xiv) Aged Care Precinct Masterplan Brookside dated 06 February 2025 – Winton
(xv) Sunfield Design Controls and Design Guidelines, For Aged Care Precincts dated 07 February 2025 – Winton
(xvi) Sunfield Planting Palettes dated 11 December 2024 – Winton
(xvii) Landscape Visual Assessment dated 24 January 2025 – Reset Urban Design Ltd
(xviii) Integrated Transport Assessment dated 04 February 2025 - Commute
(xix) Sunfield Master Planned Community, Sustainability and GHG Emissions Assessment dated 06 February 2025 – Stantec Australia Pty Ltd

2. QUALIFICATIONS

2.0.1. My full name is Gerald Nicholas Barratt-Boyes. I am a registered architect with the New Zealand Registered Architects Board (NZRAB). I have a Bachelor of Architecture from the University of Auckland (BArch 1984), I am a Fellow of the New Zealand Institute of Architects (FNZIA), a member of the Architects Registration Board UK (ARB) and a Chartered Member of the Royal Institute of British Architects (RIBA).

2.0.2. I have 38 years' of experience as an architect. I have practised as an architect and urban designer in New Zealand and Great Britain. I am an independent commissioner for resource consent hearings with expertise in architecture and urban design.

2.0.3. I am a founding director of Studio of Pacific Architecture (Studio Pacific). As a practising architect and urban designer, I am, and have been, actively involved in a diverse range of residential and mixed-use masterplans and urban design projects throughout New Zealand. My experience in urban design, research, housing, and mixed-use regeneration within New Zealand and internationally is listed in Appendix A.

3. ASSESSMENT METHODOLOGY

3.0.1. In order to provide a comprehensive and rigorous assessment, it is important to reference against an established, recognised and accepted set of best practice urban design principles.

3.0.2. Within New Zealand, the Urban Design Protocol (Ministry for the Environment, 2005) is considered to be one of the most recognised and accepted documents with respect to defining what good urban design means in a New Zealand context.

3.0.3. The Urban Design Protocol identifies seven essential design qualities that contribute to an urban design assessment: “the seven Cs”. They are:

(i) Context

(ii) Character

(iii) Choice

(iv) Connections

(v) Creativity

(vi) Custodianship

(vii) Collaboration

3.0.4. I have adopted these design qualities as the primary assessment criteria. The Urban Design Protocol defines these seven “C’s” as a combination of design processes and outcomes. They are not strictly a set of urban design principles however they are being adopted as assessment criteria for the purposes of this assessment. The following elaborates on the questions each design quality is asking, taken verbatim from the protocol.

3.1. Context

3.1.1. Does the scheme take advantage of existing topography, landscape features (including watercourse), wildlife habitats, existing buildings, site orientation and microclimates)?

3.1.2. Does the development respond to and reinforce locally distinctive patterns of development and landscape features?

3.1.3. How does the scheme respond to the scale and character of the local context, taking into account current strategic policy directions?

3.1.4. What is the combined impact of the proposed development (built form and landscape features) when seen in relation to its surroundings?

3.2. Character

3.2.1. Does the scheme create a place with a locally and culturally inspired or otherwise distinctive character?

3.2.2. *Does the development create locally appropriate and inspiring architecture, spaces and* places?

3.3. Choice

3.3.1. Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, bars / cafes / restaurants?

3.3.2. Is the design flexible and adaptable so it can continue to reflect good practice urban design principles through the length of the development process and over time?

3.3.3. Does the development have a mix of housing types and tenures that suit local requirements, particularly the distinct cultural characteristics of the surrounding community?

3.4. Connections

3.4.1. Is the development easy to move around by multiple modes, in particular by walking and cycling to reduce dependency on the private car?

3.4.2. Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings and land uses along the boundaries of the development site?

3.4.3. Does the scheme have good access to public transport to help reduce car dependency?

3.5. Creativity

3.5.1. Have innovative approaches been used to promote diversity and make a distinctive and memorable place?

3.5.2. Are there special features to make this development more memorable and easier to find your way around?

3.5.3. Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to turn street corners well?

3.5.4. Are streets designed in a way that encourages low vehicle speeds and allows them to function as social spaces?

3.5.5. Will public and private spaces be clearly defined and designed to be attractive, well managed and safe?

3.6. Custodianship

3.6.1. Does the design manage resources carefully through environmentally responsive and sustainable design solutions?

3.6.2. Does the scheme demonstrate methods for minimising its ecological footprint?

3.6.3. Does the scheme demonstrate how it enhances the site and local environment?

3.6.4. Is there a clear strategy for the on-going care and maintenance of buildings, streets and spaces?

3.6.5. Are the external appearance and functionality of materials and design elements used in both public and private areas of good quality?

3.6.6. Is resident and visitor parking sufficient and well-integrated so that it does not dominate the street?

3.7. Collaboration

3.7.1. Is there evidence of collaboration in order to produce the proposed design?

3.8. Climate Change

3.8.1. Since the development of the seven C's, sustainability has rapidly become important in terms of assessing good urban design and built environment outcomes. The focus on climate change and greenhouse gas emissions (GHG), both embodied and operational, are fast becoming fundamental considerations for urban development. Sustainability in the context of this assessment is covered under the section on Custodianship. This should be read in conjunction with the Sunfield Sustainability and Greenhouse Gas Emissions Report.

3.9. Assessment Scope

3.9.1. I have not assessed the Sunfield Concept Masterplan (SCM) against National Policy Statements, Regional Plans or Regional Policy Statements.

3.9.2. I have assessed the SCM in all cases in terms of site-wide integrated outcomes and, where applicable, I have undertaken separate precinct-based assessments. The following table identifies the assessment scope. The seven precincts are; residential, aged care, town centre, local hubs, employment, school, and recreational.

Assessment Criteria	Assessment Scope	
	Site Wide	Precinct Based
Context	•	
Character	•	•
Choice	•	
Connections	•	•
Creativity	•	
Custodianship	•	
Collaboration	•	

Figure 1 Assessment Scop

4. INTRODUCTION

4.0.1. Sunfield is fundamentally a different model of housing in Aotearoa, New Zealand. It challenges the status quo by eliminating the private vehicle as the dominant form of transport. The car-less walkable neighbourhoods become the key driver for the spatial planning. The reduction in private vehicles is a departure from the norm in terms of greenfields medium density housing in Aotearoa New Zealand.

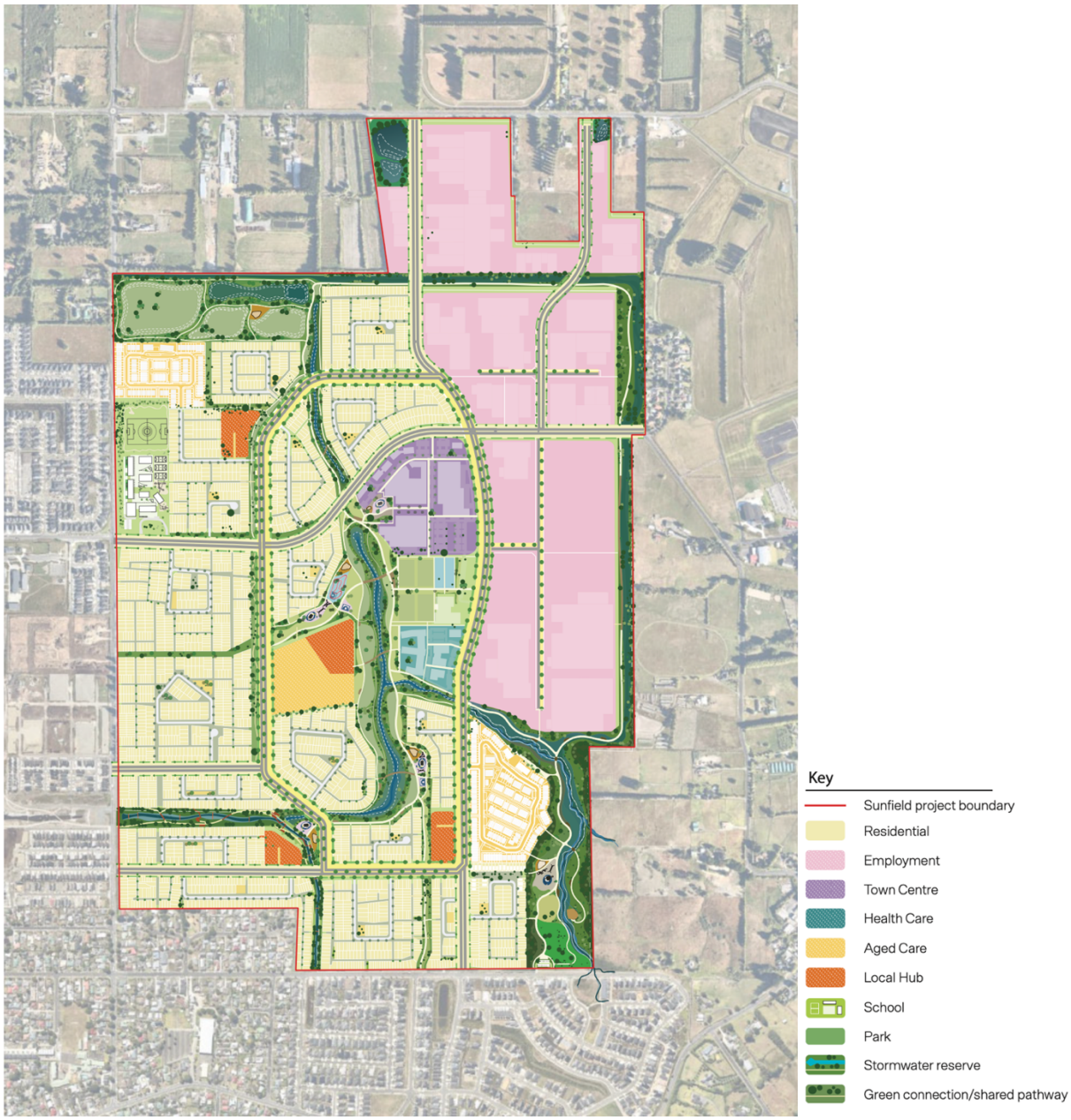

Figure 2 Sunfield Masterplan

4.0.2. Accommodating private vehicles and providing access and parking to each individual home in a planned medium-density community is one of the more challenging areas within the field of urban design. Streets can quickly become car dominated with visitor parking, multiple driveway crossings to narrow residential sites, and garages on the street frontages with very little visual relief. Providing dramatically less cars on a per house ratio, something in the order of, one car park per every ten dwellings, creates residential neighbourhoods almost entirely pedestrian orientated where a network of walking laneways replace standard car-based streets.

4.0.3. The benefits of less roading infrastructure, less asphalt, less concrete and more green space is, greater efficiency in terms of land use, potential greater housing affordability due to less capital from less intensively engineered roads, more connected neighbourhoods, more opportunities for vegetation and less embodied and operational carbon.

4.0.4. A car-less development in this location, however, does necessitate critical dependencies for it to be successful and sustainable. These dependences include access to non-car based transport modes such as public and community transport, cycling and micro-mobility visitor parking, ride share services and local hubs, the provision of employment in the neighbourhood, a commercial centre, healthcare facilities, age in place, recreational facilities, educational facilities, recreational areas, and neighbourhood parks, all within close walking, scootering or cycling distances.

4.0.5. There is also an aspect of behavioural change that needs to be considered with the proposal. The dependency of the private vehicle on the Auckland isthmus as the primary form of transport is challenged by the car-less model and inevitably it will take time to be adopted.

4.0.6. The following section sets out the framework for the design of the SCM.

5. DESIGN HIERARCHY

5.1. Design Hierarchy

5.1.1. The SCM is underpinned by the following cascading hierarchical suite of instruments- ordered from the top down - aspirational, to spatial, to technical. Refer Figure 3. This diagram sets out the design hierarchy and lays the foundation for the masterplan. The vision is to enable Car-less Living.

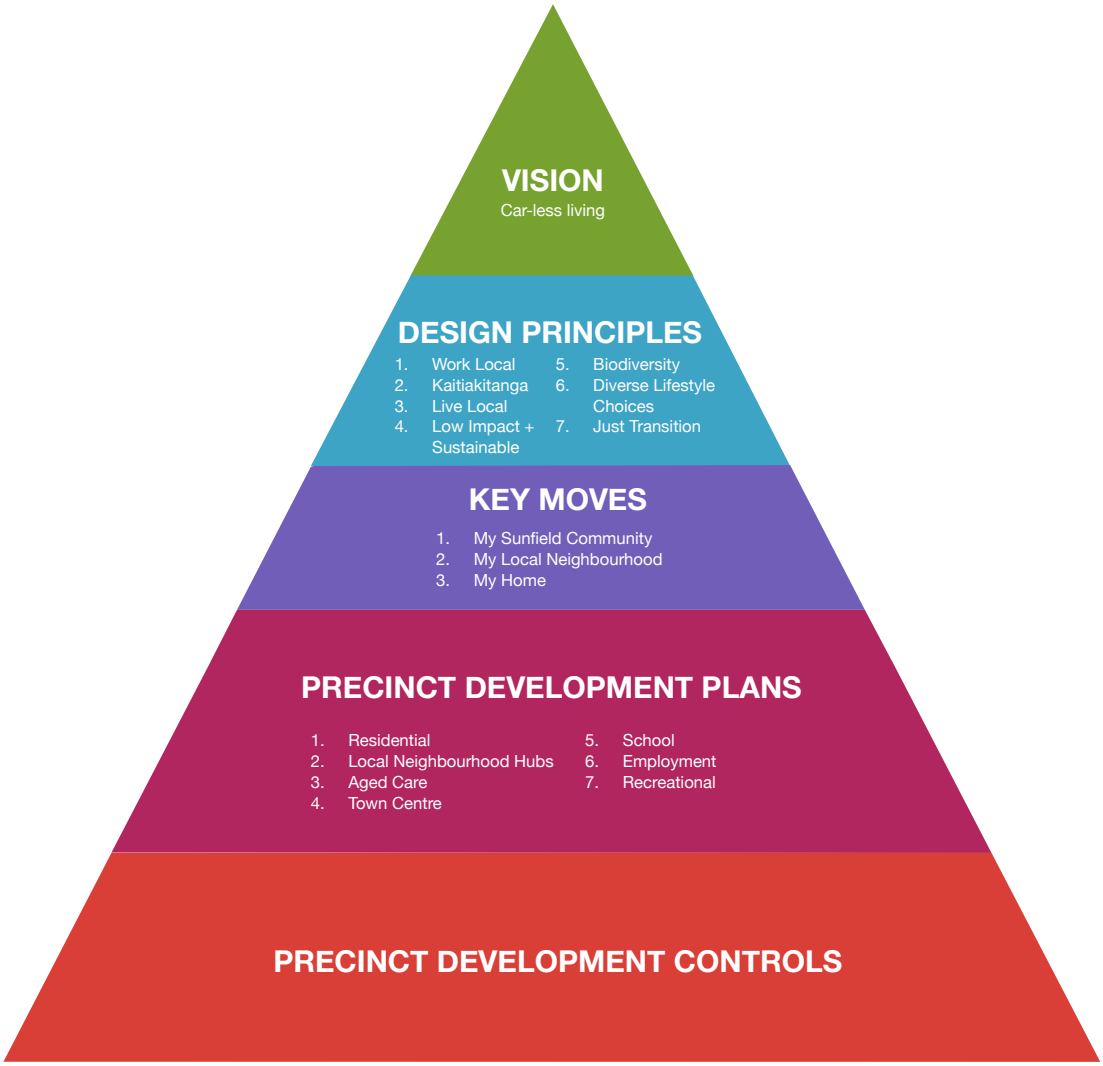

Figure 3 Design Hierarchy

5.2. Design Principles

5.2.1. The following figure illustrates how seven Design Principles support the Vision of Car-less Living. The details of each of the principles are set out in the SCM.

Figure 4 Design Principles

5.3. Key Moves

5.3.1. The principles are, in turn, to be given effect to by the three key overarching spatial moves which characterise the SCM. Refer to Figure 5. These Key Moves are framed from an individual perspective i.e. my home to a local neighbourhood perspective and then to a wider community perspective. They are set out in more detail in the SCM.

Figure 5 Key Moves

5.4. Precinct Development Plans

5.4.1. The SCM is structured into seven distinct and interrelated precincts. The precincts are;

(i) Residential Precinct

(ii) Local Hub Precinct

(iii) Recreational Precinct

(iv) Town Centre Precinct

(v) Aged Care Precinct

(vi) School Precinct

(vii) Employment Precinct

5.4.2. The Precinct Development Plans describe each precinct in terms of layout, functionality, connectivity, character of proposed buildings, streetscapes and open spaces and how they are integrated holistically.

5.5. Precinct Design Controls

5.5.1. The Precinct Design Controls prescribe the detailed outcomes for each precinct. They are to be read in conjunction with the Precinct Development Plans. The Precinct Design Controls are generally modelled on the Auckland Unitary Plan (AUP) zonings where applicable, and augmented with site specific controls that better suit the spatial urban design outcomes sought in the Precinct Development Plans and Design Principles.

5.5.2. The following sections investigate, using the above seven C's methodology, whether,

(i) the Design Principles, Key Moves, Precinct Development Plans and Precinct Design Controls, work in unison, and whether they provide certainty in terms of the built outcome for a development of this scale and nature,

(ii) and whether the SCM provides an overall well-conceived built and natural environment that has a low impact on the existing environment.

6. CONTEXT

Does the scheme take advantage of existing topography, landscape features (including water courses), wildlife habitats, existing buildings, site orientation and microclimates?

Does the development respond to and reinforce locally distinctive patterns of development and landscape features?

How does the scheme respond to the scale and character of the local context, taking into account current strategic policy directions?

What is the combined impact of the proposed development (built form and landscape features) when seen in relation to its surroundings?

6.1. Wider Context

6.1.1. Sunfield is located on the edge of Auckland's Southern growth corridor 30km south of Auckland CBD,12km south of Manukau City Centre by road or rail, and 20km from Auckland Airport. It is adjacent to the Rural Urban Boundary which runs down Mill Road and through the Sunfield Site along the FUZ boundary.

6.1.2. Sunfield adjoins the rapidly expanding growth areas of Papakura and Takanini located along SH1 and on the high-frequency Southern Line rail network. The major growth area of Drury sits further to the south.

6.1.3. The adjacent centres, Takanini Town Centre and Papakura Metropolitan Centre provide a range of commercial services as well as employment opportunities. Papakura is one of Auckland's 10 larger metropolitan centres and a key centre for the southern growth corridor. The eastern boundary of the site is approximately 2.0 km from Papakura and 2.2 km from Takanini railway stations on the Southern Line.

6.1.4. Nearby Manukau City Centre and Auckland Airport are significant employment destinations as are the light industrial and commercial centres of East Tāmaki, Onehunga, and Māngere. Manukau City Centre and Auckland Airport are on the Eastern Line rail network which connects to the Southern Line at Puhinui station north of Manurewa.

6.1.5. In closer proximity, Ardmore Airport, a privately operated airport with commercial and aviation-related industries, is located adjacent to the eastern boundary of the site. The airport has land zoned for future industrial expansion and is a major hub within the local area.

6.1.6. The site abuts the southern growth corridor. Mill Road and Cosgrave Road, running north-south, delineate current urbanised land from rural land. The site is partially outside and partially inside the RUB and is partially within the (MRZ) Mixed Rural Zone and (FUZ) Future Urban Zone. The collective critical mass of residential to the south of the site, along with the residential and centres to the west, and Ardmore Airport to the east, means that the site is already surrounded on three sides to an extent by urban development.

6.1.7. The Sunfield development is a natural and logical extension of the surrounding urban pattern, and becomes, in essence, the connective tissue between these existing urban areas.

6.1.8. The wider contextual analysis demonstrates that the proposed development aligns with the commonly held best practice urban design principle of co-locating residential intensification with,

(i) Established rapid transit corridors

(ii) Local and regional centres

(iii) Employment

(iv) Social and recreational infrastructure

(v) Blue and green networks (natural environment)

6.1.9. The next level of assessment, for consideration, is how the development stitches into the local neighbourhood and interfaces with its adjacencies, how the impact of the development is minimised locally at each boundary condition, and what type of defensible boundary is rationalised.

6.2. Local Context - Interfaces

6.2.1. The site is bordered by different zonings. To the north of the site is the MRZ adjacent to Airfield Road. To the east is a combination of the Ardmore Airport and the MRZ. To the south, the site abuts a suburban residential area across from Old Wairoa Road and to the west, the site, adjacent to Mill Road/ Cosgrave Road, is a higher-density residential area associated with some substantive recreational areas, including Barry Pullman and McLennan Park, along with several schools.

6.2.2. The neighbouring western and southern areas of the site are more urbanised in character than the northern and eastern areas due to urban growth emanating from the Papakura and Takanini centres.

6.2.3. The northern and eastern edges are typically more rural in character other than Ardmore Airport which is a significant commercial and industrial hub. There is also a small pocket of residential properties located on the eastern boundary. Refer to the Landscape Visual Assessment for a detailed characterisation of adjacent land.

6.3. Interfaces

6.3.1. The following paragraphs illustrate how the SCM responds to these varied boundary conditions and how it interfaces with and mitigates any effects of the development with the adjacent properties. It also explains the rationale for the location of uses on the site in relation to external influences.

6.4. Northern Boundary

6.4.1. There are two interface conditions on the northern boundary; (i) properties on the north side of Airfield Road and (ii) properties that directly abut the site.

6.4.2. Airfield Road acts as a demarcation between the proposed Sunfield employment land and the MRZ to the north. There is a combination of a 20m planted setback and stormwater ponds where the development fronts Airfield Road. This acts to soften the visual impact of the employment precinct (which would be a newly built form in the immediate area) and provides a rural character edge for the adjacent properties in the MRZ opposite and for the public using Airfield Road.

6.4.3. Secondly, where the industrial land directly abuts neighbouring properties a series of setbacks and landscaped buffers are deployed to mitigate any adverse impacts. Specifically, these are:

(i) There is a 20 metre native-planted building setback to the neighbouring property at number 347 Airfield Road and a small park on Airfield Road adjacent to the western side of the property.
(ii) There are 20 metre setbacks to number 323 Airfield Road on the southern, eastern and western boundaries.

6.4.4. Where the proposed development directly abuts properties of the MRZ to the northwest there is a significant wetland park, and stormwater reserve co-located with a proposed school. The park is a substantive buffer to the adjacent properties.

6.5. Eastern Boundary

6.5.1. On the eastern boundary, a substantive green buffer runs the entire length of the masterplan where it directly abuts the MRZ and the airport zone. This naturalised ecological corridor softens the edge of the development visually by screening the tall industrial buildings with trees as it interfaces with the neighbouring properties and also provides an important stormwater and ecological function.

6.6. Western Boundary

6.6.1. The western side of the site abuts Mill and Cosgrave Roads. To the west is an existing higher-density MHS residential area. The SCM responds to this condition with predominately residential and aged care housing directly adjoining Mill Road, mirroring the existing settlement pattern and framing both sides of Mill and Cosgrave Roads with residential. The proposed school runs along Mill Road to the north and the extension of the Awakeri Wetland abuts Cosgrave Road to the south. Notably, the realigned Hamlin Road marries up with Walters Road which reinforces the east west connection across the site from Ardmore Airport to the Papakura town centre.

6.7. Southern Boundary

6.7.1. Old Wairoa Road is the demarcation point for part of the site to the south. This is an existing residential area interface with generally larger lots and one to two storey houses. The other southern interface is a residential area coming off Pukeroa Place which backs directly onto the site. In this location, the proposed Sunfield housing adjoins the boundary in a back-to-back rear garden condition.

6.7.2. There are improved additional green linkages through Noels Reserve off Pukeroa Place for the existing residents to the south.

6.8. Airport Overlays

6.8.1. Ardmore Airport operates on a 24-hour basis. Established in 1943 it is well known for pilot training and flight schools, engineering, maintenance and emergency and rescue services. The site is heavily industrialised with over 90 aviation-related industry tenants, and it is a major employer for the area.

6.8.2. The Sunfield employment land is purposefully located in the northwestern corner of the site for two reasons. Firstly, this location directly relates to integration and future connectivity with the Ardmore Airport commercial hub. Secondly, there are Noise Contours, Height Restriction Contours and Rural Aerodrome Protection Areas that overlay the site relating to the runway running east-west that restrict certain uses, (for example, residential within the inner noise contour) and dictate where buildings should or shouldn't be located relative to the protection areas.

6.9. Main Gas Line

6.9.1. There is a main gas line that runs north-south through the site from adjoining properties. This creates a no-build corridor within an easement of 25 metres in width. This corridor leads to a greenway strategy that provides integrated walking and cycling access through the site.

6.9.2. Overall, the masterplan responsiveness to its adjacent local context in terms of spatial planning presents a well-considered urban design outcome. Interfaces with adjacent properties are carefully managed and impacts to adjacent neighbours from the development are minimised by landscape buffers and setbacks.

6.10. Landscape Visual Assessment

6.10.1. For a detailed assessment of how the development sits visually within the surrounding context refer to the Landscape Visual Assessment.

6.11. Landform and Waterways

6.11.1. The land surrounding the site is generally flat. The historical photos show the land has been agricultural farmland since the 1960s. There is one noticeable landform in the southwest corner of the site which creates an elevated rolling hillock landform. There are 360-degree views to the environs and to the distant Hunua Ranges from the hillock. Due to the low-lying nature of the land in the vicinity, there are a myriad of overland flow paths and areas that are prone to ponding and flooding.

6.11.2. The Baseline Ecological Assessment identifies that there are predominately low ecological values on the site. There are some shelter beds with a mix of exotic and native trees that align with the existing drains and watercourses and there are a few stands of Kahikatea trees.

6.11.3. There are several modified waterways that cross the site from the south and the southeast. One of them, the Wai Mauri stream, is to be revitalised and revegetated. A wide green corridor around this stream forms a significant park, the Wai Mauri Stream Park which runs along the eastern boundary with riparian and indigenous species planting. This provides recreational opportunities, play spaces, woodlands, cycleways, footpaths, footbridges and orchard areas. The revitalisation strategy also restores indigenous biodiversity and native habitat.

6.11.4. Another modified waterway is redirected down the eastern boundary through the green buffer. These revitalised waterways form part of a restorative waterway programme. The network of waterways to the south all feed into the Central Stormwater Park which is a key component of the comprehensive stormwater strategy for the site. This park feeds into the proposed extension of the Awakeri Wetland. The stream network to the north, conversely, feeds into the Wetland Park located in the northwestern corner of the site.

6.11.5. The absence of high-value natural features and the low-lying flood-prone land is one of the key challenges of the development. Conversely, it also presents opportunities to integrate water into the design. This challenge is met by a waterway restoration programme and the inclusion of significant parks, wetlands, and naturalised streams that function as stormwater retention in peak periods. They work in an interconnected and comprehensive way. They also double as recreation areas and provide substantive open space for the master planned community.

6.11.6. The proposed stormwater treatment is one of the defining characteristics of the proposal. It creates the backbone of the design and stitches the masterplan together, creating distinct neighbourhoods that interface with a substantive and diverse green network. This is essential to supporting good liveability outcomes for medium-density development as typically compact house lots with limited private open space need to be serviced by a high provision of public open space amenities.

7. CHARACTER

Does the scheme create a place with a locally and culturally inspired or otherwise distinctive character?

Does the development create locally appropriate and inspiring architecture, spaces and places?

7.0.1. The overall character of Sunfield is primarily defined by the 20-minute walkable car-less neighbourhoods. The prevalence of pedestrian laneways threading through the neighbourhoods and the site-wide pedestrian linkages creates an intimate human-scaled environment. The residential neighbourhoods are co-located with local hubs which are in close walking distances. Each neighbourhood has its own character in terms of an overarching layout and block configuration. The neighbourhoods are interconnected through the green open space network and the Sunfield Loop to the employment precinct, the town centre, the school and recreational areas.

7.0.2. In design terms high-level structural elements also inform character. The following figures illustrate how the development is structured.

7.1. The Sunfield Loop – A Multi-Modal Transport Corridor

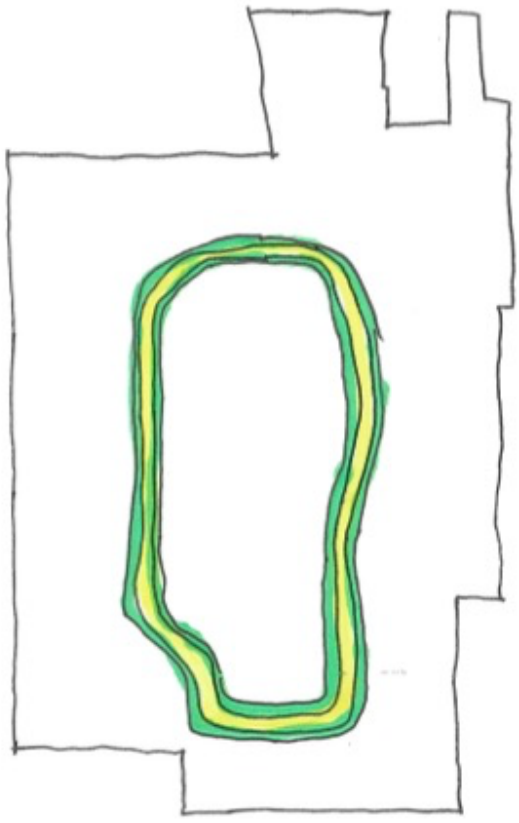

Figure 6 The Sunfield Loop

7.1.1. The primary connecting element and spine of the development is The Sunfield Loop – refer to Figure 6. This is a multi-modal transport corridor that promotes walking and cycling, supports the public and community transport strategy and provides for vehicles to access specific areas of the site. It also supports the 20-minute neighbourhood and car-less residential neighbourhoods with generous pedestrian and cycling lanes.

7.1.2. The loop is 32m in width which is wide enough to allow dedicated walking and two way cycling lanes, the autonomous Sunfield Bus, bus stops, private vehicles and significant landscaping.

7.2. 2 Crossroads and Town Centre

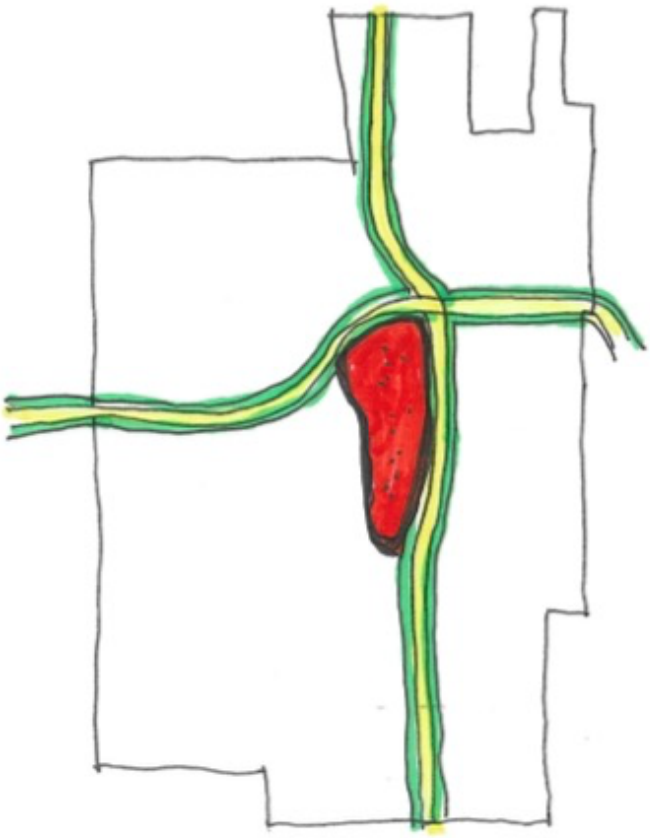

Figure 7 Crossroads and Town Centre

7.2.1. To connect The Sunfield Loop to the external network a north-south connector road and an east-west connector road are introduced – refer to Figure 7. The north-south connector connects with Airfield Road to the north and Old Wairoa Road to the south. Old Wairoa Road connects to the Papakura Metropolitan Centre. The east-west connector becomes a realigned Hamlin Road which crosses over Mill Road to the west and is aligned with Walters Road that leads to Papakura and Takanini centres. To the east Hamlin Road connects to Ardmore Airport.

7.2.2. The main town centre is located at the crossroads. This gives prominence and accessibility to the centre. It helps with drawing people in from the surrounding area and creates a focal point for the development.

7.3. Walkable Neighbourhoods and Centres

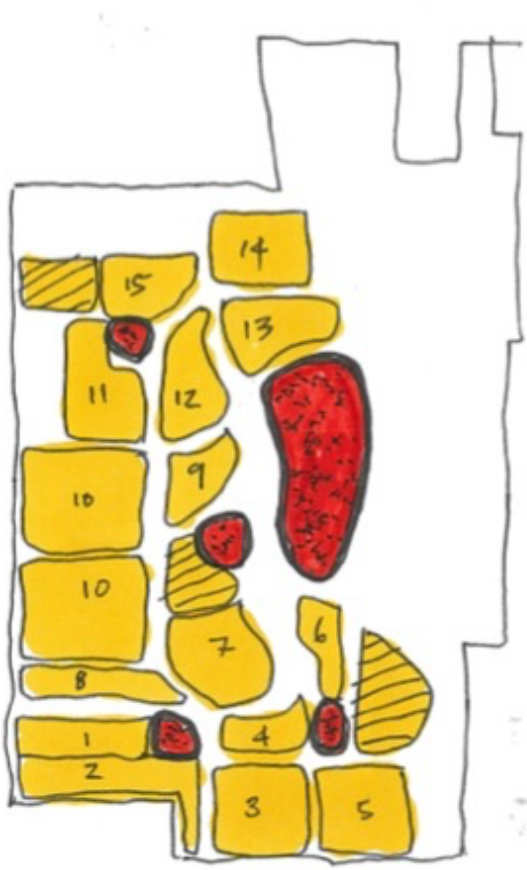

Figure 8 Walkable Neighbourhoods and Centres

7.3.1. The housing neighbourhoods, retirement communities and school precincts (coloured in yellow) are clustered around the Town Centre and the Local Hubs (coloured in red) – refer to Figure 8. There are fifteen walkable residential neighbourhoods, three retirement communities and four local hubs. This diagram illustrates how they are all interrelated and interconnected.

7.4. Blue and Green Networks

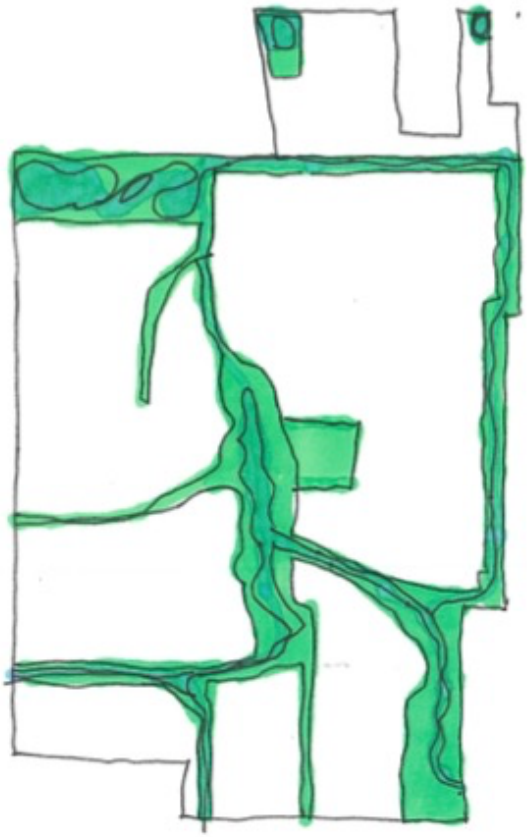

Figure 9 Blue and Green Network

7.4.1. The stormwater strategy creates a substantive network of, retention ponds, wetlands, waterways, revitalised streams, parks, greenways and recreational areas – refer to Figure 9. These green areas and waterways are one of the defining characteristics of the site. The network supports biodiversity, recreational amenity, and modal shift.

7.5. Employment Precinct

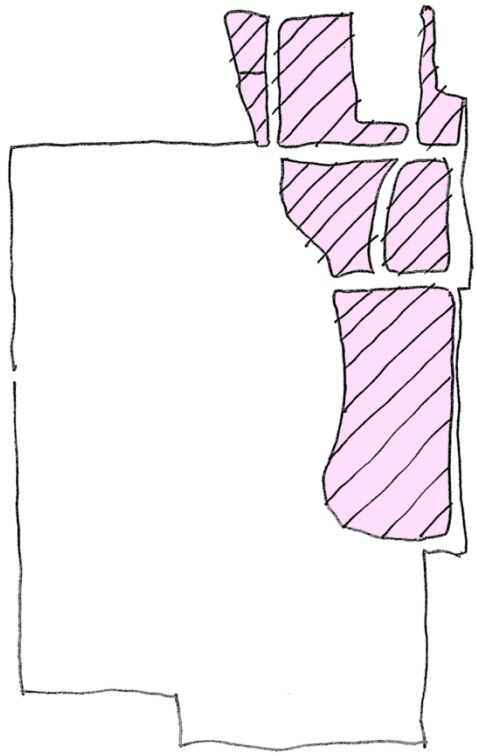

Figure 10 Employment Precinct

7.5.1. The Ardmore Airport overlays, specify constraints, in terms of noise, and protection areas which define uses that are less impacted by the adjacencies and are better suited to, for example, industrial and yard uses. The employment precinct is located in the northeastern corner to integrate with the overlay constraints and to be co-located with the airport special zone -refer to Figure 10.

7.5.2. There is a logical rationale for the placement of the spine roads, loop road, local hubs, centre, the school, recreational areas, housing neighbourhoods and employment areas across the site which provide a sound structure for the SCM and, in combination, create a strong sense of place.

7.5.3. The following section describes the character of each of the precincts and how they interrelate. Refer to the Precinct Development Pans and the Precinct Design Controls for details of each precinct.

7.6. Residential Precinct Character

7.6.1. The defining characteristic of the residential neighbourhoods is the car-less strategy. Landscaped pedestrian laneways and walkways thread through the neighbourhoods. Cars, service vehicles and emergency vehicles can access the neighbourhoods via a vested loop road and via some of the pedestrian laneways. However, only 1:10 homes have a car that can be parked on site.

Figure 11 Pedestrian Laneway

7.6.2. The homes that do have a car on site are accessed off the 16m vested neighbourhood village loop road. Visitor parks and parking amenity is generally located within the local hub's neighbourhood hubs.

7.6.3. The laneways have been crafted to maintain pedestrian priority. This includes low level lighting, native planting and the blurring of the edge between trafficable areas and pedestrian areas such that they are shared spaces. At nodal points, there are seats, informal play areas and changes in paving materiality. The Design Controls stipulate stepped building facades and diversity of typology to add variety to the lane. Refer to Figure 11.

7.6.4. At key intersections of the laneways solid walls define nodal points and provide way finding through the lane network. Side facing rear yards to the lanes also have solid walls which achieves privacy from the lane. There are no fences to the houses fronting the lane or the village loop road, other than specific instances where a north facing outdoor private space is fronting the laneway. The laneways are 6 metres in width with a minimum of 10 metres between buildings.

7.6.5. The 16m vested village loop road allows for access for vehicles into each neighbourhood, there is a sheltered local neighbourhood service hub in each neighbourhood for drop off, pick up, rubbish collection and deliveries. It is also a meeting and gathering point for each neighbourhood, for ride share pickup, electric bike and car charging.

7.6.6. The homes are two storeys and are either stand alone or semi–D in configuration. There are no terrace houses within the residential neighbourhoods. Due to the ground conditions and the extent of peat on site, two storeys are the most practical in terms of construction.

7.6.7. The suite of typologies is identified in the Development Pans. The houses are clad in brick, timber weatherboard (painted or stained) and or profiled metal cladding (where low emission options are available). The upper floors facing the laneways have façade depth in terms of detailing and some homes have balconies overlooking the lane to create depth and for CPTED reasons. The entranceways are sheltered via canopies and overhangs and offer welcome and depth from the laneways.

Figure 12 My Home

7.6.8. All the homes have pitched roofs to enable solar panels. The site is generally flat with very good solar access. The homes typically have a private rear yard with an outlook space that is accessed down a (minimum 1.2m) side yard. Bike, e-bike, and e-scooter storage and charging provisions are generally located in the rear yards in purpose designed structures. A smaller proportion of homes have bike lockers on the laneway frontage.

7.6.9. The front façades of the houses other than the houses that have garages or car pads are free of cars. Visibility to the street is unencumbered and front entranceways and doors (where visible) are legible.

7.6.10. Due to the car-less nature of the residential environment, a strategy is in place for dealing with all the myriads of functional aspects which a standard car orientated development would naturally provide. These are, for example, rubbish collection, recycling, mail and courier drop off, maintenance and servicing vehicle access, access to bus stops, visitor parking, and ride share operator parking.

7.6.11. The character of the residential neighbourhoods from the macro to the micro aspects have been carefully considered and crafted together. Designing homes without car parking is a fundamental shift from the norm, functionally and aesthetically. The laneways and streetscapes are, therefore, radically different in character being more pedestrian orientated, human scale and walkable.

7.6.12. The Design Controls are a blend of bespoke site-specific rules and rules that have been adopted from the Auckland Unitary Plan Mixed Housing Urban MHU zone. The Design Controls are extensive and comprehensive.

7.6.13. The Development Plans and the Design Controls for the residential precincts are sufficient in detail and scope to give certainty to the built environment outcomes and align with the overall vision of the development.

7.7. Local Hub Precinct Character

7.7.1. There are four Local Hubs which service the residential and retirement precincts. The hubs are within close proximity and walking distance to the residential neighbourhoods. Each hub consists of surface visitor parking, residential apartments, secure parking, car wash facilities, click and collect points, end of trip facilities, bike and scooter storage, commercial space, food and beverage and ground floor retail.

7.7.2. The residential apartment component is on the first floor above the car parking buildings and the ground floor commercial/ retail/F&B space. The hubs provide open space that can accommodate small recreation areas adjacent to the F&B operations. The buildings provide generous sheltered waiting spaces for ride-share and other modes of shared transport. Lobbies and active areas of the buildings are located in front of the street.

7.7.3. The hubs are located close to bus stops situated either on the Sunfield Loop or on the connector roads. They are places to meet socially and offer opportunities for community functions and gatherings. Residential apartments located in the hubs provide after-hours activity and activation as well as good CPTED functions.

Figure 13 Local Hub

7.7.4. The covered car parking is screened from the street and the surface parking. They are serviced from the rear. The apartment buildings are lifted (not walk-ups) and have outdoor areas/balconies to the east west and north. There are no south-facing apartments. There is a mix of one-, two- and three-bedroom apartments.

7.7.5. The solar batteries for the site wide power generation are located in the local hubs. There are solar panels additionally located on the rooves of the apartment buildings.

7.7.6. The character of the Local Hubs reflects their important shared communal use. The car-less walkable environment is dependent upon and predicated on adequate support services that are convenient and situated within easy walking and cycling distances. They are as such located on primary transport corridors and located on highly visible corners.

7.7.7. The buildings are low key, low scale being only two stories with a distinct character which differentiates them from the stand alone and semi-detached houses.

7.7.8. The Development Plans and the Design Controls for the Local Hubs Precincts are sufficient in detail and scope to give certainty to the built environment outcomes and align with the overall vision of the development.

7.7.9. Basing the greater proportion of controls on the AUP Residential Rules MHU where applicable provides an additional layer of certainty of outcome.

7.8. Town Centre Character

7.8.1. The town centre is located at the crossroads of the development on the Sunfield Loop. As is typical for a town centres, in retail terms, there are large anchor tenancies blended and sleeved with specialty shops, and food and beverage outlets. The building heights are two storeys at a maximum of 9m metres – refer to Figure 14.

Figure 14 Town Centre

7.8.2. There are four large format retail anchors on opposite sides of a pedestrian priority main street running north-south with primary entrances to the anchors and speciality entrances off the Mainstreet. There are vehicle calming areas and pedestrian crossings at critical locations to reduce vehicle speed and give an overall pedestrian-orientated feel.

7.8.3. The Hamlin Road interface has pavilion-like double-sided retail buildings along a main street running parallel with Hamlin Road. These pavilion buildings provide vertical mixed-use. Some of them have small commercial office space on the first floor and some have residential apartments. This provides passive surveillance and diversity. The most western building is a standalone food and beverage offering.

7.8.4. To the west of the centre is a landscaped courtyard with a playground that opens out to the Central Stormwater Park. The courtyard is essentially a walking street lined with food and beverage outlets running east-west from the Main Street. There are commercial spaces on the first floor of these units overlooking the walking street. This open space is the heart of the town centre. Connecting with the park and waterways gives it a strong sense of place and identity.

7.8.5. To align with the car-less environment the number of car parking spaces that would normally be expected in a centre of this scale are significantly reduced. Approximately 25% of the car park spaces are typically provided. This supports the walkable neighbourhood model where cars do not dominate the centre. There is a large surface carpark accessed off the Sunfield Loop. However, as this centre serves the Sunfield master planned community it also services the wider local area and is located on crossroads particularly that of Hamlin Road which connects with Ardmore Airport to the east and back to Papakura and Takanini centres to the west.

7.8.6. Paving materials, integrated seating, bike racks, outdoor eating areas, low level lighting, native planting, semi covered areas, pocket lawns, shade trees and landscaping define the character of this walking street. Facing the western sun the central park offers a low key built pedestrian character and environment connected with the native planting and interconnected with walkways from all the surrounding neighbourhoods.

7.8.7. Servicing is handled discretely from the Sunfield Loop and the southern interface with the playing fields.

7.8.8. The centre also integrates programmed sports and recreation areas, for example, tennis courts and sports fields. These are located to the south of the retail centre and open out to the Central Stormwater Park. Refer to Figure 16.

7.8.9. To add diversity to the centre there is an aquatic and sports centre facility and a medical centre building to the south accessed off the Sunfield Loop and opening out to the central wetland park – refer to Figure 15. Both facilities are contemporary in character.

7.8.10. The Town Centre follows good practice centre urban design in terms of planning with an emphasis on less car parking and access to the Sunfield Loop, public transport and the open space network. The Town Centre Design Controls are detailed and comprehensive.

Figure 15 Medical Centre

7.9. Recreational Precinct Character

7.9.1. There are a series of interwoven parks and greenways across the site. They act as an interconnected green framework which supports the car-less vision and promotes a modal shift to active means of transport, for example, of walking, scootering and cycling – refer to Figure 16.

7.9.2. The parks predominately act as open spaces for the stream and wetland network and play an important environmental function. As the site is low lying the interconnected open space stormwater strategy becomes one of the defining characters of Sunfield. This is a holistic approach to maintaining and treating stormwater on the site and provides an opportunity to increase the ecological values degraded through farming.

7.9.3. The greenways, pocket parks, neighbourhood parks and play areas in the pedestrian laneways offer places for social interaction and connection to nature as well as providing opportunities for communal gardens and informal play.

Figure 16 Sports fields

7.9.4. The primary open space network is made up of;

(i) Greenways

(ii) Central Stormwater Park

(iii) Wai Mauri Stream Park

(iv) Wetland Park

(v) Sunfield Park

(vi) Neighbourhood parks

(vii) Pocket parks

(viii) Laneway parks

(ix) Awakeri Stormwater Wetland

(x) Neighbourhood Swales

7.9.5. The larger parks are;

(i) Wai Mauri Stream Park which incorporates a revitalised stream, cultural markers, woodlands, an adventure playground, an orchard, bridges, walkways, riparian planting, terraced level changes, public toilets, shade and picnic areas all in a natural setting – refer to Figure 17.

(ii) The Central Stormwater Park which is a key component of the on-site stormwater strategy and acts as a significant retention area during peak flood events, while providing amenities, walkways and an important cohesive ecological corridor through the middle of the site.

(iii) Sunfield Park which is co-located with the Aquatic Centre is a structured community recreational area with sports and playing fields, public toilets and community sports facilities such as club rooms.

(iv) Wetland Park which is located on the northern boundary and co-located with the primary school is a substantial wetland area which acts as a retention area for peak flooding and open space amenity.

Figure 17 Wai Mauri Recreational Park

7.9.6. Refer to the SCM and the Sunfield Open Space Strategy for character, details, layout and function of each park and the greenway network. For consistency across the Sunfield community, the open spaces are curated and interlinked through an overall planting palette. Refer to Sunfield Planting Schedule.

7.9.7. There is a high degree of diversity in terms of the scale and character of the open spaces. Each of the parks and greenway networks are defined by their ecological and stormwater function and by their specific location within the masterplan. The plans and the planting schedules are detailed and can be implemented from the information supplied.

7.10. Employment Precinct Character

7.10.1. The employment land is in the northwestern corner of the site. For reasons previously noted this placement is due to the technical overlays (Noise Contours, Height Restrictions and Protection Areas) over this part of the site in relation to Ardmore Airport and it is due to adjacencies with the airport in terms of compatible use.

7.10.2. The Employment Precinct has been configured into large lots that can accommodate a range of industrial buildings with ancillary office and showroom space, loading areas, servicing areas, yard space and car parking – refer to Figure 18.

7.10.3. The employment area is serviced from an internal north-south connector road that is accessed off Airfield Road to the north. Hamlin Road which connects with Ardmore Airport runs east-west through the industrial precinct.

7.10.4. There are numerous setbacks that cushion the employment precinct from the immediately adjacent neighbours. There is a substantial continuous landscaped buffer along the eastern boundary interface which acts as a linear park and has a stormwater functional overlay.

7.10.5. There is a combination of landscaped stormwater retention areas and landscaped setbacks to the Airfield Road frontage as well as landscaped setbacks to the adjacent properties on Airfield Road – refer to Figure 18.

Figure 18 Employment Precinct

7.10.6. There are landscaped setbacks to the Sunfield Loop (primary road), and to all secondary roads identified in the Precinct Development Plans. This network of landscaped areas and frontage controls create a softer greener edge to the industrial precinct. Primary front entrance doors along with showroom and office areas are visible and legible from the street. There is some car parking at the front of the lots with loading and servicing areas fenced off to the rear.

7.10.7. There are building setbacks and height controls to ensure the industrial precinct streetscapes are integrated back into the wider development and maintain the character of Sunfield as a walking and pedestrian orientated environment.

7.10.8. Finer grain light industrial uses have been located on the north-south connector road from Airfield Road. These are smaller units to add diversity to the precinct and create a positive interface with the Town Centre and neighbouring residential precincts.

7.10.9. The employment precinct with yard space and large industrial footprint buildings is a more difficult grain to integrate, in urban design terms, than the other precincts in the Sunfield community. However, it provides an essential employment precinct of significance in scale for the development. The extensive landscaping and setbacks to the frontages underpin this integration and reinforce the overall character of the place.

7.10.10. The Employment Precinct Design Controls are comprehensive and, combined with the carefully considered Development Plans, achieve certainty in terms of the built fabric.

7.11. School Precinct Character

7.11.1. The primary school is in the northwestern corner of the site at the crossroad of Hamlin Road and Mill Road. This location provides an extensive frontage along Mill Road in terms of visibility, and it situates the school at an identifiable junction within the development and the wider community. The school is surrounded by residential neighbourhoods to the south and east and a retirement community to the north.

7.11.2. The school is accessed off the re-aligned Hamlin Road which acts as the primary east-west connector road through the development. Pick up, drop off, visitor and staff parking and the main pedestrian and vehicular entrance in front of Hamlin Road. The administration building is set back 50 metres from Hamlin Road. The teaching blocks, school hall and hub buildings are all centred around open courtyards. The playing fields stretch to the north along Mill Road and make up the balance of the site.

7.11.3. The school is predominately single storey, however, some of the teaching blocks are two storeys and dependent on final roll numbers. There are setbacks from Mill Road, Hamlin Road and the neighbouring residential precinct. It is low key in character and fits with the surrounding existing residential character to the west across Mill Road and to the residential neighbourhoods within Sunfield.

7.11.4. The school aligns with the design principles and guidelines from the Ministry of Education (MOE) and meets their general requirements in terms of site layout, building arrangement, building functionality, building technologies and building materiality. The landscaping palette is consistent with the rest of the development, refer to Sunfield Planting Schedules.

7.11.5. The School Precinct Design Controls and Precinct Development Plans will provide certainty in terms of the built environment.

7.12. Aged Care Precinct Character

7.12.1. There are three retirement areas within the SCM. They are dispersed across the site, one in the northeastern corner adjacent to the Wetland Park, one in the middle of the site adjacent to the Stormwater Park and one in the southeastern corner adjacent to the Wai Mauri Stream Park.

7.12.2. All the retirement areas front a major park and are in close proximity (200 metres) of a local neighbourhood hub. They are close to bus stops and are connected to the walking and cycling network.

7.12.3. The retirement model at Sunfield is one where the houses are identified as independent living only with assisted care. This means that there is no dedicated on-site care home facility which is a common model.

7.12.4. Each aged care precinct has a range of single storey housing typologies, namely, three-bedroom stand-alone villas, three-bedroom semi-detached houses one and two bedroom semi-detached villas and one and two bedroom terrace houses. Refer to Figure 19.

Figure 19 Aged Care

7.12.5. There are two amenity buildings within each precinct. One amenity building acts as the main entrance, incorporating a lounge and café and one amenity building houses a gym and wellness centre. All buildings have solar panels connected to the site-wide solar system and pitched rooves.

7.12.6. To align with the overall character of Sunfield, and in particular, the residential neighbourhoods, the character of the aged care precinct is also based on walkability and providing less cars. Approximately one in ten houses have a car park. There are visitor parking areas, ride-share facilities, and E charging points. There is a loop road through the neighbourhood but access to many of the houses is via the pedestrian laneways.

7.12.7. The character of the laneways is similar to the residential neighbourhoods. They comprise articulated and crenulated building frontage setbacks, enclosed bike storage areas, low-level lighting and nodal points along the laneways with textured, permeable paving areas, seating and raised planters. The walkways incorporate pedestrian-orientated low-level planting with some specimen trees for shade.

7.12.8. The character of the houses is similar to that of the residential neighbourhoods in terms of materiality, outdoor and outlook space provisions, setbacks from side and rear yards, fences, site coverage and roof pitch. They do differ in some respects from the residential neighbourhoods, for example, the retirement areas have terrace house typologies and 20% of the houses must comply with the NZBC New Zealand Building Code Access requirements.

7.12.9. The Aged Care Precinct Design Controls and Development Plans will provide certainty of outcome in terms of the built environment.

8. CHOICE

Does the development provide (or is it close to) community facilities, such as shops, schools, workplaces, parks, play areas, bars/cafes/restaurants?

Is the design flexible and adaptable so it can continue to reflect good practice urban design principles through the length of the development process and over time?

Does the development have a mix of housing types and tenures that suit local requirements, particularly the distinct cultural characteristics of the surrounding community?

8.0.1. Choice in this context can also mean diversity. Without diversity master planned communities can become monocultural, sterile and heavily dependent on private vehicular transport. Dormant suburbs, for example, dislocated and sprawling far from any social infrastructure and or amenity epitomize the extreme version of lack of choice. Sunfield is in the opposite spectrum.

8.0.2. A diverse range of housing typologies enables a richer social mix and provides for more diverse communities demographically. To illustrate the extent of choice, site wide, within the Sunfield community, the following Figure 20 looks at how choice can be characterised. Due to its scale and nature, the SCM provides multifarious ways to live, work and play within the development.

LIVE		WORK	PLAY	
Housing diversity	**Housing diversity aged care**	**Workplaces**	**Community Infrastructure**	**Recreational Infrastructure**
1 Bedroom apartments	3 bedroom stand-alone houses	Work-live spaces in the homes	Aquatic centre	Parks
2 Bedroom duplex houses	2 bedroom duplex houses	Hybrid work from Local neighbourhood hubs	Medical centre	Wetlands
2 Bedroom apartments	1 bedroom terrace houses	Town Centre working opportunities	Local neighbourhood hubs	Streams
3 Bedroom stand-alone houses		Employment Precinct and industrial/commercial working opportunities	Town Centre – shops, bars, restaurants and cafes	Green ways
3 Bedroom duplex houses		Maker's employment area working opportunities for smaller organizations	Sports clubrooms	Playgrounds
3 Bedroom apartments		Aged care facilities working opportunities	Neighbourhood Service hubs	Playing fields
3 Bedroom stand-alone houses with car pad				
4 Bedroom stand-alone houses with garage		Primary school working opportunities	Primary school	Walkways
4 Bedroom stand-alone houses with car pad		Early childhood centre working opportunities	Early childhood centre	Cycleways
4 Bedroom houses with accessible			Ride-share facilities	Running tracks
5 Bedroom intergenerational houses (accessible)			The Sunfield Bus	
5 Bedroom stand-alone houses with car pad			Micro solar generation	

Figure 20 Choice

8.0.3. The scale of the Sunfield development provides choice within the boundaries of the site to the extent demonstrated above. The depth of choice illustrated and the dependencies that a car-less development necessitates, in terms of on-site amenities, go hand in hand.

8.0.4. Being adjacent to Ardmore Airport, 2 to 3 kilometres from Papakura Metropolitan Centre and the Southern Rail network, and close to local schools and local parks in the surrounding neighbourhood adds to this on-site choice.

9. CONNECTIONS

Is the development easy to move around by multiple modes, in particular by walking and cycling to reduce dependency on the private car?

Does the scheme have good access to public transport to help reduce car dependency?

Does the scheme integrate into its surroundings by reinforcing existing connections and creating new ones; whilst also respecting existing buildings

9.1. Wider Connectivity

9.1.1. As set out in section 6 the site is in the southern growth corridor and is in close proximity to Papakura and Takanini town centres. Both centres are on the Southern Line rail network and both provide access to public transport.

9.1.2. Mill and Cosgrave Roads provide vehicular access to the north and south. Airfield Road, Hamlin Road and Old Wairoa Road provide vehicular access to the east and west.

9.1.3. There are a total of seven vehicular access points from the site to the existing road network. This makes the site permeable and well connected.

9.1.4. The Awakeri Wetland provides pedestrian and cycle connections to the west and south of the site.

9.1.5. Within the site there is a clear hierarchy of transportation and movement corridors, that combined, create an overall interconnected network.

9.2. The Sunfield Loop

9.2.1. The 32m wide Sunfield Loop creates a central multi-modal movement corridor. The Sunfield Loop supports active modes of transport which reinforces the car-less strategy and provides for the autonomous electric Sunfield Sunbus which is a critical community transportation feature of the SCM.

9.2.2. The Sunfield Loop is stitched back into the existing road network via (i) two new roads to the north connecting with Airfield Road, (ii) a reconfigured Hamlin Road to the east and west (iii) a new road to the west connecting to Cosgrave Road and (iv) a new road to the south connecting to Old Wairoa Road.

9.2.3. The Sunfield Loop unites all the precincts together. Local Hubs, the town centre, the employment precinct and residential precincts all interface with the loop.

9.2.4. The Sunfield Sunbus will provide transport to Papakura train station and the town centre in the first stages and to Takanini train station and town centre in later stages.

9.2.5. There is a dedicated cycle lane on the Sunfield Loop which is given the same priority as vehicles and provides access throughout the site.

9.3. Village Loop Roads

9.3.1. Within each residential precinct there is a vested 16m village loop road which provides vehicular access into the neighbourhood for private vehicles and services vehicles.

9.3.2. The houses that have car parking on site are accessed off the village loop road. There is a local neighbourhood service hub within each residential neighbourhood. These are accessed via the 16m loop road and provide area for (i) refuse and recycling, (ii) cycle storage, (iii) loading bays for service vehicles, (iv) post or courier boxes and (v) sheltered structures for pick up and drop off services.

9.4. Pedestrian connections

9.4.1. Springing off the neighbourhood village loop road are the 6m pedestrian laneways which are delineated as being either trafficable for limited vehicle access or pedestrian only. Refer to the SCM walkable neighbourhoods for details of how this neighbourhood network works.

9.4.2. The majority of new houses are within a short 5-minute walk of a local hub, with all homes within a 10 minute walk. The majority of new homes are within a 5-minute walk of the town centre and all new homes are within a 15 minute walk of the town centre.

9.4.3. The open space network of waterways, parks, greenways, bridges, paths cycle lanes and trails provide a diverse range of walking and cycling routes throughout the site over and above the footpaths and cycle lanes adjacent to the roadways.

9.4.4. Overall, the SCM provides a highly permeable and diverse circulation network. The car-less strategy has provided for a different and unique network that is comprehensive, and pedestrian and cycle based. This creates an overall human scale and interconnected environment.

10. CREATIVITY

Have innovative approaches been used to promote diversity and make a distinctive and memorable place?

Are there special features to make this development more memorable and easier to find your way around?

Are buildings designed and positioned with landscaping to define and enhance streets and spaces and are buildings designed to turn street corners well?

Are streets designed in a way that encourages low vehicle speeds and allows them to function as social spaces?

Will public and private spaces be clearly defined

10.1. Creativity

10.1.1. There are several unique and innovative features that make Sunfield a memorable place with its own identity. The following are some of the creative moves and departures from traditional housing models.

10.2. Car-less Neighbourhoods

10.2.1. Sunfield's overarching innovation is the creation of a car-less community. This one decision has a domino effect on all aspects of the design and becomes the defining character of the place. This alternative housing model will make it a memorable and distinctive place to live.

10.3. Walkability – Laneways, not streets

10.3.1. The network of pedestrian laneways through the residential neighbourhoods creates a human scale. The laneways blur the public to private realm. There are no high fences, no dedicated footpaths, no berms and no vehicle crossings. They encourage walking and cycling at a slow pace and induce social interaction. At nodal points, there is informal play in the laneway with seating and low-level lighting.

10.4. Living with Nature

10.4.1. Transforming ecologically degraded farmland into a mixed-use community by restoring existing streams and waterways into a network of parks and wetlands is another defining aspect of the SCM.

10.5. The Sunfield Loop

10.5.1. The Sunfield Loop connects all the elements of the masterplan together and creates a unique mixed mode circular movement corridor. Along with the autonomous Sunbus (the autonomous electric vehicle fleet) that continually circulates through the development they are an innovative solution to enabling car-less living.

10.6. Neighbourhood Service Hubs

10.6.1. Each neighbourhood has a sheltered hub area that is protected from the weather and elements which allows for Uber or taxi pick up and drop off, EV charging, mailboxes, bike parking, deliveries, ride share pick up and drop off.

11. CUSTODIANSHIP

Does the design manage resources carefully through environmentally responsive and sustainable design solutions?

Does the scheme demonstrate methods for minimising its ecological footprint?

Does the scheme demonstrate how it enhances the site and local environment?

Is there a clear strategy for the on-going care and maintenance of buildings, streets and spaces?

Are the external appearance and functionality of materials and design elements used in both public and private areas of good quality?

Is resident and visitor parking sufficient and well-integrated so that it does not dominate the street?

11.1. Kaitiakitanga

11.1.1. The traditional name for the Papakura District is Wharekawa. It has been the home for several Māori iwi and hapu, including Ngati Tamaoho, Ngati Akitai, Ngai Tai and Ngati Pou. The people of Wharekawa derived mana from their association with the Manukau Harbour and from Hunua which supplied all their needs and is a great taonga for them.

11.1.2. The Māori worldview of Kaitiakitanga acknowledges the responsibility and the protection of the natural environment by mana whenua and promotes guardianship as a role to play for everyone.

11.1.3. This is one of the seven Design Principles that guide the design and are embedded in the SCM. In terms of sustainability, Kaitiakitanga sits alongside three of the other Design Principles.

(i) Low Impact and Sustainable Living

(ii) Just Transition

(iii) Connected with the Natural Environment Encouraging Biodiversity.

11.1.4. The Design Principles are interwoven through the design and are mutually inclusive. The following describes how the specific sustainability Design Principles above are being met.

11.2. Ecological Restoration

11.2.1. The Sunfield Baseline Ecological Assessment indicates that the site has a relatively low ecological value due to extensive farming over a long period. As a response to this ecological backdrop, the SCM adopts a sitewide stormwater management design that provides for extensive open space, wetlands, retention ponds and restoration of existing streams and waterways.

11.2.2. This restorative approach increases biodiversity, increases onsite carbon sequestration, provides urban forestation (ngahere) and restores, protects and enhances existing waterways on the site.

11.2.3. As is the case with urban intensification, particularly greenfield sites in Aotearoa, land use intensification comes hand in hand with improved stormwater management and typically leads to the enhancement of existing waterways, streams and overland flood paths which are integrated into the design from the outset.

11.2.4. Managing water on site in this manner is more resilient. It connects people with nature and is part of the backbone of the masterplan. It aligns with the Vision, Design Principles and Key Moves of the SCM.

11.3. Reduction in Greenhouse Gas Emissions

11.3.1. The Sustainability and GHG Emissions Assessment describes in detail how Sunfield measures up in terms of producing less carbon, both embodied and operational. This is from both a global, and national perspective. Fundamentally, a car-less development will reduce operational carbon and to some extent reduce upfront embodied carbon, primarily due to the reduction in transport infrastructure, compared to a traditional urban development catering for a similar extent and range of activities.

11.3.2. The car-less development model, according to the GHG assessment has a demonstrably positive effect on emissions compared with a traditional development. The assessment states that "*The results indicate that the capital (upfront) emissions associated with the construction of commercial and residential buildings account for the largest proportion of the overall GHG footprint, therefore presenting the greatest opportunity to target reductions. It is acknowledged that typically transport infrastructure is a significant contributor to capital emissions in a community development, however, Sunfield's car-less design concept significantly reduces the requirement for transport infrastructure and hardstand."*

11.3.3. The car-less development strategy is the flagship sustainability initiative of the Sunfield development. It is an innovative model for housing and the resulting effect of reducing GHG emissions aligns with the following targets as noted in the Sustainability and GHG Emissions Assessment.

(i) *New Zealand: Reduce GHG emissions to 50% below 2005 levels by 2030. Achieve net-zero GHG emissions by 2050, with a 10% reduction target for methane emissions by 2030.*

(ii) *Auckland Council: Achieve net-zero emissions by 2050 as part of the Auckland Climate Plan. The plan includes reducing emissions by 50% by 2030 compared to 2016 levels.*

11.3.4. Reduction in GHG emissions is not the only unique initiative. It is coupled with other sustainability initiatives. The following section outlines the site-wide power generation strategy.

11.4. Onsite Power Generation

11.4.1. Each individual building in all precincts in the SCM is to accommodate photovoltaic solar panels on the roof. The power generated from all the panels is captured and centralised in batteries located in the local neighbourhood hubs. This in effect creates a micro electricity grid across the site which can be managed and administered by the residents and users. Smart technology supports the adaptive and easily accessible use of tools/apps to control, monitor and distribute the power as a community asset.

11.4.2. Sunfield is an all-electric development. This is an innovative approach for community development of this scale to have a site-wide electrical network.

11.5. Residents Societies

11.5.1. There will be several resident societies set up to manage the residential neighbourhoods. These will ensure that the privately held common assets within the neighbourhoods are well maintained and managed. Examples of these areas are pocket parks, JOALS (Joint Owned Access Lanes), visitor parking, and Local Hubs Precincts.

11.5.2. The pedestrian laneways, for example, would be within the Resident Society's ambit. The maintenance of the soft and hard landscaping of the laneways would be administrated through this instrument as would be the management of matters such as rubbish collection, recycling, mail delivery, service access, couriers' deliveries, ride share facilities, essentially any asset that is not vested in the council.

12. COLLABORATION

Is there evidence of collaboration in order to produce the proposed design?

12.0.1. The SCM has evolved through a process of collaboration. Planned communities of this scale demand the combined skills of interdisciplinary teams. Each discipline shapes and informs the design through a different lens. Some lenses, whilst technical and/or regulatory, still impact on the final masterplan design.

12.0.2. WLL is an experienced developer and property investor. Therefore, WLL's vision, and contribution to all aspects of the design, is integral. They develop, for example, aged care facilities, town centres, housing neighbourhoods, community facilities and infrastructure on a regular basis across the country. Ultimately, they are design champions and orchestrate the interdisciplinary team contributions.

12.0.3. In the case of Sunfield, the following array of disciplines contribute to the SCM:

(i) Urban Design and Master Planning

(ii) Peer Review Urban Design

(iii) Landscape Architecture

(iv) Landscape Visual Assessment

(v) Architecture

(vi) Cultural Navigation

(vii) Ecology

(viii) Sustainability

(ix) Transportation Engineering

(x) Civil and Infrastructure Engineering

(xi) Planning

(xii) Planning Legal

(xiii) Survey

(xiv) Solar Power specialist

(xv) Planting Schedule specialist

(xvi) Aviation specialist

12.0.4. For collaboration to be genuine, there needs to be a willingness to work collectively and respect for each other. It is not sufficient just to involve the requisite disciplines for a project of this scale and nature. They need to work alongside one another with a spirit of collaboration. That collaborative approach has resulted in the SCM.

13. CONCLUSION

13.1. Car-less model

13.1.1. Sunfield is a credible alternative model for master planned new communities. It has the scale and critical mass to be able to be bold in this respect. Not only can car-less communities have a positive impact on the built environment they can also offer opportunities for a wide choice in housing, more sustainable lifestyles, less embodied and operational carbon and more human scale interconnected neighbourhoods.

13.1.2. To support a car-less community the right interdependencies are required on site within the development. This is the practical outworking of the 20-minute neighbourhood model where essential day to day services are in close proximity. The scale of the Sunfield community and the degree of choice provided within the site demonstrates that these interdependencies can be accommodated and dispersed across the site appropriately.

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13.2. Design Hierarchy

13.2.1. The design hierarchy, illustrated by the pyramidal diagram in Figure 3, creates a sound backbone for good design decision making, where Development Plans and Design Controls, sheet back to Key Moves and Design Principles, that sheet back to the overall Vision.

13.3. Urban Design Protocol Assessment

13.3.1. The assessment against the seven C's demonstrates that the development responds positively and favourably to all aspects of the MFE Urban Design Protocol criteria, as summarised below.

(i) Context - The SCM is carefully considered and stitched into its existing context. Properties that directly abut the development to the north along Airfield Road and along the eastern boundary have been positively addressed with site specific buffering and setback treatments to mitigate any adverse effects.

(ii) Character -The precincts have distinctive and legible character and combined create an overall integrated community with a unique pedestrian orientated character. The layout is logical and the bones of the structure of the development are sound.

(iii) Choice - There is a diverse and expansive range of choice within the development. The large-scale nature of the development supports this degree of onsite choice, particularly in terms of employment, age in place, centres, hubs, schooling and community facilities.

(iv) Connections - The masterplan is cohesive and interconnected. It is positively connected to the immediate neighbourhood, and as part of the southern growth corridor it benefits from proximity to the Takanini and Papakura centres.

(v) Creativity - The car-less innovative approach is a unique development model for Aotearoa.

(vi) Custodianship - Sustainability and GHG assessment is at the forefront of the design. The existing waterways have been restored and enhanced and comprehensively integrated into the design. Flood prone land has been re-engineered creating substantive open space for amenity. Biodiversity has been enhanced through substantive native planting and ecological corridors.

(vii) Collaboration – A substantial interdisciplinary team have contributed to the developing SCM in a collaborative manner.

13.4. Development Plans and Design Controls

13.4.1. The Precinct Development Plans and Precinct Design Controls, in unison, provide certainty in terms of the built environment. The Design Controls are detailed and have a high degree of specificity.

13.5. Streetscape, Open Space and Planting Schedules

13.5.1. The streetscapes and roadways are well documented. There are cross sections of all the vested streets, for example, the Sunfield Loop, Hamlin Road, secondary roads, and neighbourhood loop roads. The pedestrian laneways and walkways are also well documented.

13.5.2. All of the parks, wetlands, stream corridors, greenways, swales, playgrounds and boundary buffers are well documented. These are supported adequately by a detailed site-wide planting schedule.

14. RECOMMENDATIIONS

14.1. Staging

14.1.1. Staging needs to be carefully considered to ensure that, as the development is implemented, each residential neighbourhood and precinct has the appropriate level of support services and transport infrastructure to sustain it.

14.2. Back Up Plans

14.2.1. A Plan B strategy needs to be in place for the critical elements that support the car-less model. For example, if the technology to support the autonomous electric bus fleet is not in place in a timely fashion or never transpires, then a traditional readily available microbus service would need to be in place as a backup.

14.3. CPTED Crime Prevention Through Environmental Design

14.3.1. A detailed CPTED assessment would be helpful to identify any particular areas that may be potentially unsafe within the masterplan and to identify any potential for spaces that could encourage poor social behaviours.

15. APPENDIX A – URBAN DESIGN, HOUSING AND MIXED USE EXPERIENCE

New Zealand Urban Design Experience

2023-Ongoing Silverstream Forest: A masterplan for 1500 homes adjacent to an existing forest integrating biodiversity preservation, housing, and public recreational networks. Silverstream Upper Hutt.

2022-Ongoing Sunfield: A 4,000 home mixed-use masterplan for compact living in a car-less environment that prioritises people and community. Sunfield has been designed using '15-minute neighbourhood' urban design principles with the majority of residents' day to day needs provided within a short 15-minute walk or bike ride from home. Takanini Tamaki Makaurau.

2022-Ongoing Surf Park: Masterplan for an artificial wave lagoon set within a mixed-use development including an extensive solar farm and data centre. Albany Tamaki Makaurau.

2023 Northbrook, Arrowtown: Expert witness urban design for Northbrook retirement community hearing in the Waterfall Park Zone.

2020-2024 Ladies Mile Structure Plan, Queenstown: Plan Change, masterplan and Structure Plan for a mixed use greenfields medium to high density new residential community via a streamlined planning process on a 160 hectare stie for Queenstown Lakes District Council.

2020-Ongoing Beachlands South Auckland: Masterplan for a 307 hectare coastal site adjacent to the existing community of Beachlands, including low, medium and high density residential, community and village hub, secondary and primary schools, light commercial and retirement activities, set within a network of estuarine coastal walkways, native forest revegetation and recreational open spaces. In association with Jasmax, Studio Woodroffe Papa and Woods Bagot. For Russel Property Group and NZ super fund.

2021 Ayrburn Farm Arrowtown: Preparation of urban design evidence and attendance at Environment Court for Ayrburn Farm zoning appeal.

2021 Belmont Sites Framework Masterplan, Devonport: Spatial Framework for three sites surrounding the Waioroka Oneroa inlet, Devonport for Ngāti Whātua Ōrākei

2021 Peninsula Hill, Queenstown: Masterplan for 140 hectares at residential zoned land at base of Peninsula Hill, including low density and medium density housing, open space network, 9 local centre and community facilities for the Meehan family

2020 Wesley Framework Plan, Mt Roskill Auckland: Large-scale mixed-use brownfields regeneration spatial framework, including social housing, community facilities and commercial hubs, integrated transport hubs and open space networks on the Oakley Creek stream for Kāinga ora. Approximately 8,500 houses.

2020 Neighbourhood D, East Porirua: Neighbourhood Masterplan for revitalising local centres, upgrading parks, schools, social housing, affordable housing and market housing for Kāinga Ora.

2019 East Porirua Spatial Delivery Masterplan: All of Government Masterplan initiative led by Kāinga Ora, Porirua City Council and Ngāti Toa. Masterplan includes social housing, community, facilities,

commercial centres, transport hubs and open spaces. Approximately 3500 houses.

2019 Urban Design Assessment, Wellington: Proposed urban design assessment for a new office building adjacent to the listed Heritage NZ Old St Paul's Cathedral, 48 Mulgrave Street, Wellington.

2019 Northlake ODP Wanaka: Masterplan for 175 Kiwibuild houses. Expert Witness Urban Design

2018-2019 Tamaki Spatial Masterplan: Comprehensive brownfields masterplan for 2500 new social houses and 5000 market homes across Glen Innes, Panmure and Point England suburbs in Tamaki, Auckland for Tamaki Redevelopment Company (TRC) and HLC.

2019-2018 Research Lead, "*Quantifying Density*" Stage 2 Medium Density Housing: Studio Pacific joint venture with Victoria University Wellington.

2018 Urban Design Statement, Northlake Hotel, Wanaka: Urban Design assessment for proposed new Hotel to support Resource Consent Application.

2018-2017 Centreport Wharves, Wellington: Expert Witness Urban Design Greater Wellington Proposal Natural Resources Plan Hearing for Interislander and Waterloo wharves redevelopment framework.

2018–2017 Lakes Edge Development Kawerau Village, Queenstown: Expert Witness Urban Design Architecture QLDC Hearing for proposed 350 room waterfront hotel.

2018- 2017 Te Kauwhata Lakeside Housing Development: **PC 20** Peer Review Urban Design and Expert Witness Urban Design for Plan Change 20 for 179 Hectare Residential Masterplan Greenfields site on Lake Waikare, Waikato.

2018-2017: Tauriko West, Tauranga: Masterplan and Structure Planning for new growth corridor for 350 hectare greenfields site on Wairoa River for medium density housing.

2017 - 2013: Okura Residential Development, Auckland: Expert Witness in Urban Design for IHP, AUP & Environment Court, 130 hectare greenfield site housing masterplan.

2017 - 2015: Hobsonville: Launch Bay Precinct, Auckland: Masterplan for medium density generally 6 storey apartments on the headland by the landing. Approximately 350 dwellings.

2017 - 2014: Wynyard Quarter, Auckland: Masterplan for medium to high-density mixed-use inner city new waterfront residential neighbourhood, approximately 800 apartments.

2017 - 2013: Hobsonville: Sunderland A Precinct, Auckland: Masterplan for medium-density housing and Axis Homes under Special Housing Accord including landscape and open space design.

2015: Northlake, **PC45**, Wanaka: Expert witness Urban Design in support of residential intensification and rezoning for an approximate 170 hectare greenfield rural site incorporating approximately 1500 dwellings and small community hub.

2015-2009: Flatbush Town Centre (Ormiston), Manukau City: Masterplan for 19 hectare green fields mixed-use new Town Centre including medium-density housing, retail andcultural amenity.

2014: Springpark Affordable Housing, Mt Wellington, Auckland: Expert Witness Urban Design Masterplan for medium-density 'market affordable' housing, approximately 420 houses within brownfields former quarry, 11 hectares.

2014-2010: Frankton Flats Special Zone, **PC19,** Queenstown: Expert Witness Urban Design for mixed-use Structure Plan including affordable housing, town centre retail, industrial and commercial uses.

2014-2001: Harbour Quays Masterplan, Wellington: Masterplan for 10 hectare mixed-use waterfront CentrePort Limited.

2013: Navy Sites, Devonport, Auckland: Masterplanning for medium-density housing and residential intensification for multiple sites for Proposed Auckland Unitary Plan submissions for Ngati Whatua-o-Orakei.

2013: Overlea Precinct – Tamaki, Auckland: Masterplan for inter-generational mixed-tenure and blind tenure affordable and social housing for Tamaki Redevelopment Companyand Housing New Zealand.

2011: Shotover Country, **PC41**, Queenstown: Expert Witness Urban Design for medium- density housing and capacity testing masterplanning, 6 hectares.

2010: Crown Lynn, New Lynn, Auckland: Masterplan for mixed-use medium to high-density residential Masterplan, (TOD) Transport Orientated Development, 19 hectares.

2009-2007: Wellington International Airport Masterplan: Mixed-use masterplan, structured around landside commercial opportunities, hotels and short stay accommodation and airside aeronautical operations, 112 hectares.

2009-2006: Kumutoto Masterplan, Wellington: 6 hectare waterfront mixed-use Masterplan for Wellington Waterfront Limited.

2008: Porirua City Centre Revitalisation: Masterplan for revitalisation of CBD of Porirua City.

2008-2005: The Waterfront Seatoun, Wellington: Masterplan for 4 hectare green fields coastal medium-density residential community on the former Fort Dorset military base.

2008-2003: Kawarau Falls Station, Frankton, Queenstown: Masterplan for 6 hectare lakefront Alpine Resort Village and residential.

2007-2005: MacArthur Ridge, **PC10**, Central Otago: Masterplan for 800 hectare low-density residential accommodation, golf course, vineyard and hotel lodge within an Outstanding Natural Landscape.

2007-2001: Beaumont Quarter, Victoria Park, Auckland: Masterplan for 2.4 hectare medium- density mixed-use brownfields inner city innovative housing project, approximately 240 townhouses and apartments.

2006: Watermark, Wellington: Expert urban design evidence/witness. Environment Court Non-complying height and listed heritage building use.

2006: Kilbirnie Suburban Centre, Wellington: Masterplan for revitalisation of historic Kilbirnie Bus Tram Depot into mixed-use medium-density residential precinct.

2006-2002: Lighter Quay, Viaduct Harbour, Auckland: Masterplan for former brownfields site, medium to high-density apartments and five star hotel structured around new canal.

International Urban Design Experience

2010: Regatta Tripoli, Libya: Masterplan for mixed use, medium-density sustainable residential

neighbourhood on Mediterranean coast: 96 hectares in association with theBrisbane Group and UPET.

2005: ANZAC War Memorial, Canberra Australia: Winner international competition, urbandesign and open space design for memorial in association with sculptor and artist Kingsley Baird.

1994: CIBOGA: Groningen Netherlands: Winner international competition for mixed-use masterplan "*New Ways of Living*" (S333).

1992: Revitalisation of Samarkand Uzbekistan: Winner international competition for cultural centre and Masterplan for 70 hectare site (S333).