
Broadmeadow Integrated Master Plan Report

June 2024



Acknowledgment of Country

We acknowledge Country and pay our respects to the Awabakal People as the Traditional Owners and Custodians of the land and waters on which Broadmeadow is located.

We recognise their continued connection to Country and that this connection can be seen through stories of place and cultural practices such as language, art, songs, dances, storytelling and caring for the natural and cultural landscape of the area.

We also recognise the continuing living culture of Aboriginal People and the significance of living culture now and into the future.

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Disclaimer

NOTE: School infrastructure and transport initiatives are indicative only and subject to detailed design, analysis, feasibility review, funding commitments etc. No investment decisions have been made. Furthermore, the final list, extent, details, locations of initiatives will be subject to the satisfactory resolution of the above.

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Executive Summary

The Broadmeadow Precinct (the Precinct) encompasses much of the suburb of Broadmeadow as well as parts of New Lambton, Hamilton, Hamilton East and the entirety of Hamilton North. Leveraging the substantial entertainment, transportation and creative infrastructure currently within the Precinct will reposition Broadmeadow as a catalyst for Newcastle's emergence on the global stage.

The Hunter Regional Plan (2041) identifies Broadmeadow as a 'Regionally Significant Growth Area' - a key node within the wider Hunter region and a hub for employment and dwelling growth. City of Newcastle is required to provide 19,174 new dwellings by 2041 to meet housing demand. By prioritising the development of Broadmeadow, the city ensures not only the fulfilment of a large part of its housing target but also the creation of a vibrant, sustainable community in a central and well-connected location.

This project represents a unique opportunity to establish a Master Plan and Place Strategy that considers the character, culture and community of Newcastle in light of the significant investment and subsequent change that is occurring within the region. In recognition of the significant urban renewal opportunity at Broadmeadow, the New South Wales Department of Planning, Housing and Infrastructure (DPHI), in collaboration with City of Newcastle (Council), industry, the community and State agencies, have led the development of the Place Strategy and Integrated Master Plan to guide the re-imagination of The Broadmeadow Precinct across a 30-year timespan.

"The Broadmeadow Place Strategy provides an integrated 30-year vision to reinvigorate the regionally significant growth area of Broadmeadow and guide future land-use and infrastructure investment decisions."

(Broadmeadow Place Strategy, p7)

The Integrated Master Plan (Master Plan) forms a comprehensive basis for the Place Strategy, bringing together a series of technical inputs and a participatory design process to document land use, open space and transport frameworks for implementation in the Place Strategy.

The Master Plan envisions a world-class entertainment and leisure precinct that offers an abundance of housing, diverse employment opportunities and more avenues for creativity. The Precinct's existing character is brought to the fore by employing a considerate form of urban renewal, embracing and celebrating local Aboriginal and European heritage narratives and utilising sustainable development principles.

The Master Plan represents a careful consideration of the opportunities and constraints to the future development within the Broadmeadow Precinct. The Master Plan proposes an overarching land use framework, used to guide future planning proposals to rezone land in the Precinct. It also details required infrastructure and how this will be funded and provided.

The Master Plan identifies proposed land uses, open spaces, movement networks and supporting community and services infrastructure which will enable up to 20,000 new homes, 15,000 new jobs for around 40,000 people.

The Master Plan will continue to evolve and transform as community, government and business stakeholders are engaged and as the collective vision for Broadmeadow is realised.

1. Introduction



Figure 1: Ebd 1 workshop. (Source: COX)

1.1 Project Overview

Strategic Objectives

The Place Strategy and this Integrated Master Plan have been prepared for the whole Precinct and draw on the substantial body of previous investigations, including ongoing collaboration with industry, the community and state agencies.

The overarching objective of the Place Strategy is to provide an integrated 30-year vision that responds to the strategic attributes of the Precinct and guides future land use and infrastructure investment decisions with the support of State and local agencies.

Located 3 kilometres west of the Newcastle CBD, the Precinct has an important strategic role for the region. Broadmeadow's central location, existing and future public transport opportunities, Government-owned land and large industrial sites positions the Precinct as a key opportunity for delivering significant uplift and amenity as part of a major urban renewal project.

The Precinct similarly comprises a number of regionally significant sporting and entertainment facilities within or adjacent to the precinct boundary, including McDonald Jones Stadium, the Newcastle Entertainment Centre, the Newcastle Showground, the proposed new Newcastle Basketball Stadium to the west and the Newcastle Racecourse to the southeast. These assets will form part of the NSW Government's vision to deliver an integrated sports, lifestyle and entertainment precinct at Hunter Park, further supporting the significant transformation opportunity in Broadmeadow.

Purpose of the Report

The Place Strategy provides an opportunity to establish a people- and place-oriented framework that will guide the re-imagining of the Broadmeadow Precinct.

As The Integrated Master Plan is a comprehensive framework for the redevelopment of the Precinct, bringing together the visions of stakeholders to guide more detailed precinct planning in the future. The Integrated Master Plan proposes how the game changers and strategic directions from the Place Strategy can be achieved in consideration of:

- Ensuring authentic Aboriginal engagement and designing with Country, from the Place Strategy through to subsequent rezoning and Master Planning processes
- Enshrining high levels of amenity in planning controls and design guidelines
- Creating clear priorities for the quantity and quality of community infrastructure
- Defining land use boundaries and strategies to manage transitions and interfaces between uses and users
- Undertaking a high level infrastructure capacity analysis and preparing an infrastructure plan with a funding strategy
- Identifying required multi-modal transport networks and new and upgraded connections
- Managing flood impacts while providing for a precinct-wide contamination remediation strategy
- Providing an integrated environmental strategy considering water and energy management (net zero), heritage and landscape considerations
- Exploring opportunities to revitalise Styx Creek through re-vegetation and increased public access
- Establishing Broadmeadow as a blue and green heart, connecting together and expanding the Blue and Green Grid in alignment with the Hunter Regional Plan (2041)

As part of the analysis captured within this report, DPHI has also engaged a range of technical studies to identify potential challenges within the Precinct, and opportunities to respond to these potential constraints to the realisation of the vision for Broadmeadow. The technical studies have informed the development of the Place Strategy and Integrated Master Plan for the Precinct.

1.2 Study Area

The Broadmeadow Precinct covers an area of 313 hectares and is located 3 kilometres west of the Newcastle CBD. The emerging higher-density neighbourhood of Wickham is located 2 kilometres to the east. The Precinct's boundaries are defined by major roads to the west of the Main Northern railway line. In the southeast, the Precinct encompasses the Belford and Tudor Street corridor formed by the Broadmeadow and Hamilton Urban Renewal Corridors that are defined by the Newcastle Development Control Plan (DCP). The Precinct incorporates the majority of the suburb of Broadmeadow along with portions of Hamilton and Hamilton East, across Tudor Street, the entirety of Hamilton North and the northern extents of New Lambton.

A diverse mix of existing uses are located within the Precinct, largely comprised of significant sporting and entertainment facilities, key transport infrastructure and areas of, bulky good and main street retail, industrial and low-density residential uses.

In the north, land uses are balanced between low-density residential with a transition to light industrial encompassing manufacturing, bulky goods, warehousing, railway maintenance workshops, a former fuel depot and gasworks site, located around the northern interface to Smith Park and Richardson Park Reserve, north of Griffiths Road.

The west of the Precinct is comprised of a range of sports and recreation facilities that make up the Hunter Park Sport and Recreation precinct, with an interface to commercial uses along Lambton Road in the south and along Turton Road in the north east.

The centre of the study area is characterised by Styx Creek and its tributaries, which form a network of channelised watercourses that run across the Precinct. Additional low-density residential land uses are also located nearby on Broadmeadow Road and around the existing Entertainment Centre and Showground. Beaumont Street is the active heart of Hamilton and extends from the Belford/Tudor corridor north to Hamilton Station.

Transport in the study area is anchored by Broadmeadow Station, a major regional interchange providing intercity rail connections along the east coast and surrounding regional areas. The Precinct is traversed by several major road and cycleway connections running through or adjacent to the study area that provide links to the Newcastle CBD, the Pacific Motorway and the Pacific Highway.

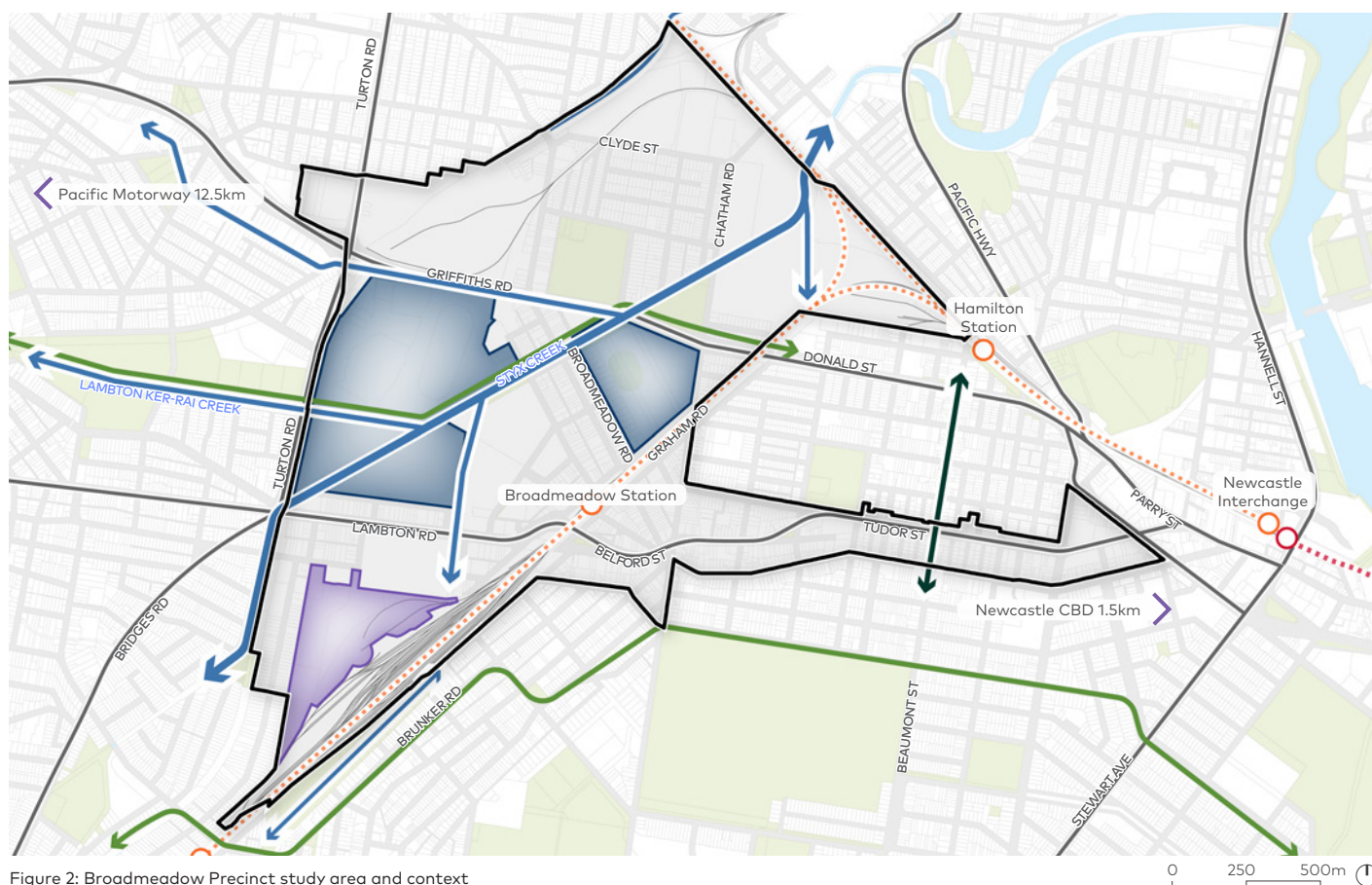


Figure 2: Broadmeadow Precinct study area and context

| | | | | |
|--|---|--|---|---|
| Precinct boundary | Rail corridor | Waterway | Venues NSW-owned land | Beaumont Street |
| Light rail corridor | Major roads | TAHE-owned land | Cycleway | |

1.3 Connecting with Country

Ensuring Agency

Broadmeadow rests on Awabakal Country. The story of this place and the Aboriginal people who have and continue to occupy these lands is a rich one that began long before 1788 and will continue long after.

Government Architect NSW's (GANSW) Connecting with Country Framework (the Framework) challenges built-environment professionals to embed genuine Aboriginal influence and agency into the design process, so that the aspirations described in the Framework are considered not merely as a 'value add,' but as the very foundation upon which NSW's development initiatives will rest.

Each stage of the Broadmeadow development – from Integrated Master Plan to Place Strategy to detailed development, from briefing to concept design, from technical documentation to construction procurement, from operation and beyond – should be committed to operating within a framework that both respects and actively facilitates the agency of Aboriginal peoples.

Engagement Opportunities

Broadmeadow provides an opportunity to engage local First Nations people in developing and interpreting the story about this Country and the opportunity to make this assessment in relation to the implications of land use planning, design and master planning on Country.

Potential themes to guide future investigations for Connecting to Country and engagement include:

- **Country:** What is the scope of Country for this area?
- **Adaptation to Environmental Change:** Awabakal people adapted to very large changes to the landscape in which they lived. What enabled people to adapt?
- **Restoring and caring for the natural environment:** Respect for the cultural values placed in of landscape elements of Country
- **Spiritual Connection:** What expressions of the Dreaming are retained and how can these be reflected through inclusive design?
- **Material Culture – food and technologies:** What objects could be created from resources found in the wetland environments
- **Reconciliation and Acknowledgement:** Recognising the Awabakal people as the Traditional Owners of the Precinct and environs and pursuing opportunities to incorporate traditional knowledge

Governance

The NSW Government's OCHRE Plan has outlined a range of initiatives to foster Local Decision Making in Aboriginal Communities. These commitments are consistent with Awabakal communities having a greater voice in the decisions that affect the development of Broadmeadow.

The future of the development will rest upon, for example, remediation of the contaminated sites and restoration of remnant ecologies. Remediation will likely require the long-term commitment and financing by government authorities (in partnership with industry). Aboriginal people, too, should help shape this commitment. Broadmeadow has the potential to be an exemplar in restoration and care of post industrial landscapes.

Project Life Cycle

Ensuring that as the project develops beyond the Master Plan, the principles of Connecting with Country continue to influence design decisions. Develop strategies for embedding influence at detailed Master Planning, building design, construction and beyond.

1.4 Project Process

Due to the significance of the Precinct it was determined that a coordinated and strategic approach was required and a Place Strategy to be prepared for the whole Precinct, drawing on previous work and ongoing collaboration with industry, the community, state agencies and local councils.

An Enquiry by Design (EbD) process was undertaken to inform the preparation of the Integrated Master Plan and Place Strategy. The EbD was an interactive process which explored a number of options for the realisation of the vision for Broadmeadow including the resolution of the Precincts' challenges and leveraging the Precincts' opportunities.

Inception Meeting

Development of the Broadmeadow Place Strategy and Integrated Master Plan was initiated with a collaborative Inception Meeting held on the 30th of March 2023 to identify considerations and constraints within an initial analysis of the site involving key stakeholders and technical experts.

Community Engagement

City of Newcastle conducted an initial survey of local residents between the April and June 2023. Respondents were asked to identify what they currently value about the Precinct and what they would like to see improve. The three most common responses were:

- Improved sport, leisure and entertainment
- Focus on public and open space
- Walkable, inclusive, accessible and vibrant compact neighbourhoods

Further community consultation will occur as part of the exhibition of the Draft Place Strategy in 2024.

Technical reports

The preparation of the opportunities and constraints analysis, the vision statement and the ongoing development of the Place Strategy and this Integrated Master Plan are informed by detailed analysis and an evidence base from a variety of technical studies. These studies include:

- Integrated master plan
- Sustainability analysis report
- Noise, air quality and odour assessment
- Bushfire and biodiversity assessment
- Flooding, integrated water management strategy and utilities assessment
- Land capability and contamination assessment
- Transport assessment report
- Aboriginal cultural heritage assessment
- Historical cultural heritage assessment
- Economic impact analysis
- Land use safety report

Opportunities and Constraints analysis

This analysis identified challenges that may constrain the realisation of the vision for Broadmeadow. A summary of the major challenges are:

- A constrained transport network surrounding the Precinct
- The need to remediate contaminated land
- Flooding
- Hazard risk associated with the gas and fuel pipeline
- Consideration of significant heritage items within the Precinct

In addition, this analysis also identified areas in the Precinct that were relatively unconstrained and presented significant opportunities for urban renewal, change of uses and/or intensification of existing uses, further facilitated by improved public transport connections.



Figure 3: EbD 1 workshop. (Source: COX)



Figure 4: EbD 2 workshop. (Source: COX)

Vision for the Precinct

The initial vision for the Precinct was drafted in consideration of the relevant plans and policies that related to Broadmeadow and the preliminary community engagement undertaken in April 2023. This formed the basis for the participation in the refinement of the vision statement by stakeholders and the community through the EbD process and community engagement in June 2023.

Preliminary Enquiry by Design Workshop

The Preliminary EbD workshop for the Broadmeadow Place Strategy was held on the 3rd and 4th of May 2023. The Preliminary EbD was an iterative process that allowed for the testing of ideas, solutions and concepts by participants across all technical streams and a range of stakeholders such as state agencies, local government and department representatives.

The workshop resulted in three scenarios being developed based on overall economic visions for the Precinct, and represented in spatial outcomes and growth scenarios to inform the next phase of refinement and testing.

Final Enquiry by Design Workshop

The Final EbD workshop for the Broadmeadow Place Strategy was held on the 11th and 12th of October 2023.

The workshop resulted in a preferred emerging scenario being developed to align with the Precinct objectives, community feedback to date, the draft vision, the collective vision statement and the findings of the technical assessment of the three scenarios that emerged from the Preliminary EbD workshop in May 2023.

Broadmeadow Integrated Master Plan

The preferred emerging scenario was a culmination of the best elements of each of the scenarios, which was then refined to through the documentation of this Draft Integrated Master Plan. Opportunities for the public to help further refine and voice their opinion on The Draft Integrated Master Plan will be provided during future engagement and exhibition of the Draft Place Strategy in mid 2024.

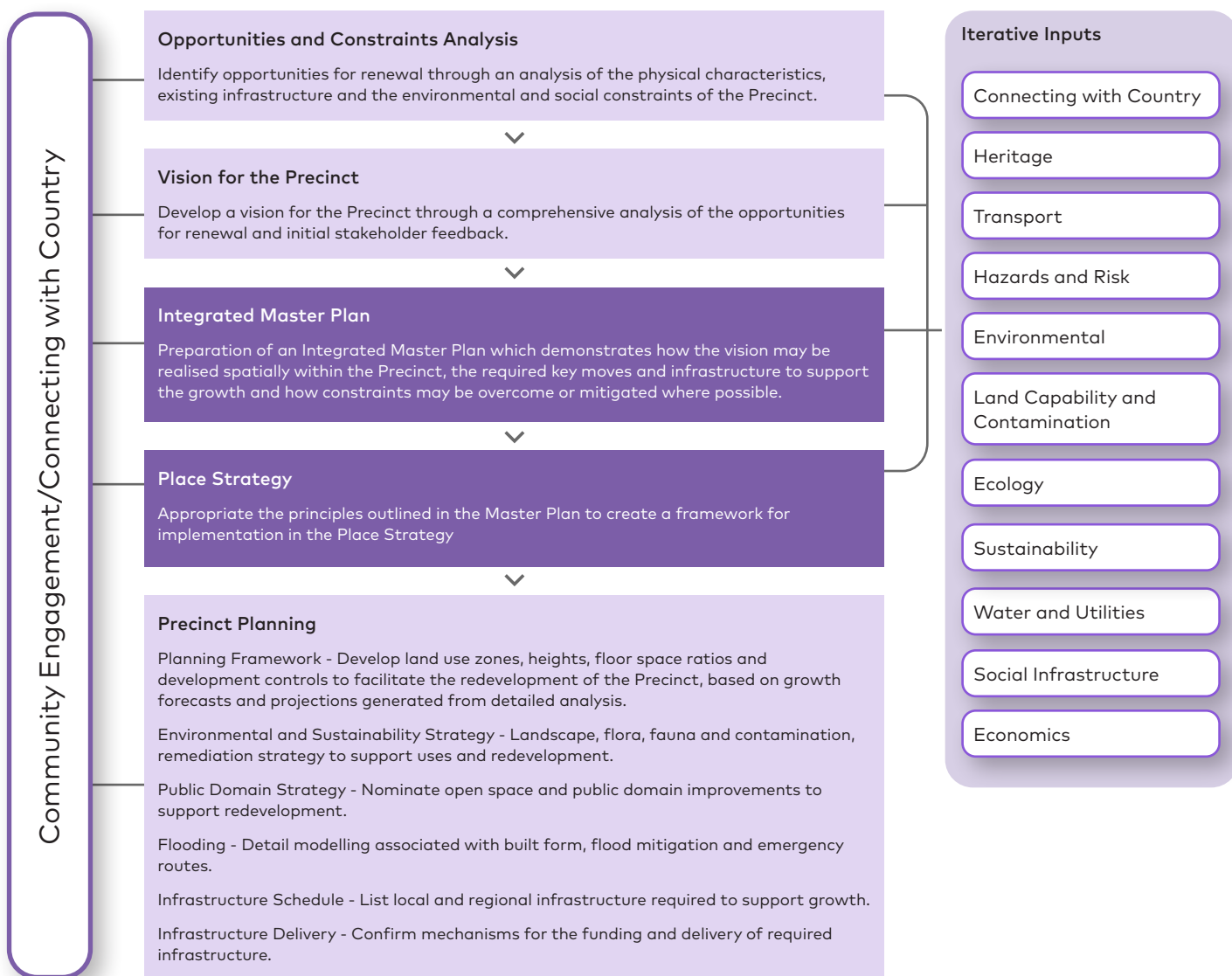


Figure 5: Project process

2. Study Area



Figure 6: EbD 1 workshop. (Source: COX)

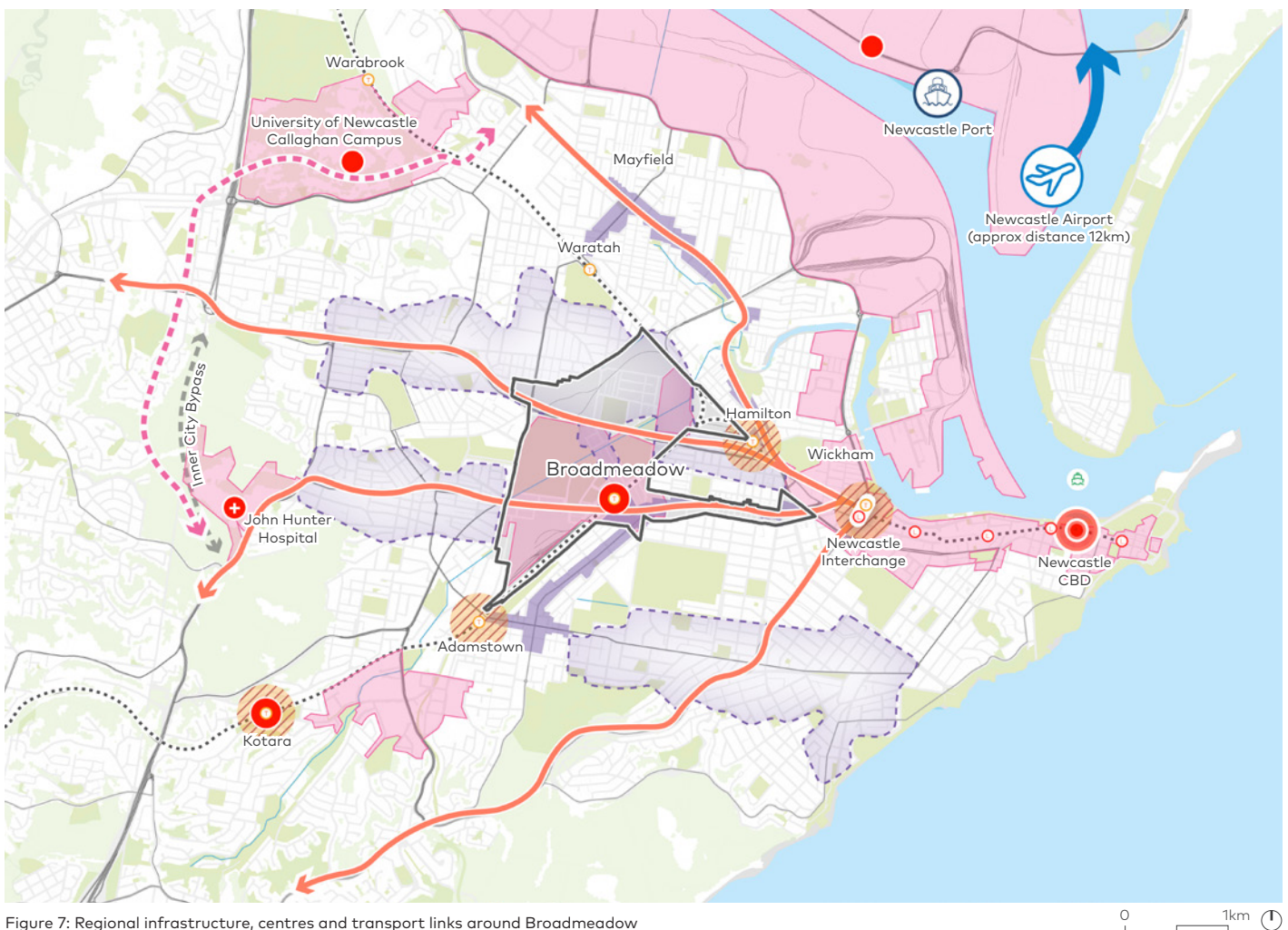
2.1 Regional Context

The Broadmeadow Precinct encompasses approximately 313 hectares of land in the Newcastle Local Government Area (LGA), situated west of the Newcastle CBD. Its boundaries are defined by the UGL distribution service site to the north, the Main Northern railway line to the north-east, the Broadmeadow Train Maintenance Centre to the southwest and Tudor Street, Hamilton, to the east.

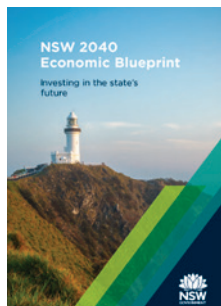
In December 2022, the (then) NSW Minister for Planning and Minister for Homes announced Broadmeadow as a part of the Planning for Growth New Planning Proposal (NPP) Program. Broadmeadow is included in the “Rezone and Build” initiative of the NPP Program, which aims to rezone land to enable the delivery of 70,000 dwellings in priority locations across metropolitan and regional NSW within the next two years. This initiative is expected to provide the community with increased housing options in areas that offer convenient access to transportation, services and open spaces.

Broadmeadow sits at the intersection of several Areas of Change as outlined by City of Newcastle’s Development Control Plan and Local Strategic Planning Statement. Urban Renewal Corridors, including those within the Precinct at Broadmeadow and Hamilton, are identified as areas of high potential for residential and economic growth. A Catalyst Area encompassing much of the Broadmeadow Precinct seeks to leverage its location, existing and future public transport opportunities, Government-owned land and large industrial sites to effect substantial growth and change while delivering new quality public space outcomes for the community.

As such, Broadmeadow has the potential to evolve into a vibrant employment and residential hub, leveraging public investments in transportation, future light rail connections, Hunter Park (Broadmeadow Sports and Entertainment Precinct), advanced manufacturing and supporting businesses in sports medicine and creative industries.



2.2 State Strategic Planning Context



NSW 2040 Economic Blueprint: Investing in the State's Future

This policy charts NSW's path for success in a changing global economy, focusing on productive jobs in appealing places. While the Broadmeadow Precinct is not explicitly cited in the Policy, its 2040 aspirations are relevant:

- Improving living standards through health, education and high-income jobs
- Diversifying the economy with fast-growing industries; enhancing urban centres and connectivity; boosting regional productivity
- Fostering innovation; preserving the environment and biodiversity; and ensuring reliable, affordable energy and water resilience



Net Zero Plan Stage 1: 2020 – 2030

The foundation for NSW's action on climate change, and goal to reach net zero emissions through green infrastructure, is supported by the Net Zero Plan Stage 1 report. It outlines the NSW Government's plan to grow the economy, create jobs and reduce emissions over the next decade. The Broadmeadow Precinct has the opportunity to contribute to the Plan's net zero priorities to:

- Drive uptake of proven emissions reduction technologies
- Empower consumers and businesses to make sustainable choices
- Invest in the next wave of emissions reduction innovation
- Ensure the NSW Government leads by example



Kickstarting the Productivity Conversation

The Productivity Commission is initiating a discussion on boosting the State's productivity, strengthening the economy, maintaining high living standards and spreading reform benefits. They have identified six priority areas for productivity improvement and specific issues within them. The following recommendations will guide the development of the Broadmeadow Precinct:

- Enhancing water recycling
- Unlocking employment zone potential and optimizing assets
- Tailoring housing to preferences and offering diverse housing options
- Maximizing public and green spaces
- Streamlining developer contributions and reducing bureaucratic hurdles



State Infrastructure Strategy 2042

The 20-year State Infrastructure Strategy, provided by Infrastructure NSW, offers advice on the current state of New South Wales' infrastructure and outlines priorities for the next two decades. While it doesn't explicitly mention Broadmeadow, it acknowledges the importance of integrating Newcastle into the broader metropolitan region. This integration could leverage assets like trade gateways and better connectivity, potentially through a future Fast Rail system. Key outcomes include:

- Enhancing the integration of major metropolitan cities
- Fostering a competitive visitor economy with cultural and sporting facilities
- Improving public transport in Newcastle
- Aligning infrastructure development with housing supply to address affordability and creating vibrant neighbourhoods with open spaces and amenities



Greener Places

Greener Places is an urban green infrastructure framework in NSW, supported by the draft Greener Places Design Guide and inspired by the Sydney Green Grid strategy. It is designed to improve the quality of urban life by strategically planning and managing green spaces, natural systems and semi-natural systems. This framework promotes a healthier, more sustainable urban environment by enhancing community access to recreation, connectivity for walking and cycling and urban resilience. It revolves around four key principles:

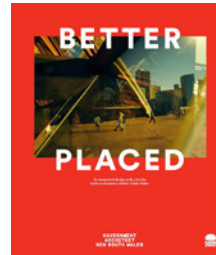
1. Integration with urban and grey infrastructure
2. Creating an interconnected open space network
3. Providing multiple ecosystem services
4. Involving stakeholders in development



Future Transport Strategy: Our vision for transport in NSW

The Future Transport Strategy sets the course for investment, services and policies to connect people and goods across cities, regional centres, neighbourhoods and internationally. The Future Transport Strategy outlines the following principles:

- Enhancing liveability for communities
- Fostering 15-minute neighbourhoods
- Optimizing infrastructure use by favouring efficient transportation modes like buses, walking, cycling and micromobility devices
- Building resilient communities that can withstand challenges while promoting economic growth



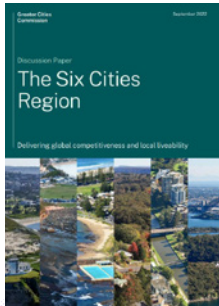
Better Placed

The Integrated Design Policy for the built environment in NSW offers a clear strategy to ensure quality design in architecture, public spaces and environments, both for the present and future. Government Architect NSW (GANSW) has introduced "Better Placed," an integrated design policy that outlines seven key objectives that aim to promote designs that are contextually relevant, sustainable, inclusive, safe, efficient, value-adding, engaging and attractive. These objectives establish expectations for good design in projects of all sizes, highlighting the public benefits of such design. The policy also defines well-designed built environments as healthy, responsive, integrated, equitable and resilient. To complement Better Placed, GANSW has issued frameworks, advisory notes and guidelines covering various design-related topics, such as country, heritage, movement and place.



NSW Movement and Place Framework

The NSW Movement and Place Framework has informed Broadmeadow's Place Strategy. The Framework outlines a whole-of-government approach to ensure projects integrate land-use and transport planning to achieve great place outcomes and maximise community benefit.



The Six Cities Region Discussion Paper

This discussion paper aims to encourage dialogue about planning the Six Cities Region to benefit the community and tap into global economic opportunities as the Greater Cities Commission's Region Plan is formulated. To realize this vision, six Region Shapers are proposed as key priorities for the 2023 Region Plan. Several of these priorities could impact the future development of the Precinct, such as incorporating First Nations' aspirations, developing airport and port strategies with implications for Newcastle Port and Broadmeadow infrastructure, enhancing public transport within metropolitan areas, supporting a comprehensive fast rail strategy, increasing housing supply with sufficient infrastructure, investing in active transport connections and addressing exposure and vulnerability to climate-related risks, including urban heat, bushfire and flooding.



Hunter Regional Plan 2041

The Hunter Regional Plan 2041 guides land use decisions for the Hunter Region over the next 20 years. It aims to create a thriving regional economy with a vibrant metropolitan centre. The plan focuses on redeveloping established areas like Broadmeadow to accommodate the substantial increase in dwellings and jobs that are projected for Greater Newcastle by 2041. Key priorities for the strategic centre include:

- Investigating Broadmeadow's renewal potential due to its central location
- Improving public transport access and diversifying services
- Expanding recreation and entertainment
- Enhancing integration between key areas

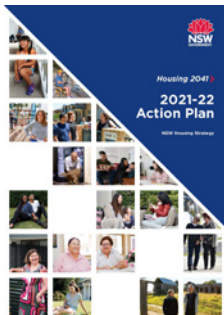


Greater Newcastle Metropolitan Plan 2036

The Plan outlines strategies for sustainable growth in the Greater Newcastle area. It envisions the Broadmeadow Precinct as a nationally significant sport and entertainment hub that facilitates growth and transformation in surrounding areas.

Key priorities outlined in the plan for the Broadmeadow Precinct include:

- **Hunter Sports and Entertainment Precinct** - Developing a diverse and commercially viable elite sports and entertainment hub that supports higher-density housing and creates adaptable spaces for major events
- **Nineways Precinct** - Aligning local plans for office, retail and medium-density housing, enhancing the public domain and identifying public transport corridors
- **Lambton Road Precinct** - Focuses on promoting light industrial and business uses and investigate the potential for mixed use housing
- **Broadmeadow Station Precinct** - Enable medium to higher density housing with enhanced integration of public transport services and street layouts to promote better pedestrian access between the station and surrounding areas
- **The Broadmeadow Road Precinct** - Emphasizes protection of light industrial uses and the creation of walkable activity centres
- **The Locomotive Depot Precinct** - Explore medium-density housing and business use, considering heritage and flooding risks
- **The Former Gasworks Precinct** - Seek mixed-use development, addressing land remediation, flooding and transport needs



Housing 2041 Action Plan

The NSW Government's Housing 2021-2022 Action Plan provides a housing strategy to achieve better housing outcomes and greater housing choice state-wide for the next 20 years. The plan envisions a state where all people have access to housing that supports security, comfort, independence and choice, and establishes strategic pillars and a multi-stakeholder governance and implementation framework to achieve this. The following actions will guide residential supply in Broadmeadow:

- Improve government-led residential development outcomes and processes to achieve increases in social and affordable housing, open and public space provision, higher environmental sustainability performance and place and design outcomes
- Partner with industry and community organisations to test new housing typologies on Government-owned land
- Promote sustainable and energy-efficient homes



Urban Design for Regional NSW

The NSW Government has prepared the Urban Design for Regional NSW document to create a comprehensive guide for stakeholders involved in the design, planning and development of regional centres. The document seeks to improve the resiliency of these centres and encourage activation and densification while retaining heritage values and character. To achieve this, the document outlines seven key strategies:

1. Integrate with the natural environment and landscape
2. Revitalise main streets and town centres
3. Prioritise connectivity, walkability and cycling opportunities
4. Balance urban growth
5. Increase options for diverse and healthy living
6. Respond to climatic conditions and their impacts

2.3 Local Strategic Planning Process



Newcastle 2040 Community Strategic Plan

City of Newcastle's Community Strategic Plan envisions a smart, sustainable and inclusive global city driven by community input. It emphasizes celebrating culture, preserving nature, supporting well-being, addressing challenges innovatively and fostering economic and educational opportunities. The plan rests on four key principles:

1. Acknowledging diverse community needs
2. Ensuring social justice
3. Considering long-term impacts
4. Embracing ecological sustainability



Newcastle Local Strategic Planning Statement 2021

The 20-year Local Strategic Planning Statement (LSPS) sets the course for land use planning in Newcastle over the next two decades. By 2040, the city aspires to become a smart, liveable and sustainable global hub with welcoming and inclusive spaces for all residents, workers, visitors and students. The LSPS focuses on a high-growth residential scheme in Broadmeadow's Urban Renewal Corridor while preserving employment opportunities in the sport and entertainment precinct. It aims to enhance transportation, green spaces and community character, emphasizing sustainable, affordable housing and heritage preservation. Additionally, the plan seeks to promote new economy jobs, creative industries and tourism growth, including night-time economies.



Draft Newcastle Environmental Management Strategy 2023

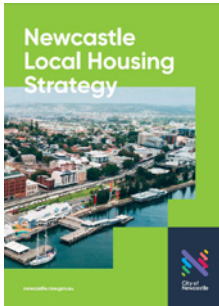
The Draft Strategy has been prepared to define how Council can exceed previous climate objectives and aims to meet the challenge of achieving the community's environmental vision. Key issues for the Broadmeadow Precinct include:

- Habitat loss, deterioration, change and fragmentation
- Pollution and Contamination
- Loss of vegetation cover through natural events such as aging and removal of hazardous trees exceeding replacement
- Transition towards net zero emissions



Newcastle Economic Development Strategy 2021

City of Newcastle's Economic Development Strategy adopts a transformative approach with a strong focus on people and place. The strategy aims to nurture a skilled and innovative workforce, bolstered by vital city infrastructure and an enriching lifestyle. Within this strategy, Broadmeadow is part of the Innovation Arc, contributing to the city's ongoing revitalization. Broadmeadow, situated centrally in the LGA, is home to existing sporting and entertainment facilities that play a pivotal role in the community. Substantial investment is planned to transform the area around McDonald Jones Stadium, with new amenities, increased housing density, improved transportation networks and the redevelopment of various edge sites for industrial reuse and environmental remediation.



Newcastle Local Housing Strategy 2021

The 2020 Local Housing Strategy (LHS) for Newcastle outlines a 20-year framework for housing provision in the area. The vision is to offer housing that suits residents' needs within a community providing access to employment, amenities and services while preserving the city's cherished attributes for future generations. The Precinct aims to accommodate approximately 1,500 dwellings and 550 jobs, with considerations for:

- Maintaining housing supply in well-connected areas
- Encouraging housing diversity
- Reflecting local character
- Emphasizing ecological sustainability to minimize resource use over a dwelling's lifespan



Newcastle Transport Strategy 2014

The Newcastle Transport Strategy serves as a roadmap for Council's transport-related decisions and actions, aligning with the community's vision for a connected city. It acknowledges that land use planning significantly impacts travel patterns, transport cost-effectiveness and the overall quality and safety of our surroundings. In the current planning phase for the Precinct, critical actions involve:

- Enhancing public transport accessibility
- Adopting a comprehensive approach to pedestrian infrastructure development
- Closely monitoring parking availability and distribution in the city centre



'On our bikes' Newcastle Cycling Plan 2021-2030

Newcastle's Cycling Plan for 2021-2030 underscores the city's potential for becoming a prominent cycling destination. Council aims to promote walking and cycling as the primary choices for short trips in Newcastle. Notably, key regional cycling routes, such as the NSW Coastline Cycleway and paths from Newcastle City Centre to Speers Point, are integrated into the Broadmeadow Precinct. Objectives of the plan include:

- Developing separate or low-traffic cycle routes
- Creating a safe and accessible network connecting various centres and homes
- Prioritizing walking and cycling spaces in the city centre, local areas and neighbourhoods to encourage active transportation for short journeys



Newcastle Employment Lands Strategy 2019

The Newcastle Employment Lands Strategy informs the planning of employment generating lands in the Newcastle LGA. A supporting strategy to the Newcastle 2040 Community Strategic Plan, this Strategy aims to provide an evidence base to inform the Newcastle LSPS. Broadmeadow is highlighted as a catalyst area in this plan with opportunities for economic and/or housing renewal and intensification. The Strategy envisions Broadmeadow as:

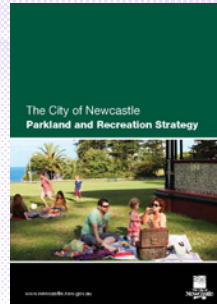
- A nationally significant sport and entertainment precinct
- Providing a mix of uses that facilitates growth and change in surrounding centres and residential areas



Newcastle Social Strategy 2030

Developed by City of Newcastle, the Social Strategy establishes a framework to guide Newcastle in becoming a socially just and inclusive place for all. Established to support the whole community to promote inclusivity, community connection, diversity and health and wellbeing, Broadmeadow is highlighted as an urban renewal corridor within the strategy. Objectives of the plan include:

- Support and advocate for access to affordable, sustainable and inclusive housing for all community members
- Encourage an active, healthy and social lifestyle supported by local facilities, services and spaces



Newcastle Parkland and Recreation Strategy 2014

Developed to guide the sustainable provision of parkland and recreation facilities to support Newcastle's population in the present and future, the strategy particularly highlights Broadmeadow's role as a regional level sports precinct, and its need to accommodate future growth as a catalyst area. It offers several recommendations specific to the Precinct including:

- Undertaking further investigation into the need of a multi-purpose indoor sports facility, particularly to service the future population within the western planning corridor
- Investigating opportunities to provide greater program providers within the LGA to strengthen the range of opportunities available to the Newcastle community



Newcastle Strategic Sports Plan 2020

The Newcastle Strategic Sports Plan aims to inform the ongoing supply and address future demand of sporting infrastructure. Taking into consideration the current and future needs of the community, the plan was developed by City of Newcastle to provide strategic guidance to support 13 outdoors sports in Newcastle by 2031. The Hunter Sports and Entertainment Precinct in Broadmeadow is a significant focus of the plan, recognised as the 'pinnacle' for a number of sports within the Hunter Region. Due to this, the plan calls for a 'whole of Hunter region approach' for this precinct to be established as a Regional Sporting Hub.

2.4 Transport Context

The Broadmeadow Precinct, through Broadmeadow Station, is the regional rail hub for the Greater Newcastle area. The station offers frequent connections south to Sydney, east to the Newcastle CBD and less frequent long-distance trips to the North Coast and Brisbane.

At the periphery of the Precinct, Adamstown and Hamilton stations are served by suburban trains toward Sydney and Newcastle. Trains towards Newcastle terminate outside the Precinct at the Newcastle Interchange in Wickham, with light rail and bus services providing ongoing connections to the CBD and Newcastle Beach and beyond.

East-west road crossings across the rail corridor are facilitated by two bridges at Donald Street and Lambton Road, both of which carry regional vehicular movements through the Precinct. Two high-frequency bus routes traverse the Precinct in an east-west

orientation and offer connections to John Hunter Hospital and the University of Newcastle (Callaghan), in addition to the Newcastle CBD and the major suburban centres of Wallsend, Cardiff, Waratah and Kotara.

At the southern boundary of the Precinct, Adamstown Station is served by a high-frequency bus route that connects Swansea to the Newcastle CBD via Charlestown.

There are several regional cycle ways around the Precinct, generally in the form of separated tracks. The Fernleigh Track is the most significant, connecting Adamstown Station to Belmont Bay, south of the Precinct. Other shared paths follow the South and North Channels of the Hunter River and along the eastern coastline.



Figure 8: Public transportation and key road links connecting to Broadmeadow



2.5 Open Space Context

The Broadmeadow Precinct is both geographically central and a large quantum of the Newcastle open space network. The Precinct includes large areas of green and/or open space, with varying degrees of public accessibility, including McDonald Jones Stadium, Newcastle International Paceway, Newcastle International Hockey Centre, Magic Park, Newcastle Showground, Newcastle Entertainment Centre, Newcastle Basketball Stadium, Newcastle Tennis Centre, Newcastle PCYC, Knights Centre of Excellence, Smith and Richardson Park Reserve.

Currently, many of these open spaces are either inaccessible to the public, accessible only through bookings or paid entry, and/or in a variety of conditions. Despite this, the Precinct still serves as a significant sport and recreation centre for the Greater Newcastle and Hunter region and there are opportunities to improve the accessibility and flexibility of these open spaces to make them more functional for the wider population.



2.6 Key Attractors

The Broadmeadow Precinct contains a range of local and regional assets that attract visitors from the Newcastle area, surrounding towns and across the Hunter Valley.

The Precinct is characterised by significant sporting facilities and open space, which are comparatively lacking within the wider Newcastle area. Significant employment activity is also supported by industrial lands in the Precinct, facilitating large scale manufacturing and production, while educational needs are served by three schools located within the Precinct - Hamilton North Public School, Hamilton Public School and the selective Hunter School of Performing Arts. Lambton High School is located just outside the Precinct, to the west.

Regional visitation to the Precinct is generated primarily by sports and entertainment facilities such as McDonald Jones Stadium, the Newcastle Entertainment Centre and the Newcastle Showground.

Key local and regional attractors within the Precinct and nearby surrounds are comprised of:

- | | |
|----------------------------------|---|
| ① TAFE Newcastle | ⑩ Newcastle Tennis Association |
| ② Elma Site | ⑪ Broadmeadow Maintenance Centre |
| ③ UGL Goninan Site | ⑫ Newcastle Racecourse |
| ④ Newcastle Harness Racing Club | ⑬ Newcastle Basketball |
| ⑤ McDonald Jones Stadium | ⑭ Hunter Indoor Sports Stadium (Proposed) |
| ⑥ International Hockey Centre | ⑮ Gasworks Site |
| ⑦ Knights Centre of Excellence | ⑯ Caltex Site |
| ⑧ Newcastle Showground | ⑰ Beaumont Street Shops |
| ⑨ Newcastle Entertainment Centre | |



Figure 10: Existing activity and assets in the Broadmeadow area

Precinct boundary
 T Train station
 📖 Existing primary school
 📖 Existing secondary school

2.7 Land Ownership

Diversified land uses at Broadmeadow have led to varied patterns of land ownership and subdivisions across the Precinct.

The predominant subdivision pattern in the Precinct is characterised by a combination of 400m² lots in low-density residential zones and large scale 'super lots' in industrial areas.

The remainder of the Precinct is characterised by open space and large parcels of Government-owned land.

There is a significant portion of Government-owned land within which presents a unique opportunity for high quality urban renewal to occur. Within the precinct, key Government-owned sites are generally large and unfragmented sites, presenting an ideal opportunity for urban renewal and diverse housing.

The precinct presents an opportunity to transform underutilised Government-owned land into a vibrant precinct that can support both the needs of the community and meet current growth targets.

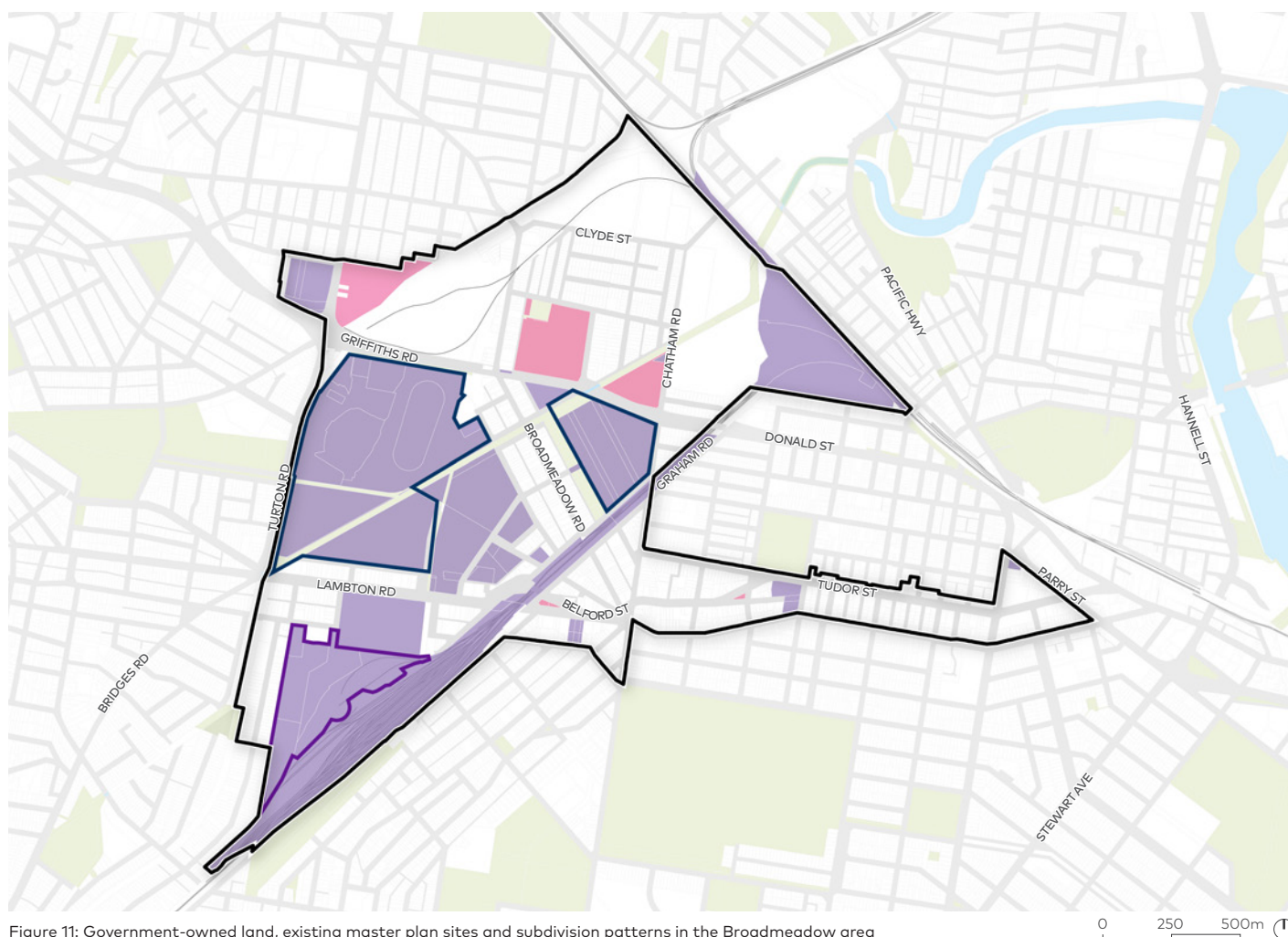


Figure 11: Government-owned land, existing master plan sites and subdivision patterns in the Broadmeadow area

| | | |
|-----------------------------|---------------------------|------------------------------|
| Precinct boundary | NSW Government-owned land | City of Newcastle owned land |
| Venues NSW Hunter Park site | TAHE redevelopment site | |

2.8 Existing Character

Encompassing much of the industrial land in inner Newcastle, the Precinct external interface is largely residential. Notably, the Tudor Street corridor intersects with Beaumont Street, Hamilton's high street and primary commercial, retail and night-life precinct. Nineways serves as a further historical and existing local centre.

Most existing residential uses within the Precinct are zoned for medium density residential, however, the development outcomes and built form possible under this zoning are yet to be achieved, as single detached dwellings form the majority of residential built form within the Precinct.

The Tudor Road corridor comprises a mix of showrooms, commercial uses, single-detached houses and apartment buildings along its length. Lambton Road supports a sub-precinct of commercial offices, showrooms, retail bulky goods retailing and food and beverage.

The northern part of the Precinct has historically been developed for industrial and employment uses that include rail yards and locomotive depots. This was accompanied by worker housing in some cases, such as in Hamilton North, where a small pocket of low-density workers cottages is surrounded by industrial land uses.

Large green spaces are located within and in close proximity to the Precinct, however, significant sites such as the Newcastle International Hockey Centre, Knights Centre of Excellence, Magic Park, Newcastle Showground, McDonald Jones Stadium and the Newcastle Harness Racing Club are not open to the general public outside of organised sport or events. Styx Creek and its tributaries are currently channelised, concrete drainage corridors.

Styx Creek is the Precinct's most prominent natural feature, flowing south-west across the width of the Precinct from Islington to New Lambton. Styx Creek separates the light industrial uses near Griffiths Road from low-density residential uses centred upon Broadmeadow Road.

At the western interface, a series of sports fields follow Lambton - Ker-rai Creek. This open space is earmarked for the future Hunter Indoor Sports Stadium/Newcastle Basketball Arena.



Figure 12: Rail lines and heritage locomotive depot at the southern extents of the Precinct. (Source: Newcastle Herald)



Figure 13: Tudor Road Corridor. (Source: Newcastle Herald)



Figure 14: Bulky goods and dealerships along Lambton Road. (Source: Commercial Real Estate)

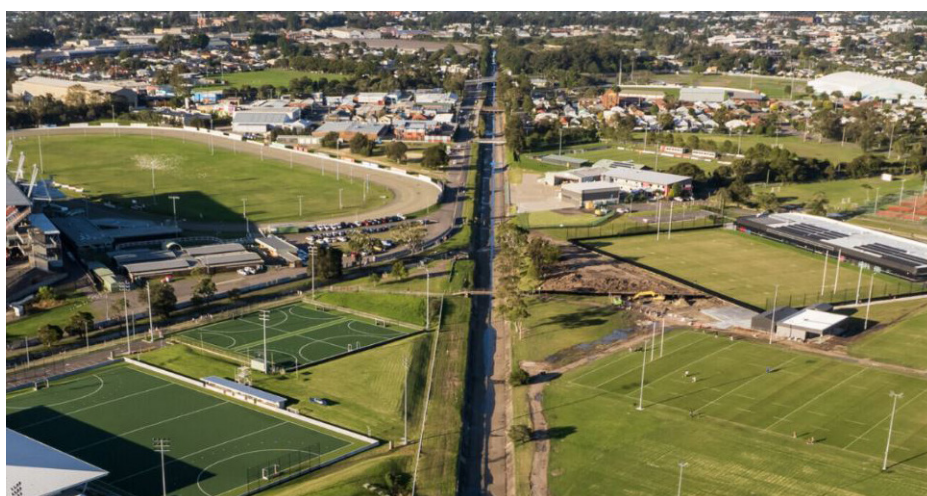


Figure 15: Styx Creek with surrounding open space and sports facilities. (Source: Newcastle Council)



Figure 16: Sunnyside Tavern, Broadmeadow Road.
(Source: Newcastle Herald)



Figure 17: UGL Site. (Source: Newcastle Herald)



Figure 18: Hamilton North residential character. (Source: Google Maps)

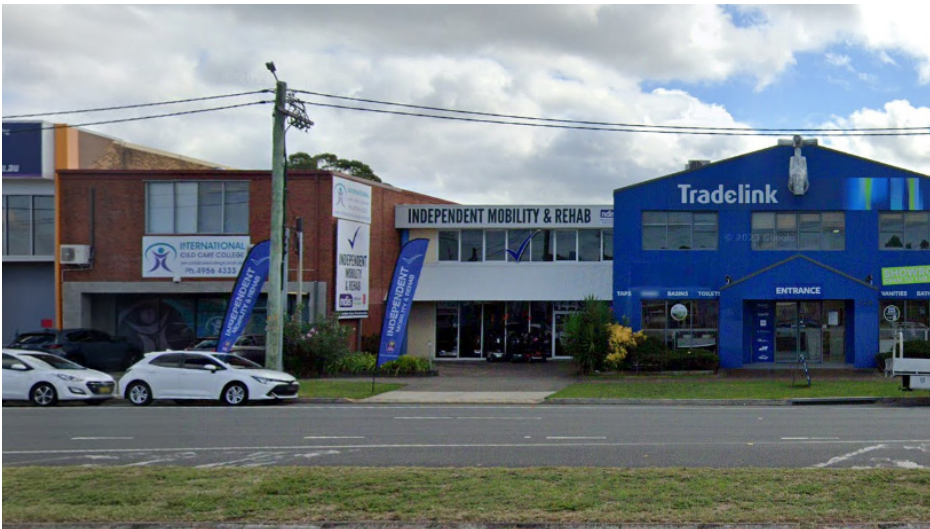


Figure 19: Lambton Road Productivity Support character. (Source: Google Maps)



Figure 20: Newcastle Entertainment Centre.
(Source: Wikimedia)

2.9 Natural Environment

Formerly wetlands, the Precinct today is comprised of large expanses of public open space and recreation uses. However, the land, even within the open spaces, is generally devoid of vegetation and very little landscape has been retained in a natural state.

As such, the Precinct is largely unconstrained by biodiversity values, however, it is situated within a broader context of coastal constraints, which include threatened wetland vegetation communities, SEPP Coastal Wetland areas, nationally important wetland, key fish habitat and important habitat areas for migratory shorebirds and grey-headed flying fox camps.

There is some dispersed tree canopy coverage within the Precinct, as shown in the figure below. The canopy cover is primarily comprised of street tree planting located within road verges, alongside some clusters of trees within parklands.

The Precinct is connected to several large parks and reserves via green corridors close by to its boundary. This includes the Dangar Park to Islington Park connection to the north and Newcastle Racecourse to the Glenrock State Conservation Area to the south.

Styx Creek is the backbone of a branching network of waterways, all of which are heavily modified from their natural state and run within concrete channels. In the west, Lambton - Ker-rai Creek flows from New Lambton before joining Styx Creek at the Hockey Centre. Several other streams branch from the Showground site, as seen in the figure below and another open channel nearby the Locomotive Depot site.

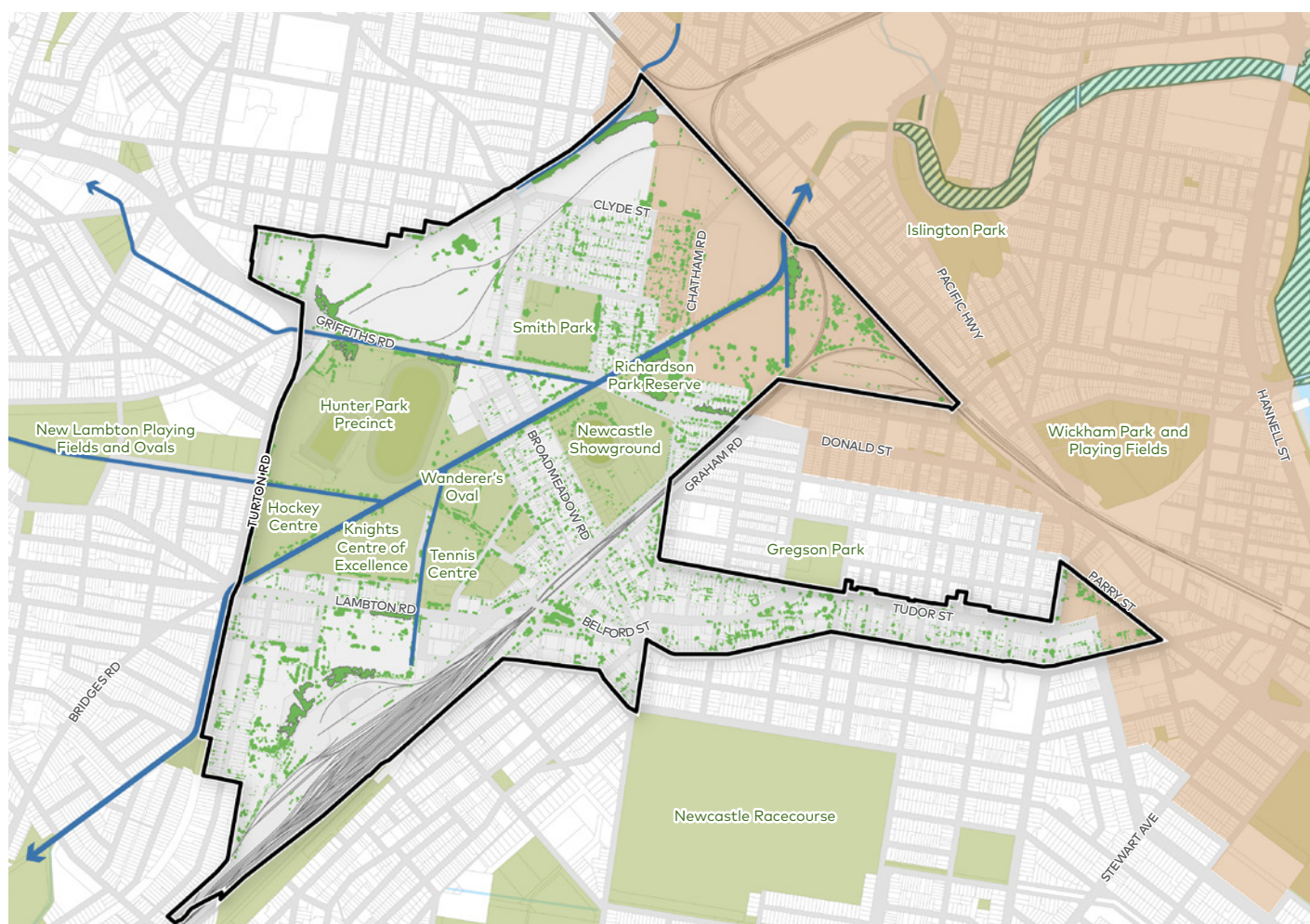


Figure 21: Existing open space and environmental context of the Broadmeadow area



0 250 500m

2.10 Flooding

Newcastle has experienced a long history of flooding. Large open channels were constructed in the early 20th century, however, rapid urban development at the time lacked consideration to natural flow paths. Due to this a large proportion of Newcastle's development is located in flood risk areas, which has resulted in several flash flooding events since European arrival.

Prior to urbanisation the area was defined by low-lying alluvial floodplain and marshland, with subsequent development producing areas susceptible to inundation during minor flood events. These events are also exacerbated by the channelisation of water courses, like Styx Creek, that run throughout the Precinct. The Broadmeadow Precinct is therefore heavily affected by floodwaters.

The majority of the Precinct is within 1% AEP (percentage probability of an event occurring in any given year). Flood areas within the Probable Maximum Flood threshold comprise much of the remaining area of the Precinct.



Figure 22: Flooding across Nineways, Broadmeadow (1892). (Source: Newcastle University Cultural Collections)

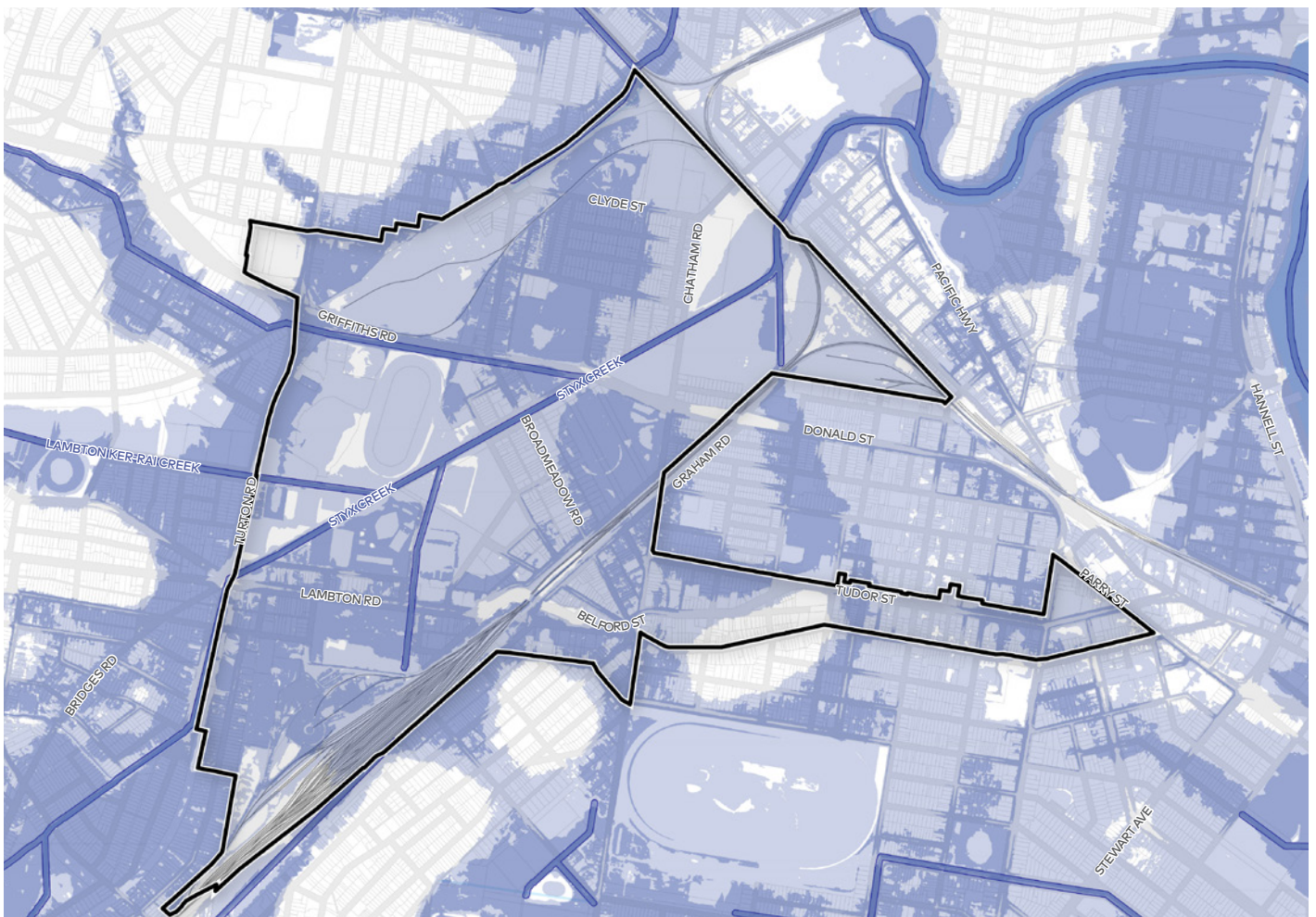


Figure 23: Creek lines and flooding characteristics of the Broadmeadow area. (Source: Rhelm Flooding Report)

| | |
|------------------------|------------------------------|
| Precinct boundary | Defined flood event (1% aep) |
| Creeks and river lines | Probable maximum flood area |

2.11 Heritage

Aboriginal Heritage

The Precinct falls within the traditional country of the Awabakal people. The Newcastle environs, known in the Awabakal language as 'Mulubinba' [the place of sea ferns], is a significant place in the Awabakal cultural landscape, reflected through both the tangible evidence of Aboriginal history (recorded Aboriginal sites) and the continuing connection to Country through cultural and spiritual attachment.

There are records of Aboriginal people interacting with the European population in the early period of occupation, but subsequent records are relatively rare until the modern period.

A review of relevant heritage registers undertaken for the current assessment has identified two Potential Archaeological Deposits (PAD) within the Precinct. 'Wickham Transport Interchange PAD'; Aboriginal Heritage Information Management System (AHIMS) ID #38-4-1716) extends partially into the Precinct at the eastern boundary parallel to Fern Street. Archaeological excavations within this PAD have recovered more than 8,000 Aboriginal objects. Broadmeadow PAD AHIMS ID #38-4-2263 was most recently registered and covers the entirety of the Locomotive Depot area. While no evidence was found, it is suggested that there was likely to be Pleistocene deposits present.

An additional three sites have been found within 500m of the Project area; 'Railway Lane' AHIMS ID #38-4-2136, '10 Dangar Street PAD' AHIMS ID #38-4-2037 and 'Newcastle Interchange Artefact Reburial 1 (NI AE 1)' AHIMS ID #38-4-2006. These comprise of either open artefact sites or areas of PAD.

No specific items, objects, sites and/or places of known Aboriginal cultural heritage are currently registered within the Project Area. The absence of recorded Aboriginal cultural heritage within the immediate environs of the Project Area likely stems primarily from the paucity of compliance-based Aboriginal cultural assessments undertaken in the Broadmeadow environs (and the age of much of the development), rather than being indicative of the lack of Aboriginal archaeological potential and/or cultural values.

Non-Aboriginal Heritage

Broadmeadow presents a rich and varied non-Aboriginal heritage landscape, with a multitude of strong historical themes that speak to the area's history and character. These themes can be used to create focal points in the landscape, centred on specific heritage items, Heritage Conservation Areas or clusters of items and underpin the identity of specific 'precincts' throughout Broadmeadow that relate to historical uses or development patterns. The themes include mining, industry, commerce, transport, towns, suburbs and villages, labour, education, domestic life, religion and sport.

For example, Broadmeadow historically served as a transport hub within Newcastle and the surrounding region, introducing the city to numerous innovative locomotive advances throughout the 20th century, such as the roundhouse and the diesel engine. Playing a key role in coal and goods distribution for the Newcastle Region, the Broadmeadow Locomotive Depot is at the heart of several revolutionary advancements in Australia's rail history.

Broadmeadow played a crucial role in Newcastle's industrial heritage, with the city being a primary producer of steel in the early - mid 20th century and an important manufacturer for steel products required during both World War I and 2.

Residential patterns within the Precinct further reflect the history of Broadmeadow and wider Newcastle, as seen in the Hamilton Residential Heritage Conservation Area. This pocket of Hamilton represents a pattern of urban settlement that occurred as mining industries relocated to the Hunter Valley from the 1880s. With most of the suburb's development dating from 1880-1920, the residential area reflects a period of infrastructure investment and growth in Broadmeadow, with the smaller lot layout attributed to the houses' buyers primarily being employees of local industry. Similar residential patterns can also be seen in the Cameron's Hill area, a neighbourhood nominated for Heritage Conservation status by the National Trust.

Furthermore, as the historical archaeological potential of the Broadmeadow area is not considered within existing archaeological management plans for Newcastle, an opportunity therefore exists to undertake further research and assessment regarding the potential historical archaeological resource of the Precinct, so as to further inform an understanding of the area's heritage values and historical themes.



Figure 24: Australian Agricultural Company subdivision sale poster for Cameron's Hill, Hamilton (1911). (Source: Newcastle Region Library)



Figure 25: Train turntable at the Broadmeadow Maintenance Centre and locomotive depot. (Source: C & MJ Doring)

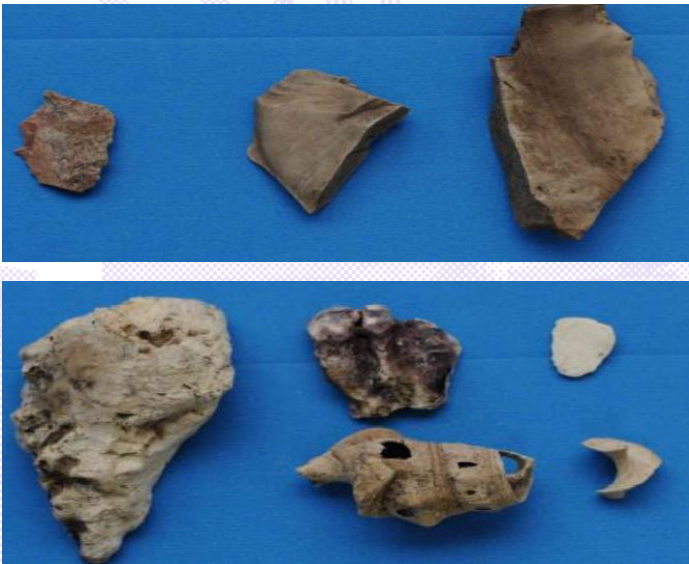


Figure 26: Aboriginal artefacts found at the Wickham Transport Interchange during construction in 2015. (Source: DPHI)

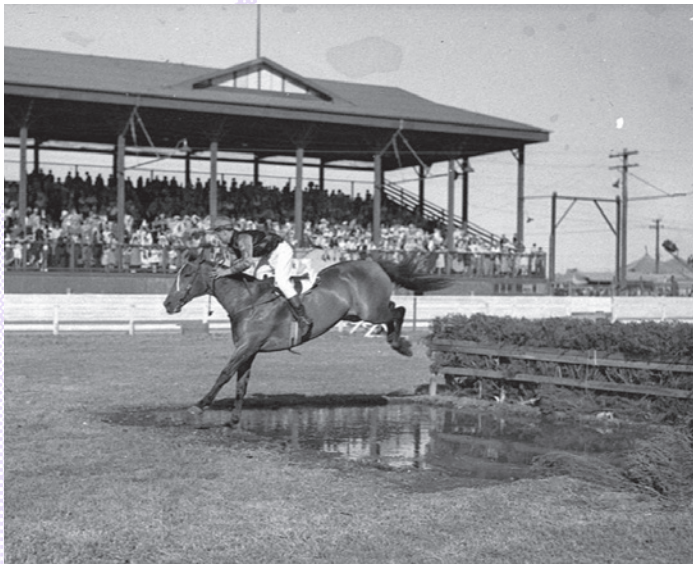


Figure 27: Newcastle Showground grandstand c.1916. (Source: SLNSW)

Heritage Mapping

Numerous heritage items are found within the Precinct, reflecting a strong industrial legacy.

These include:

- | | | |
|---|--------------------------------------|---|
| 1. Broadmeadow Locomotive Depot | 11. Broadmeadow Fire Station | 21. Gas Co Site Remnant Gardens |
| 2. Goninans (industrial site) | 12. St Peters Anglican Church | 22. Newcastle Gas Co Office |
| 3. Former Lambton Colliery Railway | 13. Chaucer Street Date Palms | 23. Pump House and Fence |
| 4. Former Broadmeadow Aero Club | 14. Former Bank of New South Wales | 24. Richardson Park Reserve |
| 5. St Lawrence O'Toole Church | 15. Wesley Church | 25. Sunnyside Tavern |
| 6. Newcastle Showground | 16. Scots Kirk Presbyterian Church | 26. ANZAC House |
| 7. ELMA Site | 17. Former Hamilton Hotel | 27. St Josephs Convent And Sacred Heart Church And School |
| 8. Broadmeadow Station | 18. Hamilton Hotel | |
| 9. Shell Company of Australia (industrial site) | 19. House | |
| 10. Hamilton Public School | 20. Remnant Plantings, District Park | |

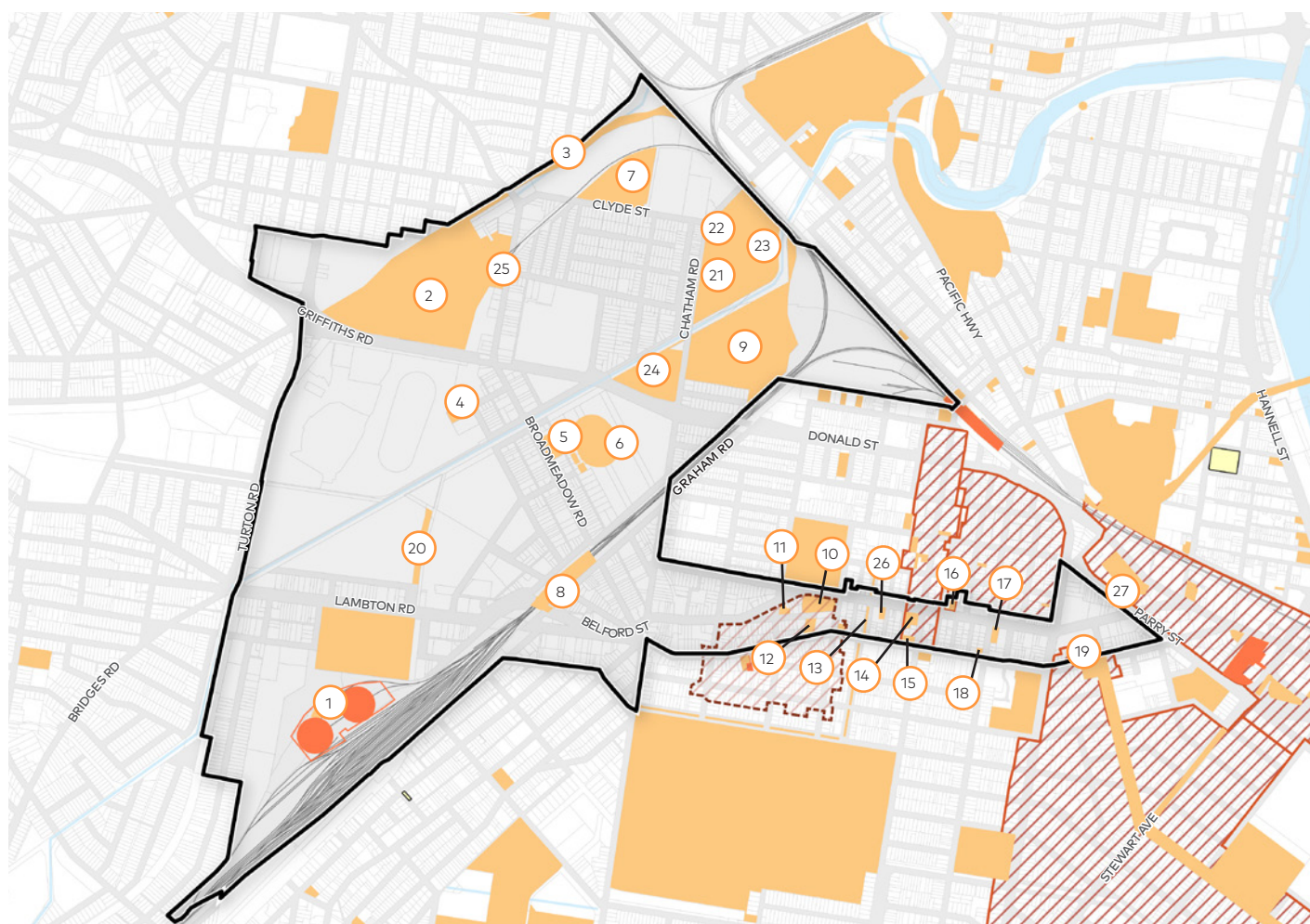


Figure 28: Heritage sites, conservation areas and archaeological sites in the Broadmeadow area

| | | | |
|-------------------|----------------------------|---|----------------|
| Precinct boundary | State heritage | Local heritage | Archaeological |
| Heritage items | Heritage conservation area | Cameron's Hill investigation area for heritage conservation | |

2.12 Land Capability and Contamination

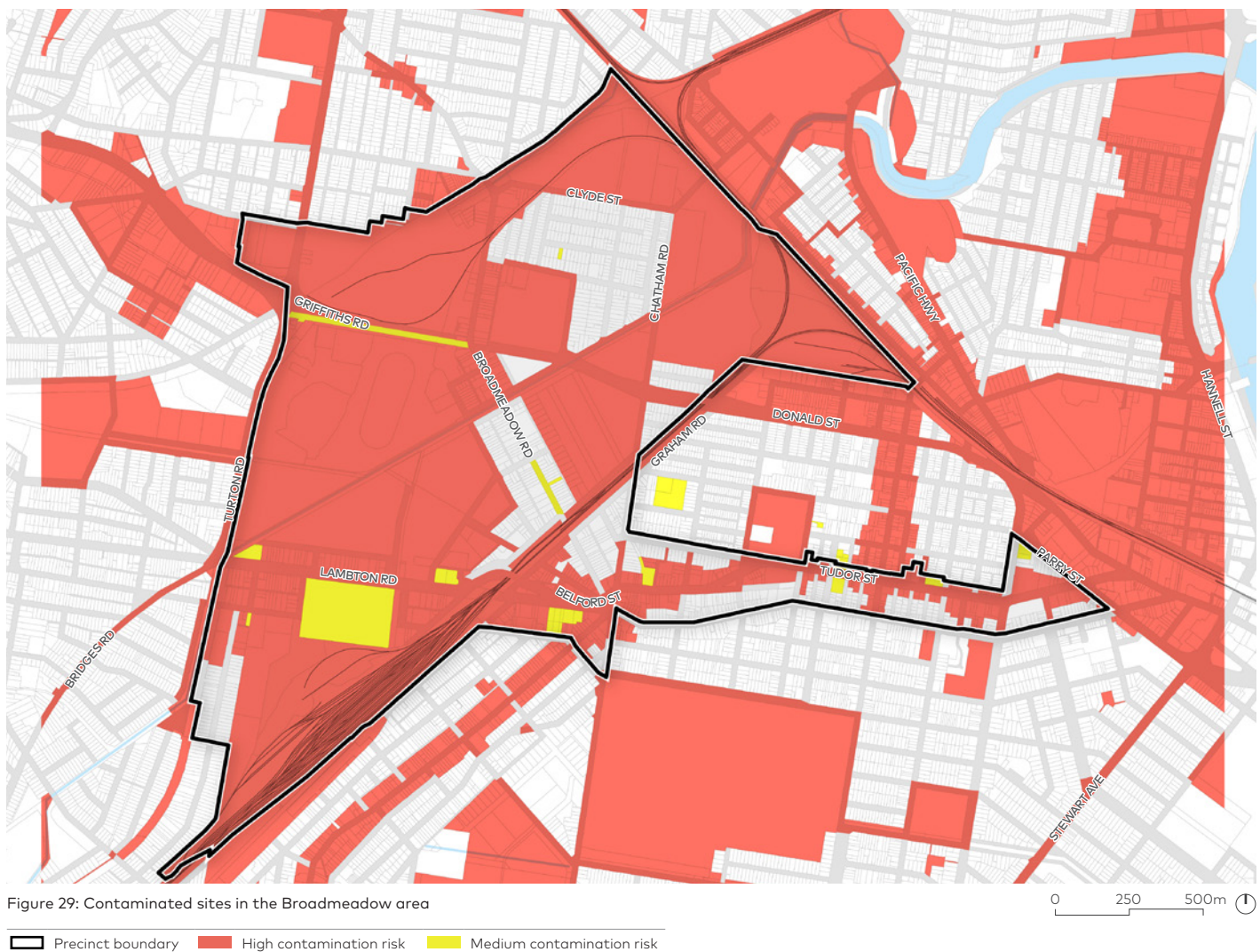
The development of contaminated land necessitates careful consideration and remediation measures, particularly when transitioning to more sensitive land uses. The identification of high-risk contamination areas underscores the need for comprehensive assessments - even for sites where land uses will remain the same, as future development plans may trigger additional investigations and management measures.

The Precinct is contaminated with soil and groundwater issues from past activities and land filling, mandating remediation and management efforts in light of site conditions and proposed development plans. Multiple sites within the area are significantly impacted by groundwater effects.

Contaminated sites present various challenges to construction, including uncontrolled fill at varying depths, compressible soils, reactive clays and shallow groundwater, particularly in low-lying flood-prone areas. Development in areas with

significant soil or groundwater impacts may not be suitable and additional remediation should be considered for rezoning. To address contamination concerns, it is advisable to establish a Contamination Assessment and Management Plan (CAMP).

The foundation conditions within the Precinct pose unique challenges, including acid sulfate soils and the need for dewatering and excavation support. Additionally, the presence of mine subsidence in the eastern section of the Precinct may require grouting of workings for stability. The former gasworks site contains obstructions like pits, tanks and infrastructure, requiring careful consideration during development. Despite these challenges, opportunities for development exist, such as maximising soil reuse, exploring innovative foundation approaches, limiting building heights in mining areas and minimizing excavation and basement requirements, all while addressing soil and groundwater contamination concerns.



2.13 Hazards

There are a number of potential hazards that have been accounted for in the design of the Broadmeadow Precinct.

The Precinct is segmented by the Main North railway line. The risk of derailment impacts to structural supports of buildings adjacent to railway lines requires impact protection measures and risk analysis to be carried out for developments within 10m and 20m from the centre-line of rail tracks. The Tudor St Corridor overlaps a mine subsidence district, however, the likelihood of subsidence impacts occurring typically remain low and are identified as a precautionary measure that requires approval from Subsidence Advisory NSW prior to development.

The Precinct currently has an existing Ampol liquid fuel pipeline running south-west to north-east. Development adjacent to the pipeline will be constrained by the pipeline risk profile, assessing mitigation measures for minimising potential impacts.

Developments within 140m of the pipeline are feasible but will require supplementary consultation with DPHI. All development within 26m is prohibited. Sensitive uses such as schools, daycare and aged care will be prohibited within 40m of the pipeline.

Future hazard management will include managing the development of sensitive land uses such as hospitals, schools, child/aged care facilities and high density populations along the pipeline corridor.

Jemena also operates a secondary gas pipeline in North Hamilton, supplying gas to the north west of the Precinct. While identified as presenting risks below the NSW land use planning risk criteria, preventative measures such as establishing green buffers in North Hamilton will assist in mitigating any residual risk.

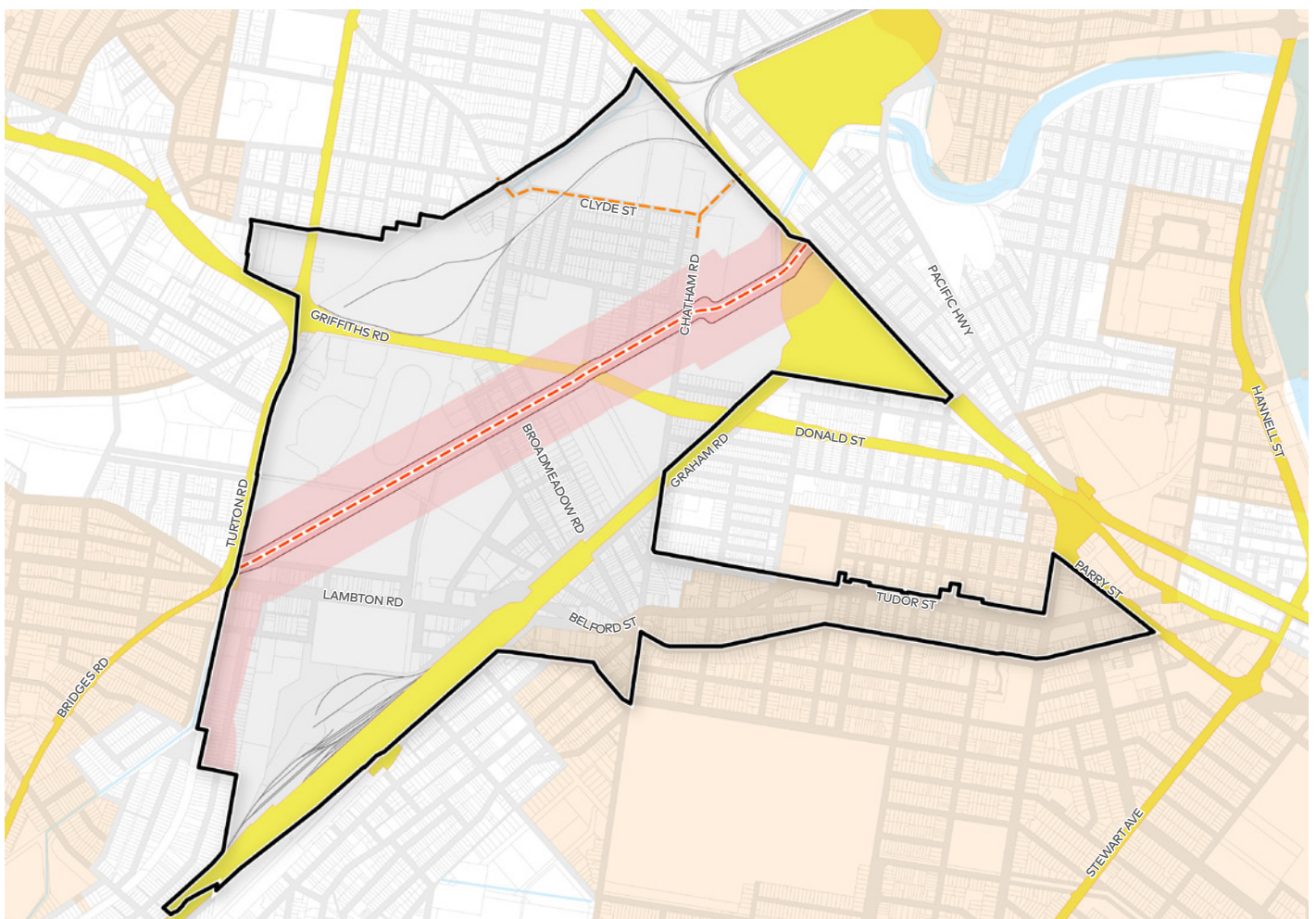
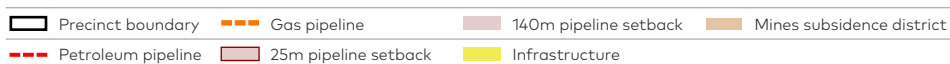


Figure 30: Potential hazards in the Broadmeadow area



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2.14 Combined Considerations

The following considerations - in combination with existing strategic plans and initial community feedback on the future of Broadmeadow - have informed the preparation of the Broadmeadow Place Strategy and the development of an integrated master plan that responds to the opportunities and challenges presented by the site captured in this chapter of the Report.

The implications of these considerations have been evaluated through cooperation between relevant technical streams and representatives from various stakeholders throughout the Project. Collaborative design sessions were conducted across both the preliminary and final Enquiry by Design Workshops to facilitate

a multidisciplinary approach for addressing considerations of the Broadmeadow Precinct.

In the testing of options and refinement in to the Integrated Master Plan contained within this Report, considerations were contributed, evaluated and categorised by all stakeholders into a list of non-negotiable and negotiable requirements to be included within the Integrated Master Plan and ongoing assessment of the site.

Non-Negotiables

Land Use

- A minimum 2,000 additional dwellings to be provided in the first-move rezoning, aligning with requirements set out by the Hunter Regional Plan 2041
- Approximately 25,000m² retail floorspace to align with demand modelling, with a cluster at Broadmeadow Station
- Provide for a large aquatic and leisure centre
- Improve the quality, amenity and access to public open space
- Harness racing to be relocated off-site
- Minimum amount of affordable housing on Government-owned land to align with current government position; 15% on private land - subject to feasibility

Transport

- High frequency public transport into the site
- Pedestrian and cycle networks to be more permeable and better integrated reducing car dependency
- Broadmeadow Station to become a major interchange between rail, bus and active transport
- Broadmeadow Station and Hunter Park are connected by a pedestrian boulevard
- Access, egress and emergency evacuation during flooding
- Potential for future connections
- An identified public transport corridor

Environment

- Styx Creek will progress towards a more natural appearance, introducing greater greenery
- Biodiversity is improved with drought-tolerant vegetation
- Increased tree canopy to cool local climate
- Use of nature based solutions and improved water quality

Sustainability

- Public spaces shaped by water sensitive urban design measures
- Low emission building design standards
- Implement recycling measures – car parking, materials, etc.
- Climate change adaptation

Governance

- Involvement of First Nations communities and voices
- Assign a coordination authority to define directions for the implementation of the master plan
- Potential alternate sites are identified for displaced uses where possible
- Funding pathways identified for proposed infrastructure

Heritage and Connecting with Country

- Retention or adaptive reinterpretation of built heritage items
- First nations engagement is genuine and not tokenistic
- Story telling and Country is reflected by green and blue initiatives in the public domain
- First Nations voice at the table

Flood Management

- No increase in off-site flood levels
- No new residential uses in areas of highest flood risk
- Integrated safe shelters and evacuation centres
- Development of an evacuation plan

Contamination

- Stage remediation alongside development
- Limit exposure to risk and contamination
- Interface of flooding and contamination is carefully considered
- Long term management strategies created for capped land

Hazards

- Regulatory buffers and setbacks are to be adhered from the centre of the pipeline of;
 - 25m - all uses prohibited
 - 40m - sensitive uses prohibited (i.e. daycare, schools, aged care etc.)
 - 140m - development will require consultation with the Department of Planning, Housing and Infrastructure

Negotiables

- Residential and mixed use population totals underpinned by development feasibility - Thresholds based on traffic assessment, flood evacuation capacity, hazard reduction/risk assessment and/or the provision of social infrastructure
- Extension and alignment of public transport corridor beyond the interchange
- Educational facilities – additional and/or relocation
- Employment Lands within Hamilton North, retained, reinforced, redeveloped, in part or in full
- Adaptive reuse of Gasworks and/or Shell Site
- Adaptive reuse of the Y junction site between the rail corridor
- Flooding strategy to be informed by the 2022 Flood Inquiry
- Showground functions and events are retained either in their existing location or within the Precinct



Figure 31: Interchange between rail, bus and active transport - Central Station, Sydney. (Source: Transport for NSW)

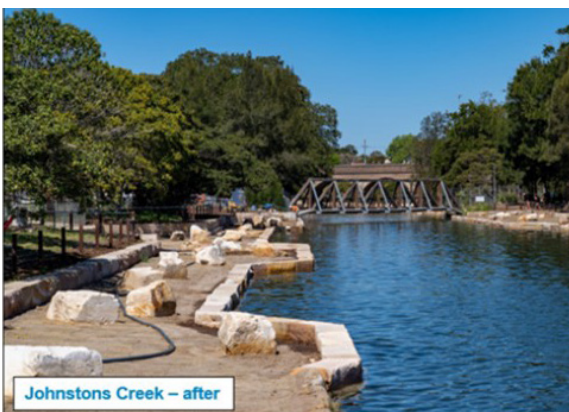


Figure 32: Creek naturalisation and integration of WSUD measures - Johnston Creek, Annandale. (Source: Sydney Water)



Figure 33: Story telling and country reflected in the public domain - Honeysuckle Waterside Promenade. (Source: Hunter & Central Coast Development Corporation)



Figure 34: Pedestrian boulevard linking entertainment and event facilities - Sydney Olympic Park Masterplan. (Source: Sydney Olympic Park Authority)

3. Principles



Figure 35: EbD 1 workshop. (Source: COX)

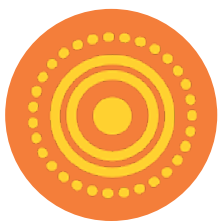
3.1 Vision

As part of The Place Strategy, City of Newcastle established a vision and set of project principles to guide the redevelopment of Broadmeadow, prepared in collaboration with the strategic objectives established by DPHI to facilitate an integrated and holistic planning approach for the Broadmeadow Precinct.

Vision

Broadmeadow is a vibrant destination and loveable place with highly connected and distinct neighbourhoods that balance the needs of a dynamic community and growing Newcastle.

3.2 Strategic Directions



Celebrate Country and heritage

- Protect, preserve and celebrate Broadmeadow's unique history and places of cultural heritage
- Provide spaces and places for creative ideas to develop and foster a distinct local and regional culture
- Create an engagement process that feels personal, involved and meaningful



Deliver diverse and affordable housing

- Provide a diverse range of housing to foster a community built on inclusion
- Encourage a range of tenures to ensure affordability and flexibility
- Create housing designed to reduce energy and maintenance costs while improving liveability and comfort



Create a vibrant, dynamic and welcoming community destination

- Create stimulating leisure, housing and recreation options for all
- Attract a variety of events - from the local scale to the national - that support the community and showcase the city to a wider audience



Improve connectivity between people and place

- Create a connected cycleway network that makes active transport a viable option
- Manage parking, local roads and invest in regional public transport infrastructure to induce a modal shift away from the car



Enable resilience and environmental management

- Aim to achieve net zero by increasing efficiency and reducing emissions from buildings, transport and infrastructure
- Monitor climate risks to enable best-practice planning and ensure communities are resilient
- Establish waste recovery resources and circular economy precincts



Create a vibrant blue and green heart with high quality public spaces

- Revitalise Styx Creek and other waterways to invite the public in to blue and green spaces.
- Introduce urban canopy to Broadmeadow and encourage greening on opportunity sites and in existing areas to meet Council's open space provision recommendations
- Mitigate the flood risk within the Precinct and design water-sensitive public spaces



Jobs to support Newcastle's Innovation Arc

- Embrace emerging technologies to improve community quality of life.
- Support inclusive digital access to narrow the digital divide
- Encourage equal learning and employment opportunities, grow the local skills base and foster innovation in business and the arts to create a vibrant and inclusive community

3.3 Design Principles

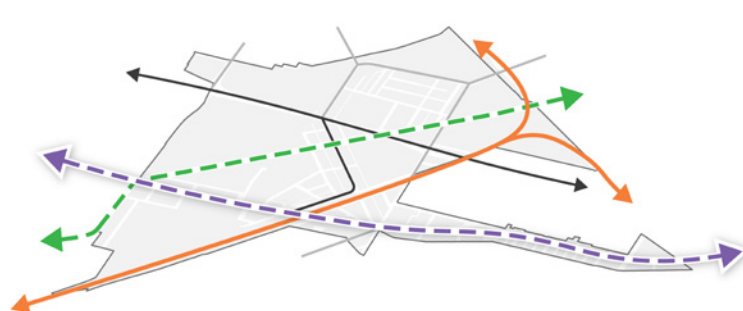
The urban design principles have been prepared with specific recognition of the Broadmeadow Precinct to guide the delivery of the vision and the project principles in spatial consideration of the unique opportunities embedded within the Precinct.



1 Landscape and Water

The Broadmeadow Precinct is uniquely positioned to improve the quality of public and open spaces and create a better natural and urban environment with a stronger connection with Country, for all residents and workers - existing, future and those residing outside the Precinct boundary.

Broadmeadow will leverage its restored and regenerated natural systems, by expanding interfaces and connections with water and embellishing the landscape to achieve a more natural appearance.



2 Movement

The Broadmeadow Precinct is supported by strong active and public transport connections that balance mobility with a high-quality urban environment.

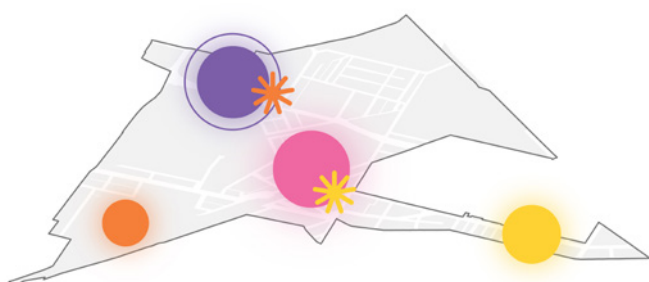
Situated at the centre of the Newcastle metropolitan area, Broadmeadow's future transport network is multi-modal and leverages its proximity to surrounding centres. The Movement and Place framework is employed to meet the needs of all transport users - from the large-scale to the human - and create thriving and inviting movement corridors.

This will be achieved by:

- Using green and blue spaces to soften interfaces to industry, major roads and railway corridors
- Holistically supporting the water cycle in the Precinct with an Integrated Water Management approach
- Moving towards a naturalised appearance for Styx Creek with native and flood-mitigating plantings, in line with CN and NSW Government priorities
- Leveraging existing natural corridors to develop a legible and amenable active transport network
- Aligning landscape strategies with pedestrian movement to produce an active public domain
- Increasing tree canopy coverage within green spaces the street network and private open spaces, to mitigate the urban heat island effect
- Ensuring that existing and proposed open spaces receive sufficient sunlight after proposed redevelopment, creating places that are inviting and usable throughout the year
- Designing flexible and resilient public open spaces that cater to a diverse group of users and celebrate the Precinct's native Indigenous vegetation

This will be achieved by:

- Increasing permeability, legibility and walkability to create a connected and accessible Precinct, with a fine grain network of streets and shared spaces for movement that prioritise people and pedestrians
- De-prioritising the car in the public realm by implementing traffic calming measures and establishing a clear road hierarchy
- Seamlessly integrating cycling within the wider multi-modal network and creating new cyclists with high-quality, separated infrastructure
- Fostering ease-of-interchange by creating a multi-modal hub at Broadmeadow Station
- Planning for the extension of the Newcastle light rail will connect Broadmeadow to the city centre via this corridor in the future
- Creating clear connections across movement barriers like Griffiths and Lambton Road and the Main North railway line, and supporting east-west corridor connectivity
- Delivering an adaptable and efficient Precinct that appropriately supports vehicle and pedestrian movement in both high and low traffic periods



3 Uses and Activity

Broadmeadow's land use mix places pedestrian activity and a quality public domain at the fore, while building upon the substantial existing and planned entertainment and recreation infrastructure.

A rejuvenated Hunter Park will become a major node in a network of vibrant neighbourhood and local centres and inspire the development of a Precinct that successfully blends recreation with working, living and learning opportunities.



4 Identity

The identity of the Precinct will be defined by its, legacy, heritage and opportunities for recreation.

Connections with Country and the integration of Aboriginal heritage are critical elements of the Master Plan, alongside the restoration and reinterpretation of built heritage items. The Precinct will leverage these connections to redefine itself as a world-class sporting and entertainment destination that is grounded in the local context.

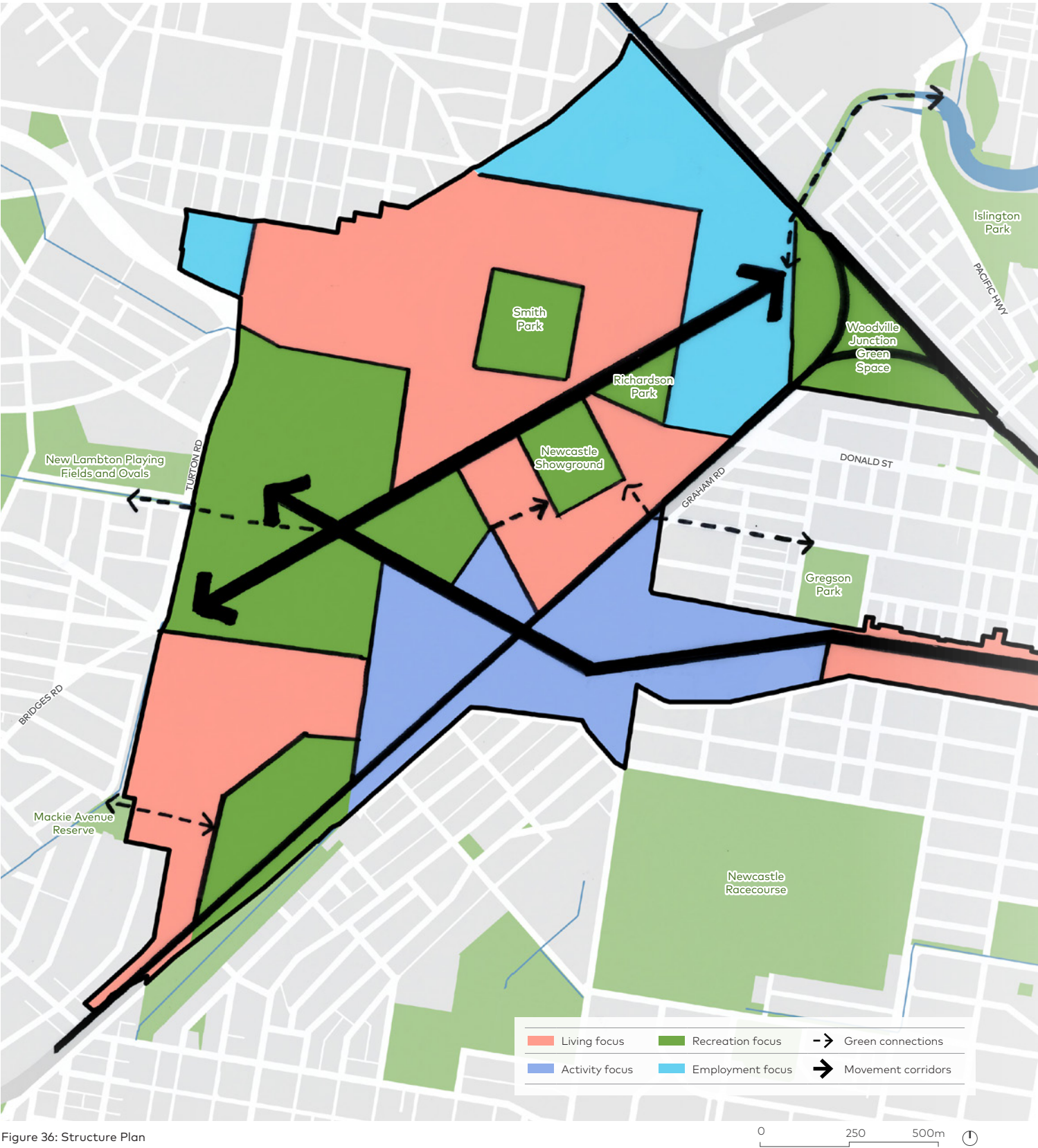
This will be achieved by:

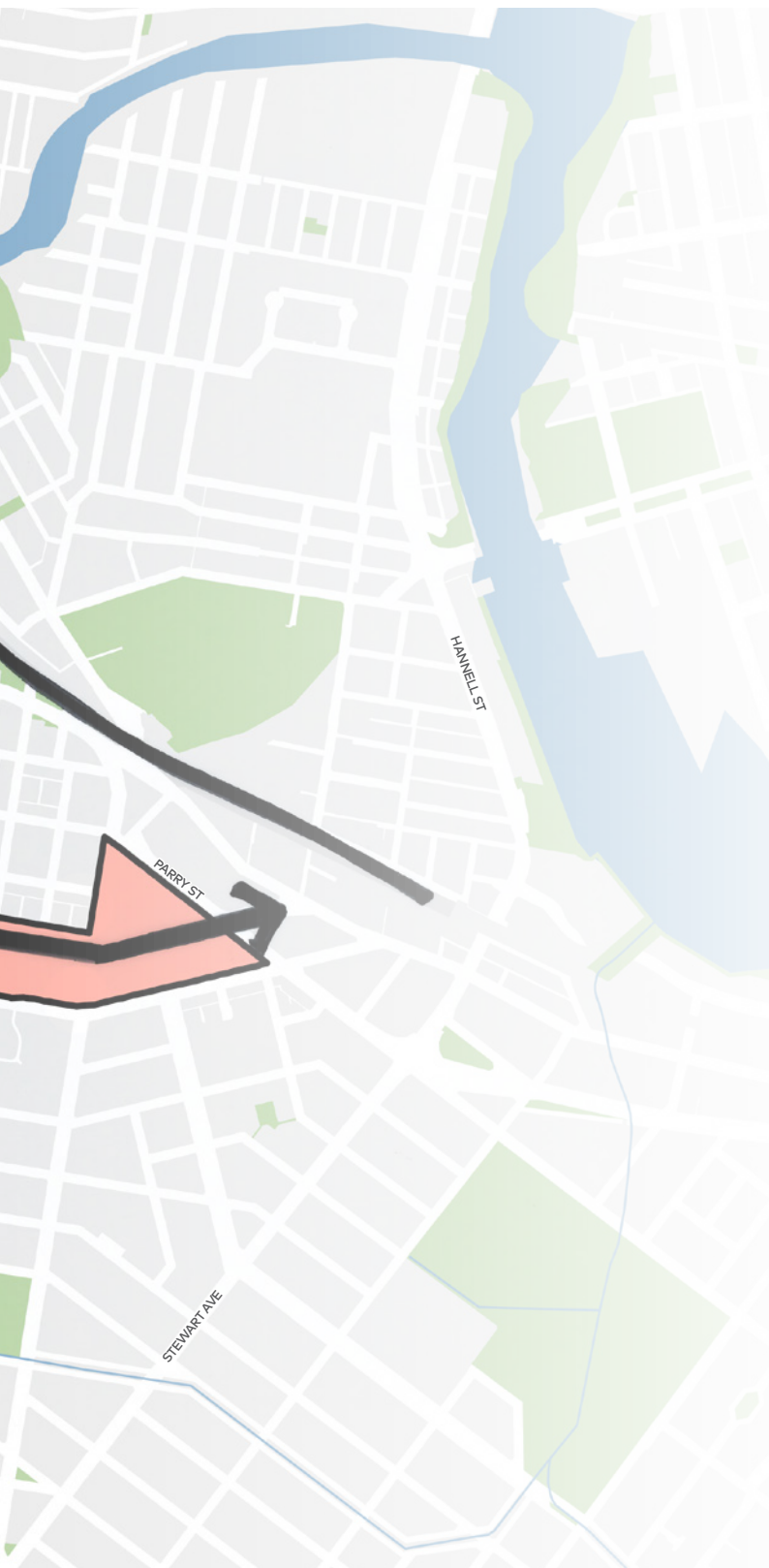
- Expanding mixed-use zones to encourage 18 hour a day, 7 day a week, activation along key movement corridors
- Developing the Broadmeadow Town Centre as a high-density residential and mixed-use neighbourhood with high levels of accessibility afforded by the Broadmeadow interchange
- Creating a built form that responds to the pedestrian scale and includes appropriate safety and amenity
- Establishing multiple local centres to best cater for the surrounding residents daily needs
- Creating resiliency in existing employment areas by planning for higher employment densities and a more flexible definition of uses
- Co-locating green spaces with high density development and providing for a variety of programming within open spaces
- Locating community facilities in appropriate locations so that they are easily identifiable, accessible and safe for all to use
- Designing multifunctional spaces within town centres to cater for a range of uses, including performances and markets

This will be achieved by:

- Prioritising design quality as a tool to create a natural and built environment that is unique to Broadmeadow and leverages its existing natural and built elements
- Establishing a unique architectural and public domain language drawn from Broadmeadow's geographic, industrial, colonial and Indigenous past, creating opportunities for cultural education
- Ensuring the incorporation of Indigenous artwork, sculptures and cultural motifs are integrated into the architectural design of the Precinct. This visual representation of culture will contribute to a vibrant and inclusive environment, promoting a deeper connection between residents and the rich heritage of the area
- Providing opportunities for the incorporation of public art throughout the Precinct
- Recapturing the former prestige of historical character areas and heritage items through adaptive reuse and/or allowing for public access to the items and spaces around them
- Organically aligning new development areas with existing street patterns

3.4 Structure Plan





The future Broadmeadow Precinct is a natural extension of Newcastle's urban form, and represents an evolution in terms of mixture of uses and proposed densities for Newcastle.

The Styx Creek corridor, Belford/Tudor Road and a proposed pedestrian-friendly boulevard from Broadmeadow Station to Hunter Park will become the organising elements of Broadmeadow, transforming existing roads and spaces into public places, fronted by active uses, community facilities and parklands. Styx Creek will be characterised as a 'Green Connection' supported by active transport links and adjacent parklands and Belford/Tudor as an 'Urban Connection' supported by the light rail extension and activation of the ground plane along its length.

The multi-modal transport interchange at Broadmeadow becomes a focal point of the Structure Plan, anchoring the new Broadmeadow Town Centre which straddles the rail corridor extending high density mixed use development along Belford Street to the east and the Green Boulevard to the west.

The public domain stitches together existing, expanded and new open spaces via safe, accessible and car-free pedestrian and cycle links. Styx Creek serves as the primary connection between a string of green spaces extending from Mackie Avenue Reserve in the south, through the locomotive workshop, playing fields and hockey fields, Hunter Park, the newly publicly accessible spaces of Magic Park and the Newcastle Showground, Smith Park, Reserve and culminating at the Woodville Junction Green Space.

Green spaces beyond the Precinct boundary, like Gregson Park, Islington Park, the Lambton Ker-rai Creek corridor and Mackie Avenue Reserve, are tied in to the broader open space network to form regional-scale connections. This network is formed by a combination of publicly accessible and restricted access open and green spaces, to both provide public recreational space and support the Precinct as a key sporting and events hub.

Radiating outwards from the Town Centre and located around the existing and new open spaces are living focus areas which comprise a wide variety of housing choices for a diverse and growing population. The employment focus area ensure the flexibility of retaining critical employment generating uses, while facilitating renewal and densification of these uses and users within the Precinct.

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4. Draft Master Plan



Figure 37: Ebd 2 workshop. (Source: COX)

4.1 Integrated Master Plan

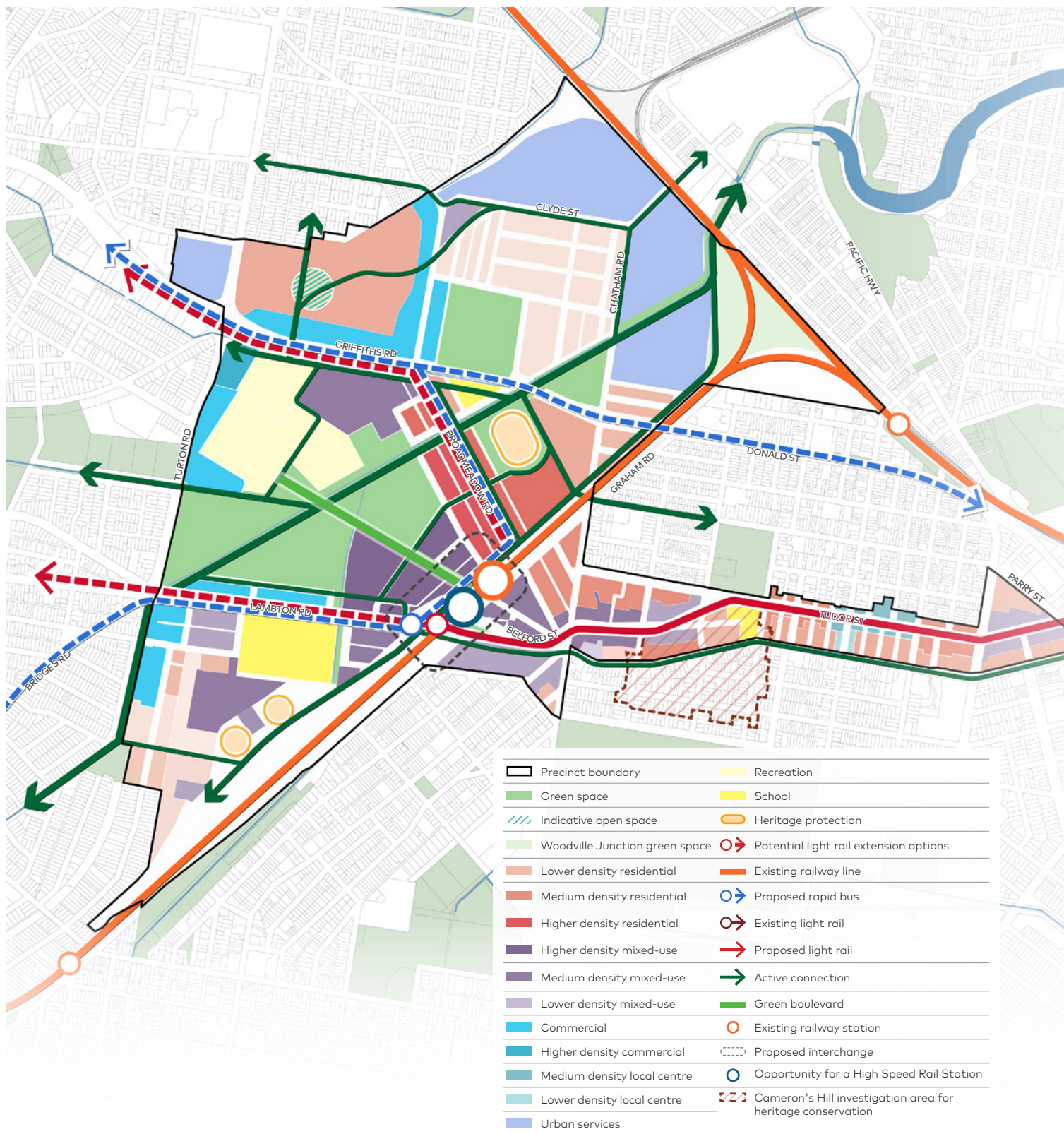
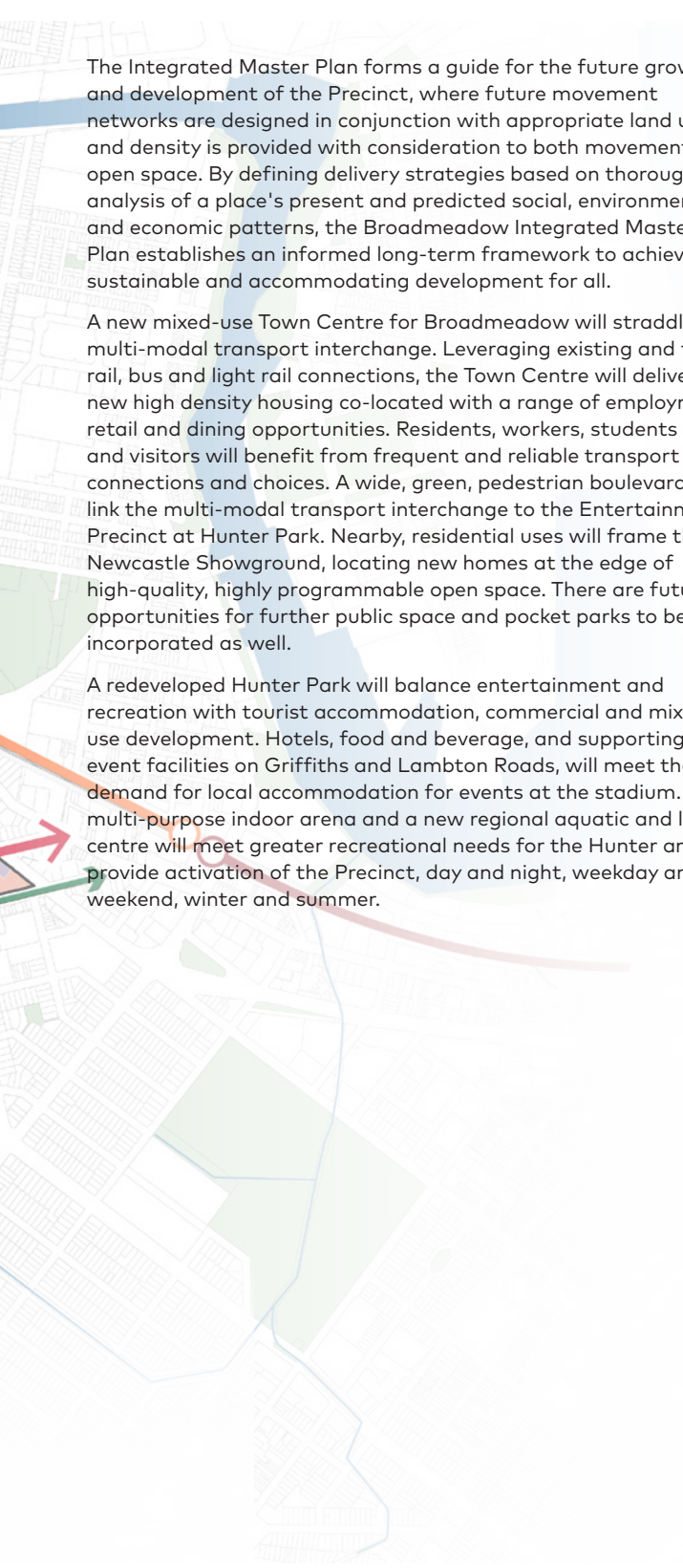


Figure 38: Integrated Master Plan

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The Integrated Master Plan forms a guide for the future growth and development of the Precinct, where future movement networks are designed in conjunction with appropriate land use and density is provided with consideration to both movement and open space. By defining delivery strategies based on thorough analysis of a place's present and predicted social, environmental and economic patterns, the Broadmeadow Integrated Master Plan establishes an informed long-term framework to achieve sustainable and accommodating development for all.

A new mixed-use Town Centre for Broadmeadow will straddle the multi-modal transport interchange. Leveraging existing and future rail, bus and light rail connections, the Town Centre will deliver new high density housing co-located with a range of employment, retail and dining opportunities. Residents, workers, students and visitors will benefit from frequent and reliable transport connections and choices. A wide, green, pedestrian boulevard will link the multi-modal transport interchange to the Entertainment Precinct at Hunter Park. Nearby, residential uses will frame the Newcastle Showground, locating new homes at the edge of high-quality, highly programmable open space. There are future opportunities for further public space and pocket parks to be incorporated as well.

A redeveloped Hunter Park will balance entertainment and recreation with tourist accommodation, commercial and mixed-use development. Hotels, food and beverage, and supporting event facilities on Griffiths and Lambton Roads, will meet the demand for local accommodation for events at the stadium. A multi-purpose indoor arena and a new regional aquatic and leisure centre will meet greater recreational needs for the Hunter and provide activation of the Precinct, day and night, weekday and weekend, winter and summer.

In the southwest of the Precinct the railway heritage items will be adaptively reused and celebrated as community spaces. Government-owned lands in this location provide an excellent opportunity for a wide variety of housing typologies and tenure options, within medium density, fine-grain residential and mixed-use developments that respond to flood risks.

Existing industrial sites in Hamilton North will be retained and reinforced as critical employment generating uses. With gradual redevelopment over time, a green buffer will be provided to the surrounding residential area. Small-scale artisan manufacturing, event production, technical services and creative industries will increase employment density and build upon the incubator infrastructure that is emerging in Hamilton North.

A new residential community will emerge on the former Goninan site in Hamilton North. Ringed by commercial uses and located near an active local centre on Clyde Street, residents will be within walking distance to ample retail and employment opportunities. A future rapid bus corridor on Griffiths Road will place the Newcastle CBD and Broadmeadow Station within reach. As with the Locomotive Depot, heritage items shape the identity of the neighbourhood and be adaptively reused within new public spaces.

The connectivity offered by future light rail extension along the Belford/Tudor corridor will catalyse redevelopment within the corridor, increasing densification, producing a vibrant arterial high street extending from Broadmeadow to the Newcastle City Centre.

Linking each area together is a revitalised Styx Creek. In consideration of contamination risks, Styx Creek will be landscaped to be a much more accessible and amenable space for everyone. Increased canopy cover and water-sensitive urban design initiatives will develop Styx Creek into the backbone of a restored ecosystem and a comprehensive active transport network.

4.2 Open Space, Landscaping and Active Transport

Open spaces

To meet the demand of future residents, the Integrated Master Plan identifies a series of open spaces and recreation opportunities to be developed throughout Broadmeadow. Much of the green space that currently exists is inaccessible outside of organised sport or events. The Integrated Master Plan aims to provide higher quality open spaces that serve both the immediate population and the wider Newcastle region.

The extent and location of open space responds to the demand for local and regional recreational needs for the residents, workers and visitors to the Precinct. The high-density Broadmeadow Town Centre will be underpinned by the green boulevard and supported by parklands on the Broadmeadow Magic site and the rejuvenated Showground, with clear and accessible connections to the active transport network. East of the railway corridor, the future Broadmeadow Town Centre will require new green spaces to support its population, the location of which will be determined at a later stage.

Styx Creek will be regenerated to form a green corridor through the heart of the Precinct, linking together a chain of parks and wetlands to the existing Smith Park and Richardson Park Reserve in Hamilton North. Sporting fields are flexible and allow for community usage where appropriate. Opportunities exist for community facilities to be integrated within mixed-use development and serve local residents.

In Hamilton North, the Integrated Master Plan identifies a linear green space to soften the interface between residential and innovation/commercial uses. 20% of the current UGL site is proposed to be allocated to public green space through future design and redevelopment pathways.

In the southern part of the Precinct, the Integrated Master Plan suggests blending railway heritage elements with future public open spaces and active uses. This creates new urban plazas and green areas, fostering opportunities for the public to interact with and appreciate the area's historical significance.

Flood mitigation

Existing and proposed open spaces will also play a critical role in flood mitigation within the Precinct. To reduce the severity of flood events, existing and proposed open spaces are suggested to be lowered to provide additional flood storage (See Figure 40 for greater detail). Lowering playing fields and parkland will preserve the amenity and usability of current spaces while substantially improving flood resilience within the Precinct. The proposed wetland at the centre of the Precinct serves a dual purpose as both an attractive water feature and restorative intervention and as the core of a comprehensive flood mitigation system.

Integrated water management (IWM)

The design of the future open space network and landscape interventions within the streetscape will determine the success of an Integrated Water Management approach to the water cycle within the Precinct. Water Sensitive Urban Design measures, such as using vegetation to slow and filter stormwater and the implementation of infiltration basins in public space, will reinforce the water cycle and create a visually pleasing landscape.

Sustainable open space

Existing and proposed open space will play a pivotal role in improving sustainability outcomes within the Broadmeadow Precinct. Green and blue spaces along the Styx Creek corridor can serve as habitats for native species and significantly increasing canopy cover - additionally, unstructured open spaces will foster the growth of native flora and fauna and create visually appealing public spaces for the public to enjoy.

Open space access

Access by the public is currently restricted to the Showground site, Magic Park, Knights Centre of Excellence, the Locomotive Depot, the Harness Racing Club and the Hockey Centre. The Integrated Master Plan proposes that more existing spaces will be transformed into active and passive open space and be unlocked for the benefit of future and existing users. Development in Broadmeadow will ensure that every resident lives within a 5 minute walk of public space, exceeding objectives outlined in the Metropolitan Plan 2036.

Active transport

A safe, legible and connected active transport system is vital to inducing modal shift and reducing the reliance on the private vehicle. The Integrated Master Plan identifies a network of active transport corridors to improve connections within the Precinct and across the wider metropolitan area, building on existing on-road and off-road infrastructure and proposals by City of Newcastle.

The Styx Creek green corridor creates an excellent opportunity for a regionally significant active transport connection, linking together the series of district and regional parks along the central spine and providing an additional route through to the city centre. Modifications and upgrades to Styx Creek will also improve connections across the green corridor. A route along the length of the rail corridor supplements Styx Creek.

Styx Creek also presents an opportunity to create a continuous pedestrian connection along the creek interface and into the city centre via Throsby Creek. East-west connectivity will be enhanced further by the active transport network, allowing movement through corridors currently blocked due to arterial roads or publicly inaccessible open space.

Cross-corridor connections

Vital to the attractiveness of cycling and walking is a legible and consistent active transport network. In response, the Master Plan identifies locations for grade separated crossings to increase safety and overcome gaps in the cycling and pedestrian network formed by major roads and rail corridors.

Together with the land use plan illustrated earlier in this report, improved cross-corridor connections will encourage the development of distinct but connected character areas throughout the Precinct.

Further information about the Broadmeadow sustainability strategy is provided in the 'Broadmeadow Sustainability Analysis Report' prepared by Atelier Ten.

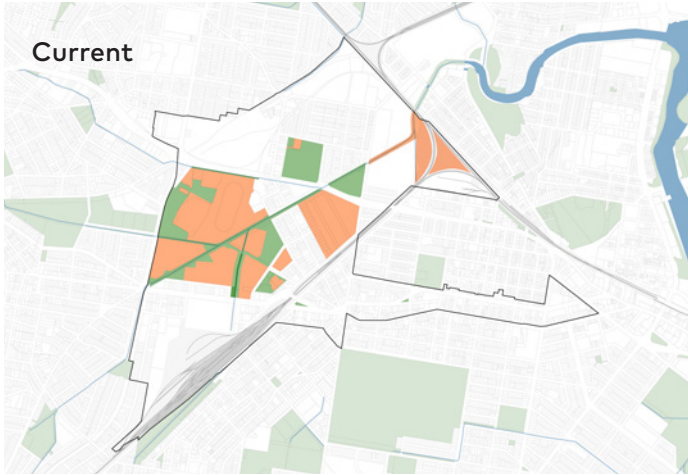


Table 1: Current accessible/inaccessible open space (Source: COX)

Accessible open space Inaccessible open space

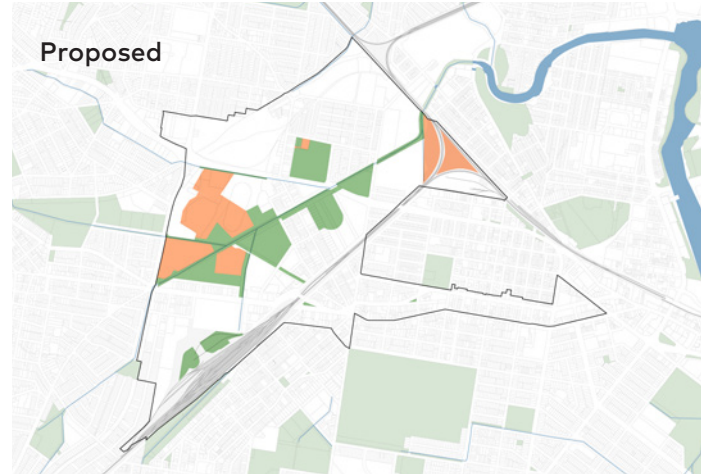


Table 2: Proposed accessible/inaccessible open space (Source: COX)

Accessible open space Inaccessible open space



Figure 39: Existing and proposed open space and active transport connections

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| | | | | |
|---------------------|--------------------------------|----------------------------|--------------------------------|--------------|
| Precinct boundary | Woodville Junction green space | CN cycle plan paths | Restricted access | Wetland |
| Existing open space | Indicative open space | Master Plan proposed paths | Restricted access - recreation | Green buffer |
| Open space | Grade-separated connection | Existing paths - on road | | |

Flood Mitigation Measures

A flooding and water cycle management strategy has been developed for the Integrated Master Plan and future development of the Broadmeadow Precinct.

A flood impact and risk assessment revealed that, despite the introduction of a significant additional population to the floodplain, flood impacts and risks can be managed by:

- Considering enhancements for the existing and future bridge crossing of Styx Creek to facilitate the expansion of the creek's width
- The use of mounds/bunds and the lowering of open spaces, to allow for controlled flooding, whilst providing steps, ramps and an appropriate gradient in these areas to avoid mobility and accessibility restrictions
- Utilising fill where future developments are proposed to help avoid flooding in new areasIncorporating engineered wetlands into the Precinct design to allow year-round water retention

- Providing new channels and upgrading existing drainage systems to be designed with the public domain in mind
- Proposing road raising to mitigate floods whilst considering the existing public domain and landscaping

From 'Broadmeadow Flooding and Water Cycle Management - Preferred Scenario Report by Rhelm 2024'

Mitigation measures are generally focused on areas where there will be a densification associated with proposed changes in land use zoning. No structural interventions are proposed in the eastern-most portion of the Precinct where the land use zoning will remain unchanged. It should be noted that the sizing of mitigation measures is to be considered preliminary and is suitable for the purpose of Precinct planning. Confirmation of the proposed mitigation strategy and further engineering concept design will be required in future stages of the project. This may include refinements to the location, shape and levels of proposed flood storage/detention basins to suit site constraints.

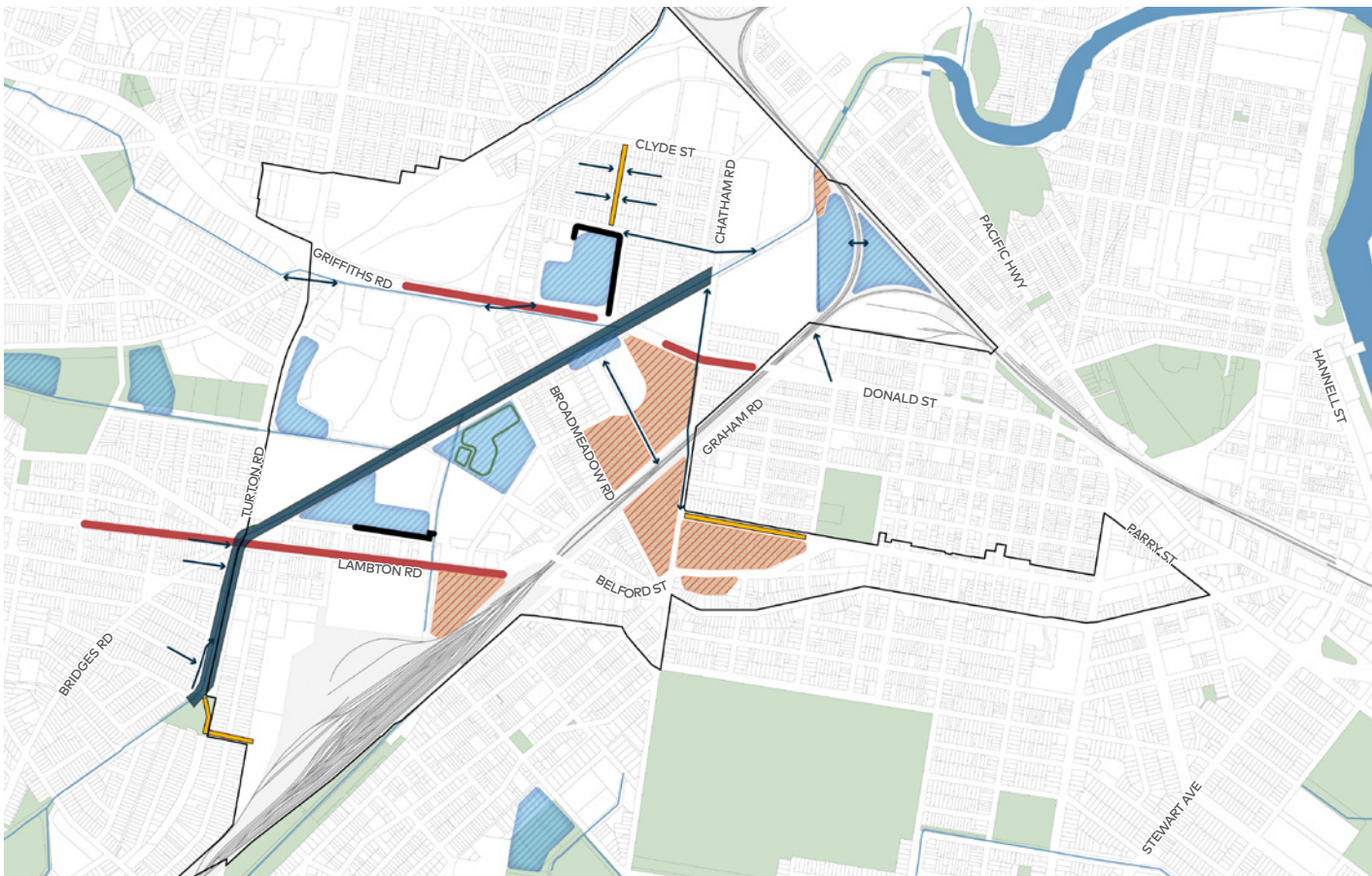
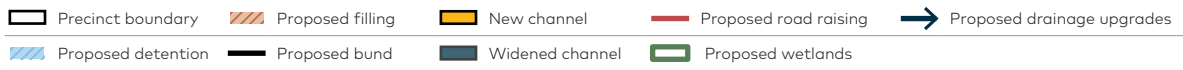


Figure 40: Structural flooding mitigation measures



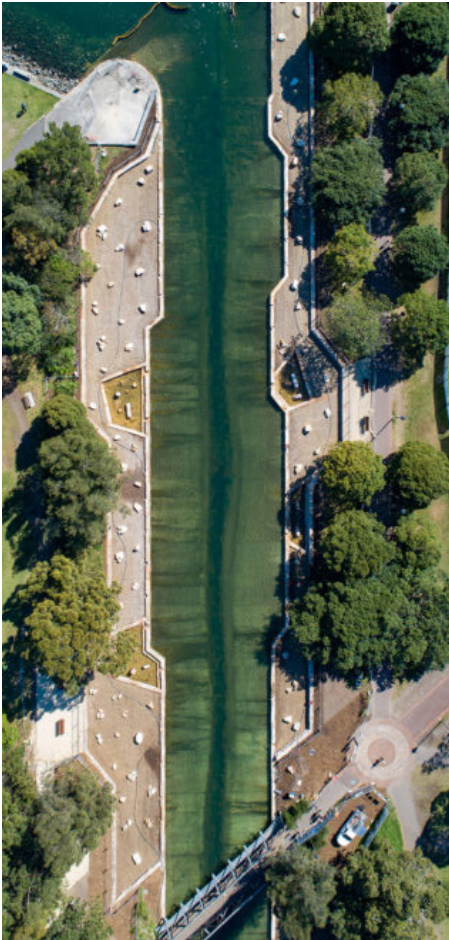


Figure 41: River naturalisation and widening - Johnstons Creek, Sydney. (Source: Diona)



Figure 42: Dual function public park and flood detention basin - Enghaveparken Climate Park, Copenhagen. (Source: Tredje Natur)




Figure 43: Flood resilient built form and refuges elevated above PMF levels - Hafencity Hamburg. (Source: Hafencity Hamburg GmbH)

4.3 Illustrative Master Plan



Figure 44: Illustrative Master Plan



Movement

Broadmeadow connects to the wider context by extending and proposing active transport links to open spaces and active zones. These connections will need to consider bridges to provide east-west connection over the rail corridor and Styx Creek, north-south connections via Griffith Road and utilising existing infrastructure such as the historic rail corridor. The following Movement initiatives are proposed:

1. Proposed green link/open space with active transport
 - Indicative open space with active transport link to provide movement to green corridor within residential and commercial spaces, connecting east to west, south to north and to the wider context
2. Proposed pedestrian/active transport crossing
 - Multiple bridge upgrades and proposed new bridges for pedestrians and cyclists
3. Active transport link - proposed/upgraded
 - Upgrade and provide a continuous active transport link within the Precinct and connection to the wider context
4. Proposed Eat street
 - Introduce an east-west link from Broadmeadow Station to the sports and leisure area, allowing for active transport, shared paths, landscaping and activation

Open space

The following Open Space initiatives are proposed:

5. Smith Park
 - Lower the ground level of the park to be used for flood storage during high flooding times, while maintaining the active open space uses through out the remaining times. A bund is proposed on the northern and eastern boundaries to increase storage capacity with a slope of 1:4
6. Richardson Park Reserve
 - Provide an active transport link along Styx Creek
7. Woodville Junction green space
 - Lower the ground level of the area for detention and flood storage with a small fill area north of the western basin
8. Newcastle Showground
 - Provide an active open space with existing heritage elements such as the stands. Connection to Styx Creek and widening along the southern end
9. Magic Park/wetland
 - Lower the ground level of the open space and proposal of a wetland detention and flood storage area adjacent to Styx Creek
10. Centre of Excellence
 - Lowering ground to allow detention and flood storage in area south of the Knights Centre of Excellence with a bund is proposed around the southern end to prevent floor water spilling. The open space will be used as active storage through out the year
11. Leisure centre entry
 - The proposed eat street will conclude over Styx Creek at the open space adjacent to the proposed Leisure centre. Used as passive open space and lingering space during event mode
12. Locomotive Heritage Park
 - Open space to utilise the existing heritage elements on site and allow for a passive space with activation throughout the year
13. Nineways
 - Potential for open space and greening of the street with further investigation into traffic and movement

Widening and naturalisation of Styx Creek

Waterway improvements

The revitalisation of Broadmeadow provides the opportunity to restore elements of the original waterways. Naturalisation of Styx Creek and delivery of public space adjacent to the corridor will produce a cool, attractive and inviting green and blue spine through the centre of the Precinct. Embellishment of the waterway with increased tree canopy and native landscaping will aid in reducing the urban heat island effect and help create a more welcoming habitat for native species.

Other concrete channels, like Lambton - Ker-rai Creek and other tributaries that branch throughout the Precinct, can be leveraged to improve connectivity and amenity by taking on a more natural appearance and integrating active transport infrastructure, whilst expanding their role in critical flood mitigation functions.

The naturalisation of these waterways will aid in re-establishing the natural and ecological health of Broadmeadow through native plantings and new opportunities for the integration of First Nations art within flood mitigation infrastructure.

Site specific investigations will need to confirm the nature and extent of capping that is necessary relevant to contaminants, transport paths, with consideration of receiving waterway quality and the role trees can play in reducing groundwater levels and pore pressure through evapotranspiration.

Styx Creek interface

The Integrated Master Plan suggests that to achieve the improvements listed above, the Styx Creek corridor will be redesigned as a 10m existing creek reserve + 15-20m proposed widening for flood mitigation, with flood-resilient infrastructure. There is multiple opportunities for pedestrian movement to circulate within the widened corridor at a variety of levels.



Figure 45: Styx Creek existing condition from the bridge at Broadmeadow Road. (Source: Google Maps)

Design considerations

A priority of the naturalisation will be to shade the existing concrete channels. The current concrete channels retain heat from sunlight, reducing dissolved oxygen and increasing risk of algae and/or unsightly water quality issues.

To address this, there is the opportunity to provide sufficiently large and/or wide canopy trees on the banks of both Styx and Lambton - Ker-rai Creek. The design will need to consider any potential conflict with utilities and the pipeline. In addition, future designs will be developed with the Hunter Water Corporation as asset owner.

Tiered retaining wall

As a flood mitigation measure, Styx Creek, as a watercourse, is proposed to be widened to provide enhanced detention functions and slow the fast moving water flow during a flood event. The existing 13m wide creek will be widened to approximately 22-27m wide, which allows for a 15-20m extension on the eastern bank to achieve the desired outcomes.

The application of a tiered retaining wall can be used as a low impact process that can hold the high velocity water while providing a landscape zone used for movement, passive open space and increased canopy cover. Sandstone blocks of 0.5m height with 5m wide benches is a potential approach to the widening of Styx Creek alongside the reinstatement of native landscaping.

One solution may be a uniform step terracing with the type of vegetation and root depth needed in the lowest terraces to withstand expected velocities and frequency of inundation. This may require the provision of an increased depth of growing media above the capped surface in the lower terraces, or adjustments to the height of reinforcement at the top of the bank.



Figure 46: Johnstons Creek naturalisation. (Source: Inside Water)

The future design of Styx Creek should take into consideration the following guidelines:

- Visually integrate earthworks into a contextual landscape setting as much as possible to keep engineered structures to a minimum
- Create a 'natural' transition into adjacent landforms by gently rounding out both the top and bottom of slopes and at the end of each formation
- Existing and proposed bridge structures to be upgraded to allow for proposed widening of Styx Creek and enhanced pedestrian and cyclist connectivity
- Where cut embankments are required, a combination of engineered slopes and low retaining walls are to be used to create an integrated, 'sculpted' landform, suited to the setting
- Embankments and cuttings are to be landscaped with native planting to reinforce the context and increase overall vegetation and canopy cover
- Erosion control matting is to be used on batters and embankments to aid soil stabilisation and promote vegetation growth

Planting design

The landscape design should seek to maximise the vegetation canopy and creating a strong ecological as well as visual coverage along the creek. Plant selection must consider the physical conditions, soils and climate, be drought tolerant and low maintenance. Landscape treatments should incorporate WSUD initiatives where the location and space is appropriate.

Where construction results in the removal of trees, replacement planting must be included within the Precinct. Tree planting and other landscaping should align with the following guidelines:

- Integrating planting where possible to allow the earthwork to blend in to the contextual setting
- Planting area to include an impermeable liner to avoid contaminated groundwater leaching into Styx Creek
- Existing vegetation should be protected and retained where it has been identified as having significant value
- Proposed plant selection should be selected for low maintenance, and drought tolerance. The detailed species arrangements must be appropriate to the spatial scale of the setting
- All planting should maintain clear sight lines at road intersections, bridges and where pedestrian and cyclist routes converge
- Landscape treatments surrounding Styx Creek should incorporate WSUD initiatives such as swales and water retention zones
- Species selection and tree pit details should encourage deep roots
- The design should follow City of Newcastle Council species palette for flow tolerant native grasses - potentially suitable for lower in-stream benches which may experience more frequent inundation. Planting palette example for the upper banks are listed below, including, but not limited to xerophytic, canegrass, coral fern, soft bracken, commelina, baumea teretifoli and baumea juncea.



Figure 47: Powells Creek naturalisation. (Source: Diona)



Figure 48: Native grasses - potentially suitable for lower 'instream benches'. (Source: Newcastle Council)

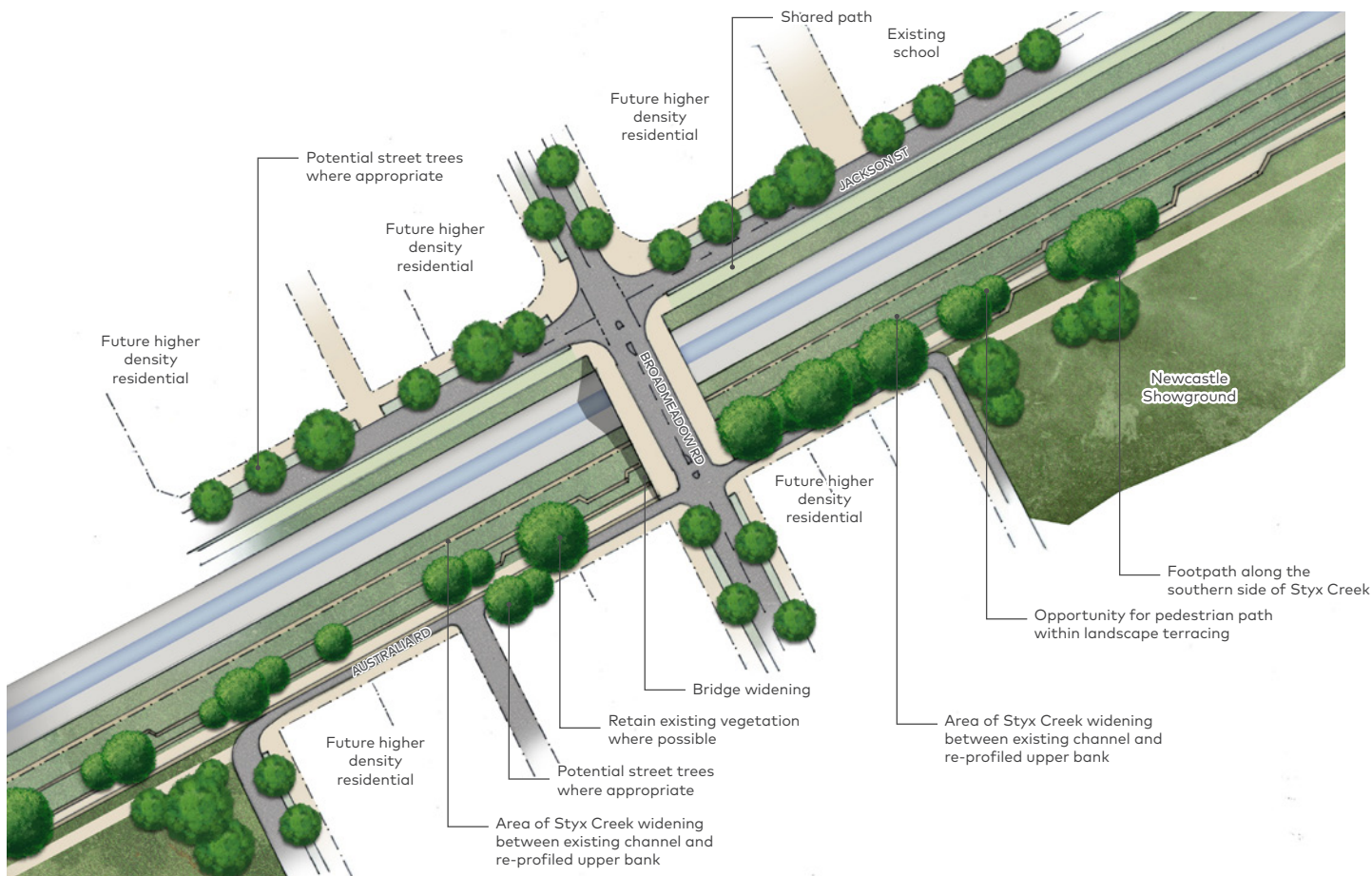


Figure 49: Option of Styx Creek widening (plan view)



Figure 50: Powells Creek naturalisation. (Source: Diona)

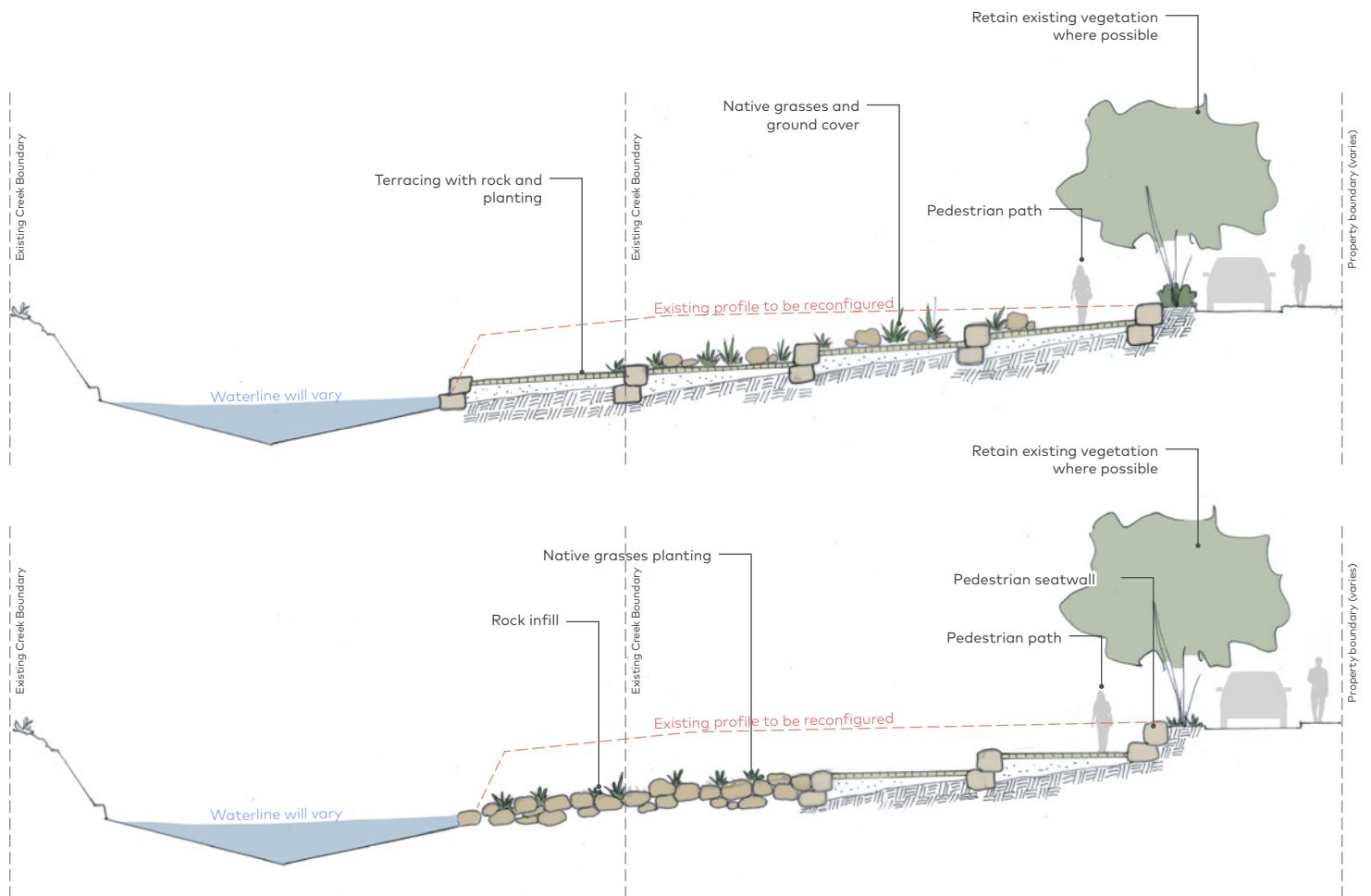


Figure 51: Options of Styx Creek widening landscaping and rock formation



Figure 52: Powells Creek naturalisation. (Source: Diona)



Figure 53: Cooks River naturalisation project. (Source: Sydney Water)



Figure 54: Artist's Impression of Styx Creek (Source: Cox Architecture)



Bridges and connections

Design considerations

- All grade separated crossings are to be located and designed to primarily promote pedestrian and cyclist safety and accessibility across the rail corridor, regional road network and creeks rather than enabling more efficient movement of private motor vehicles
- Ensure universal access to both ends of the bridges and grade separated crossings in accordance with BCA, DDA, and relevant Australian Standards and Cycling Aspects of Austroads Guides
- Provide clear and safe access for pedestrians and cyclists and optimised road user line-of-sight by minimising structure and locating columns and structures away from pedestrian desire lines and road user desire lines
- Create elegant, slender bridge designs with minimal structural depth and simple, attractive designs which consider form, proportion and scale and the relationship of bridge elements to each other
- Provide designs that are appropriate for place and minimise visual, noise and environmental impacts on the local area, including minimising overlooking of adjoining private properties
- Consider treatment and finishes of surrounding public domain and maintenance by various stakeholders
- Potential to use interlocked oversized pitched rock-work

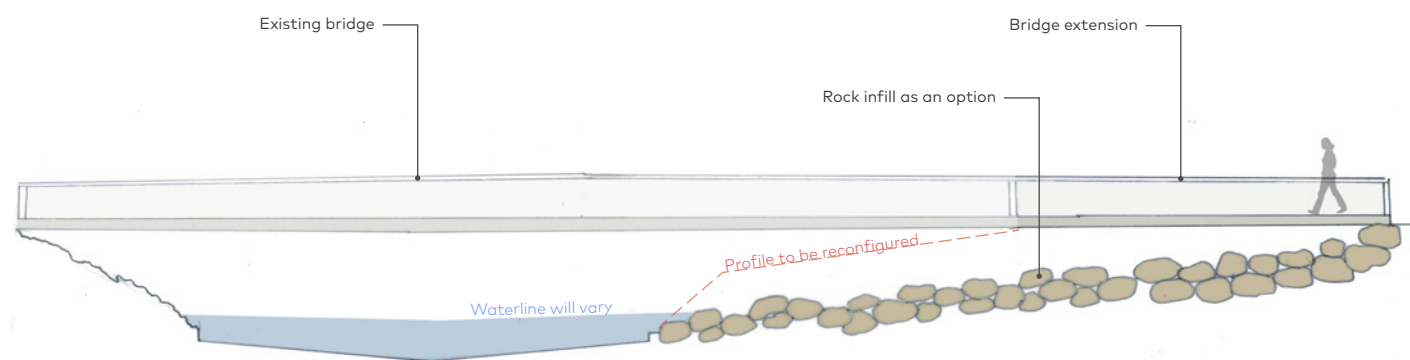


Figure 55: Section of creek widening and bridge extension



Figure 56: Nanton golf course bridge. (Source: Roseke Engineering)



Figure 57: Interlocked oversized pitched rockwork. (Source: Newcastle Council)

Wetland

A multi-functional detention and storage area is proposed on the location of the existing Magic Park, by lowering the existing ground level. This wetland will provide water quality benefits and habitat for a range of fauna. The wetland will assist in flood mitigation with its size, shape and location, creating a meandering waterway that expands detention areas and slows water movement relative to the existing straight creek line.

Design considerations

Consideration is to be given to an integrated landscape opportunity through applying the governments' 'caring for country' draft framework. The framework challenges built-environment professionals to embed genuine First Nation influence and agency into the design process. First Nation consultation and input should be part of the whole process of the design of the constructed wetland - potentially embedded with other recommendations from the Caring to Country report. Opportunities include;

- *Indigenous Landscaping*
 - *Indigenous plantings and landscaping that mirrors the local environment are incorporated to promote biodiversity and beautify the area*
 - *Aboriginal-inspired artworks on assets like stormwater drains enhance the area's visual appeal and cultural identity*
 - *The establishment of a green corridor connects the precinct symbolically to Country, with native plantings, walking paths, and educational signage*
 - *A small botanic garden showcasing native plants can offer educational tours guided by Traditional Owners or Knowledge Holders*
- The wetland will consist of marsh and open water components
- Implementation of a sediment basin south west of the proposed wetland
- Lining of the sediment pond and macrophyte zone with an impermeable membrane to prevent the ingress of potentially contaminated groundwater
- Providing a minimum 3m wide maintenance access track around the wetland perimeter
- Edges and surrounds to be landscaped with native wetland plants
- Low-lying area of land constructed to temporarily hold stormwater during heavy rain, can also provide recreational space while dry or hold water permanently – once full, storm water is then slowly released into downstream drain or waterway
- The constructed wetland and sediment pond will require maintenance, the design will need to include post flood resetting, maintenance access and screening from site users

All future design will be liaised with Hunter Water Corporation and City of Newcastle Integrated Water Cycle Engineer.



Figure 58: Sydney Olympic Park Bush Regeneration and Habitat Management. (Source: total earth care)



Figure 59: Sediment basins are designed to slow water down so sediments can settle. (Source: Sydney Water)



Figure 60: Constructed wetlands are good at removing sediments and heavy metals. (Source: Sydney Water)



Figure 61: Artist's Impression of new green boulevard and wetland between Broadmeadow interchange and Hunter Park
(Source: Scharp and Cox Architecture)



Smith Park

To allow for an additional 4.0 hectares of detention and flood storage area, it has been proposed to lower the existing ground level of Smith Park by approximately 2m, from RL 5.5m to RL 3.5m.

The park will require a bund on the northern and eastern boundaries to increase the storage capacity and detain water. The eastern boundary will have a 1:4 slope which will allow sufficient bund to store water and can also act as a hill for informal seating. The existing trees are to remain as is and work within the new slope.

On the northern and western boundary, there is potential for a gentle slope with landscape terracing and steps to allow access from the street level to the playing field. The southern boundary will be proposed to include a retaining wall to lower the ground and retain the existing trees where possible.

Design considerations

- A continuous path around the playing field. This path will be connected to proposed stairs, ramps and landscape terracing
- Retain the existing amenities with stairs and ramps from the playing field
- Potential for parking on the western boundary
- Sufficient space for 2 cricket pitches and 3 soccer fields
- Potential relocation of the playground to the western boundary

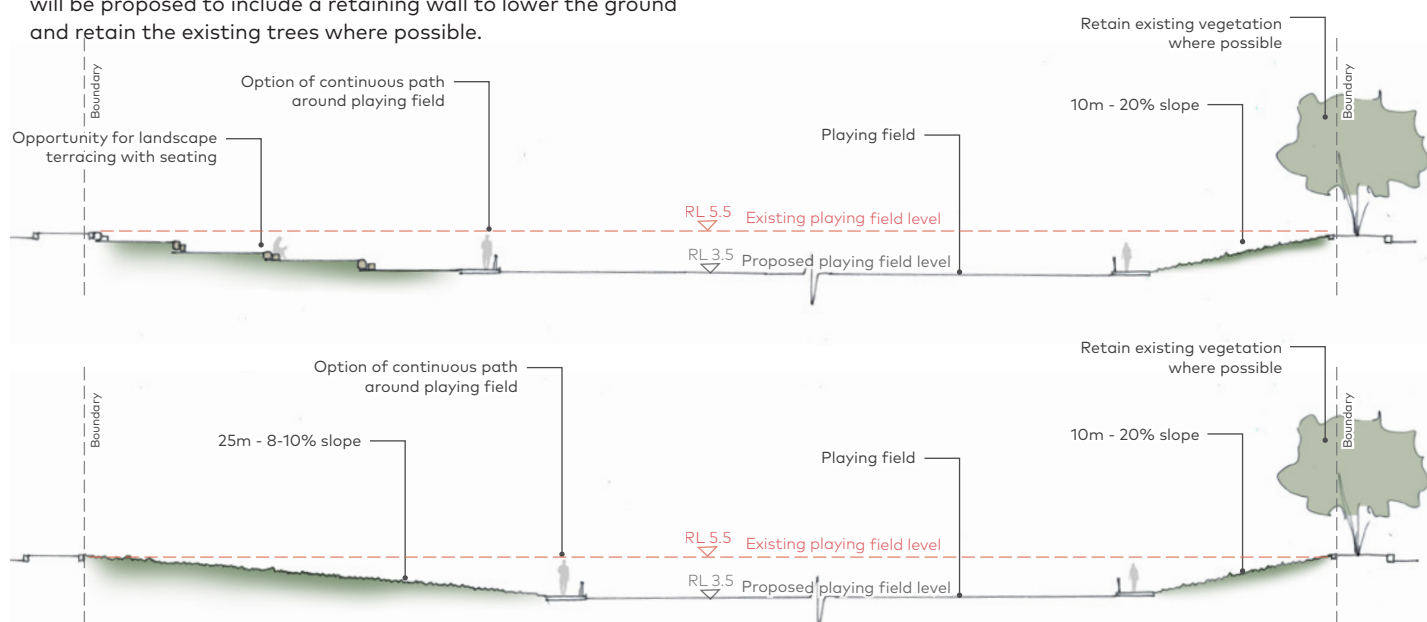


Figure 62: Proposed sections of Smith Park



Figure 63: New Dover Street Reserve. (Source: City of Charles Sturt)

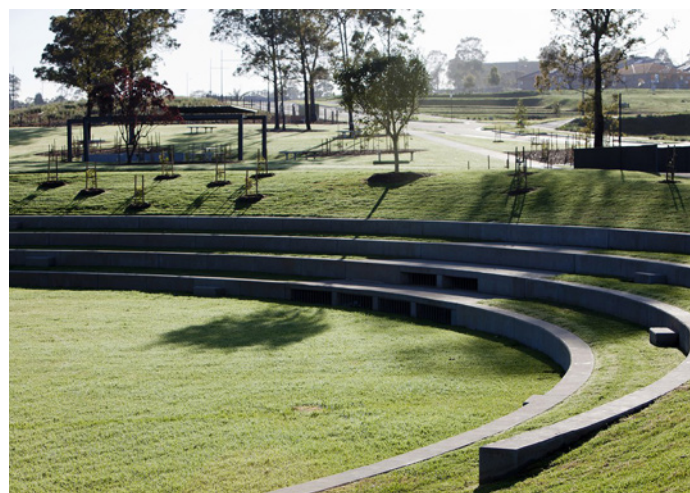


Figure 64: Sarah Redfern Park, a large detention basin that doubles as an amphitheatre. (Source: JMD Design)



Figure 65: Proposed plan of Smith Park



Figure 66: Warriewood Valley Playground Rocket Park. (Source: Boobobutt)



Figure 67: Multifunctional stormwater basin. (Source: TD&H Engineering)



Figure 68: UPGF Storm Water Detention Basin. (Source: TD&H Engineering)



Figure 69: Artist's Impression of reconfigured Smith Park to provide for additional recreational opportunities and flood mitigation
(Source: Scharp and Cox Architecture)



Green Boulevard

The Green Boulevard is proposed as a pedestrian priority street to allow movement and activation year round with flexibility for day-to-day and event configurations with WSUD measures.

Design considerations

- Ensure safe, continuous walking links between transport nodes, destinations and attractions along the length of the boulevard
- Provide ample space for people to use the pedestrian areas in a variety of ways: to walk, to socialise, to sit and gather, to dine, to access buildings, etc.
- The pedestrian areas and streetscape should be accessible to all, including wheelchair users, the elderly and others with special mobility needs
- The pedestrian movement zone, where people actually walk, should have no obstacles and clutter
- The active frontage zone is designed to accommodate the furniture of commercial/retail establishments and allows people to linger in front of buildings without disrupting the flow of those walking in the pedestrian zone
- Safe street design such as shorter blocks and mid-block crossings, raised/flush crossings and enough space to avoid creating crowds and allow access for pedestrians with special mobility needs
- Allow the variety and quantum of movements for day or night, weekday or weekend, event or not.
- Public lighting of pedestrian spaces to improve personal safety at night
- Active and transparent ground floor building frontages encourage more eyes on the street and more pedestrian activity at all times of day
- Design to consider the angle and cross slope to ensure efficient drainage in to the rain gardens
- Consideration to green infrastructure techniques such as rain gardens to help reduce the volume of runoff and taking pressure off the drainage system
- Flushed surface to allow pedestrian friendly movement day to day and used for larger crowd movement during event mode



Figure 70: Mixed-use artist impression. (Source: insideretail.com)



Figure 71: Activated streetscape. (Source: buildingsaltlake.com)



Figure 72: 2nd St. District, Central Texans Downtown. (Source: Austin Monthly)



Figure 73: Maitland Levee daytime activation, SimonWood. (Source: Landscape architecture projects)

Towards Hunter Park

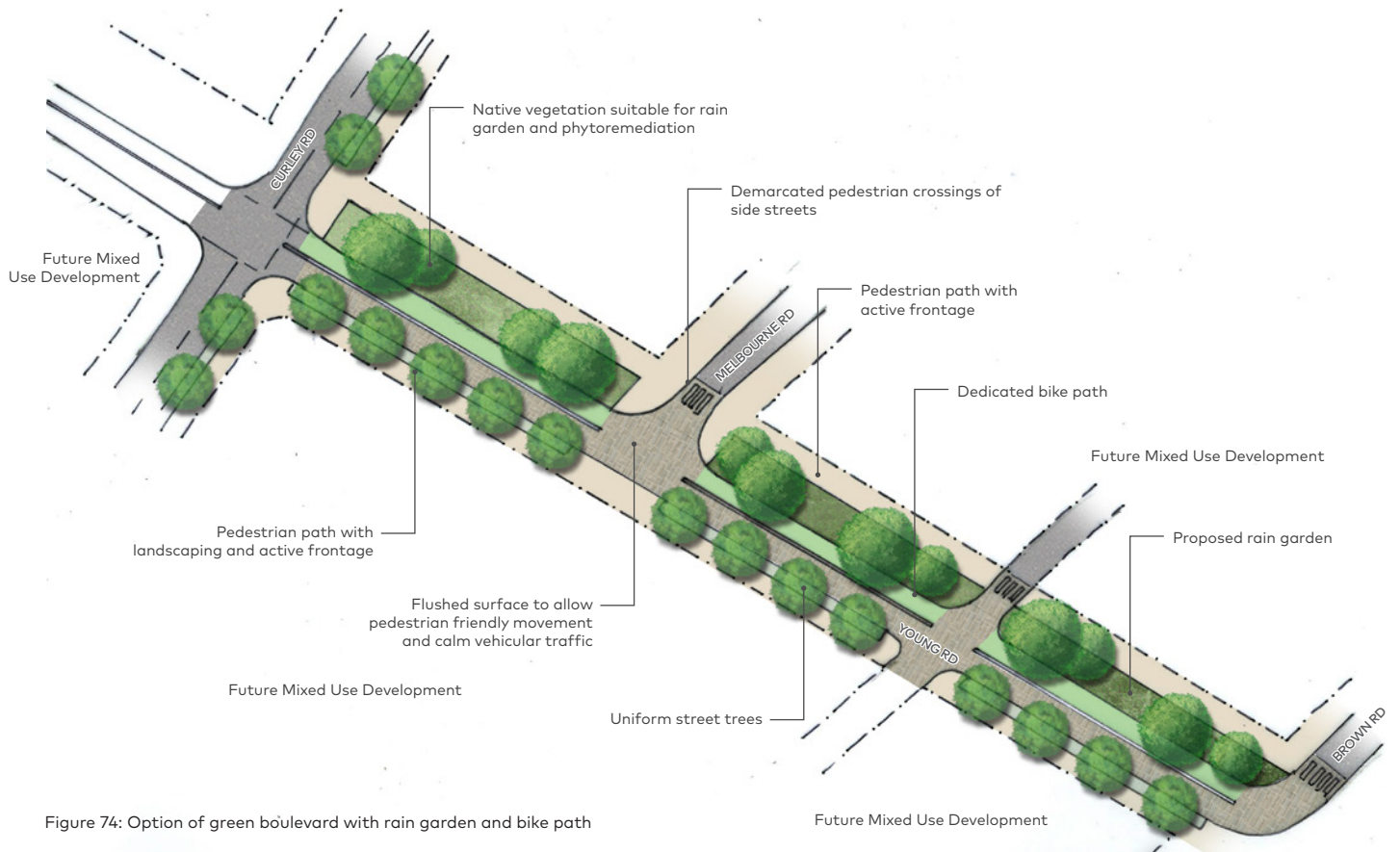


Figure 74: Option of green boulevard with rain garden and bike path

Towards Broadmeadow Interchange



Figure 75: New Seasons Market direct runoff into adjoining mulched and vegetated basins. Portland, Oregon. (Source: Rainwater Harvesting for Drylands and Beyond)

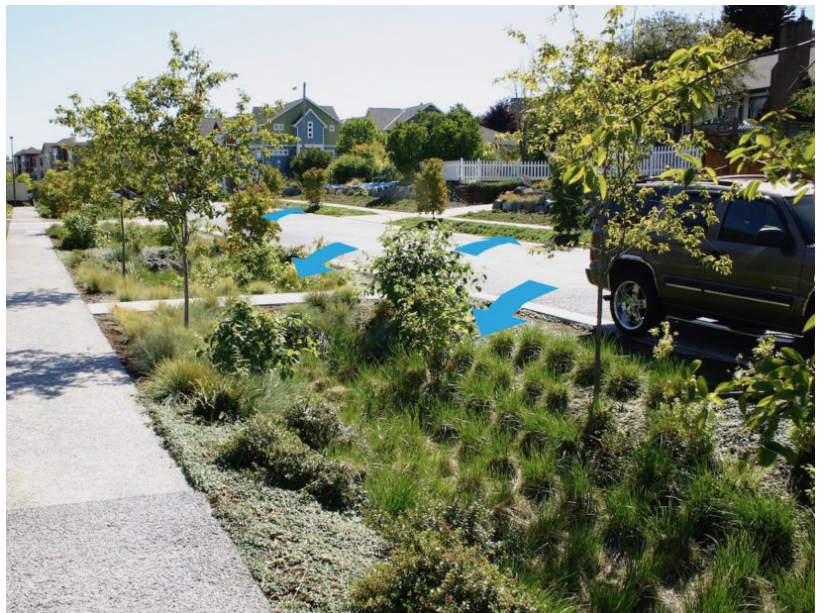


Figure 76: Vegetated infiltration basin or rain garden between street and sidewalk harvests runoff from the street, Seattle, Washington. (Source: Rainwater Harvesting for Drylands and Beyond)

Active transport links

Design considerations

- Ensure a contextual response by integrating the cycleways with the surrounding area during design, construction and operation
- Avoid conflict and provide safe separation between users of the active transport links and other modes. Allowing people to feel confident when using the facility and moving around the Precinct
- Design for existing and future modes of active transport and personal mobility
- Provide a high level of customer satisfaction for comfort features, including but are not limited to gradient, lighting, surface manoeuvre space and quality and smoothness of road/bicycle route surfaces
- Equality of access to ensure all rider types and abilities can experience cycling within and through the Precinct and the design and constructed to comply with legislation and regulatory requirements and be designed for users of all ages and cycling abilities
- Create direct, safe and contiguous pedestrian and cyclist links from the Precinct to the surrounding network. The solution shall be located in a position that optimises access and egress for users and connects with the existing cycling and road network and other modes
- Crime Prevention Through Environmental Design (CPTED) is to consider the design needs to ensure safety of all users at all times of day. The solution should be designed to facilitate effective passive surveillance and safety
- The Precinct shall demonstrate resilience to changing climatic conditions, urban heat, flooding etc.



Figure 77: Formal and regular tree planting, Constitution Avenue, Canberra. (Source: Jane Irwin Landscape Architecture)



Figure 78: Landscaped buffer and WSUD, Lyon, France. (Source: Divisare)



Figure 79: Thuringowa Riverway (off-road shared path). (Source: COX)



Figure 80: Bourke Street Cycle Path with buffer planting. (Source: DrivenXDesign)

Vegetation

The materials and design elements for the Precinct should present as a consistent approach to provide a strong identity and support wayfinding throughout the Precinct. Detailed design of materials, furniture and fixtures is to be undertaken in future stages of the design.

Design considerations

- Retain and maintain mature and interesting trees which are a source of habitat, community pride and canopy cover. Detailed design should avoid removal of existing habitat for local fauna and should create new habitat for local fauna wherever possible
- Planting should improve the urban landscape by screening, shading and assisting in the transition between the residential/schools and other uses
- Any planting is to comply with CPTED principles, maintenance and watering requirements
- Vegetation should be managed to provide the greatest sight line distance possible at any given location
- Use of low shrubs/ground covers should allow clear lines of sight for pedestrians and cyclists to adjacent roads and public domain
- Vegetation should not encroach on the pedestrian/bike paths to allow safe movement
- Vegetation selection and location should assist in stormwater management and define edges and paths
- The design is to take into consideration the biodiversity offset guidelines as described by the NSW Government Biodiversity Offsets Scheme (BOS) in August 2017
- Additional trees should be provided to supplement existing canopy cover and species selection should be consistent with the existing species in the surrounding environment
- Street tree planting should be formal and regular. Continuity and consistency should be promoted along the length of the street
- Preference is to establish a single character along the length of a street rather than breaking streets into a number of precincts with different species
- Tree selection should take into consideration maintenance, especially selection of tree species that could create slip hazards and drain blockages with fallen leaves, berries and branches. Deciduous trees should be used in areas where light should penetrate the pathways, or in to public spaces in the winter months to create a more amenable and attractive environment
-

Public Art

The public art strategy should be developed for the Precinct in line with Newcastle Council's various plans and policies by building a cohesive local identity. It should be developed and integrated across the Precinct to provide a unique character and ambience while complementing the unique character of each section.

Future stages of design should develop a culture-led placemaking and public art strategy to deliver art projects from inception to completion in partnership with stakeholders and the community. Potential stakeholders include:

- Indigenous groups
- Local artists
- Cultural centres
- Education facilities including local schools
- Newcastle Council

Partnerships are critical to successfully building upon the local identity, culture and heritage of the area and stakeholders should be engaged during future design stages of the project.

Design considerations

- Public art should enhance the experience of all users of the Precinct, contributing to the attractiveness and success of the Precinct for a wide range of users
- Public art should contribute to the identity of the Precinct by responding to the unique cultural and environmental identity of the Precinct
- The use of public art may span a range physical installations through to the incorporation of existing and new public programming and cultural events, which both may exhibit local community groups, schools and the like and generate diverse activity and attraction year-round
- Where possible public art should integrate with existing elements to add meaning, interest and to tell the story of place

4.4 Activity Nodes and Active Frontages

The public domain offers a number of opportunities for social interaction at differing scales and densities, supporting, in turn, a variety of activity nodes that stitch the Precinct together into a vibrant environment that engages local residents and visitors alike. Activation of the Precinct focuses the integration of mixed uses and density around existing and future entertainment and transportation assets.

The focal point of the Integrated Master Plan responds to the regional significance of the proposed Hunter Park Entertainment Precinct and its connection to Broadmeadow Interchange. Higher residential and mixed use densities, which provide for ground floor and lower level building activation, are anticipated to align with the proposed pedestrian boulevard introduced to facilitate movement between the interchange and entertainment precinct. Mixed use developments in this area will address the boulevard with active street frontages to capitalise upon existing foot traffic and help produce an engaging public environment.

Active street frontages create a more amenable environment for the pedestrian and improve perceptions of safety. Strategically assigning active frontages can channel pedestrian flows in a certain direction or along a particular street - for example, the corridor of active frontages between Broadmeadow Interchange and Hunter Park.

The considered network of active frontages are further supported by connecting to a number of open space nodes that make up an extensive green corridor, anchored by the naturalisation of Styx Creek.

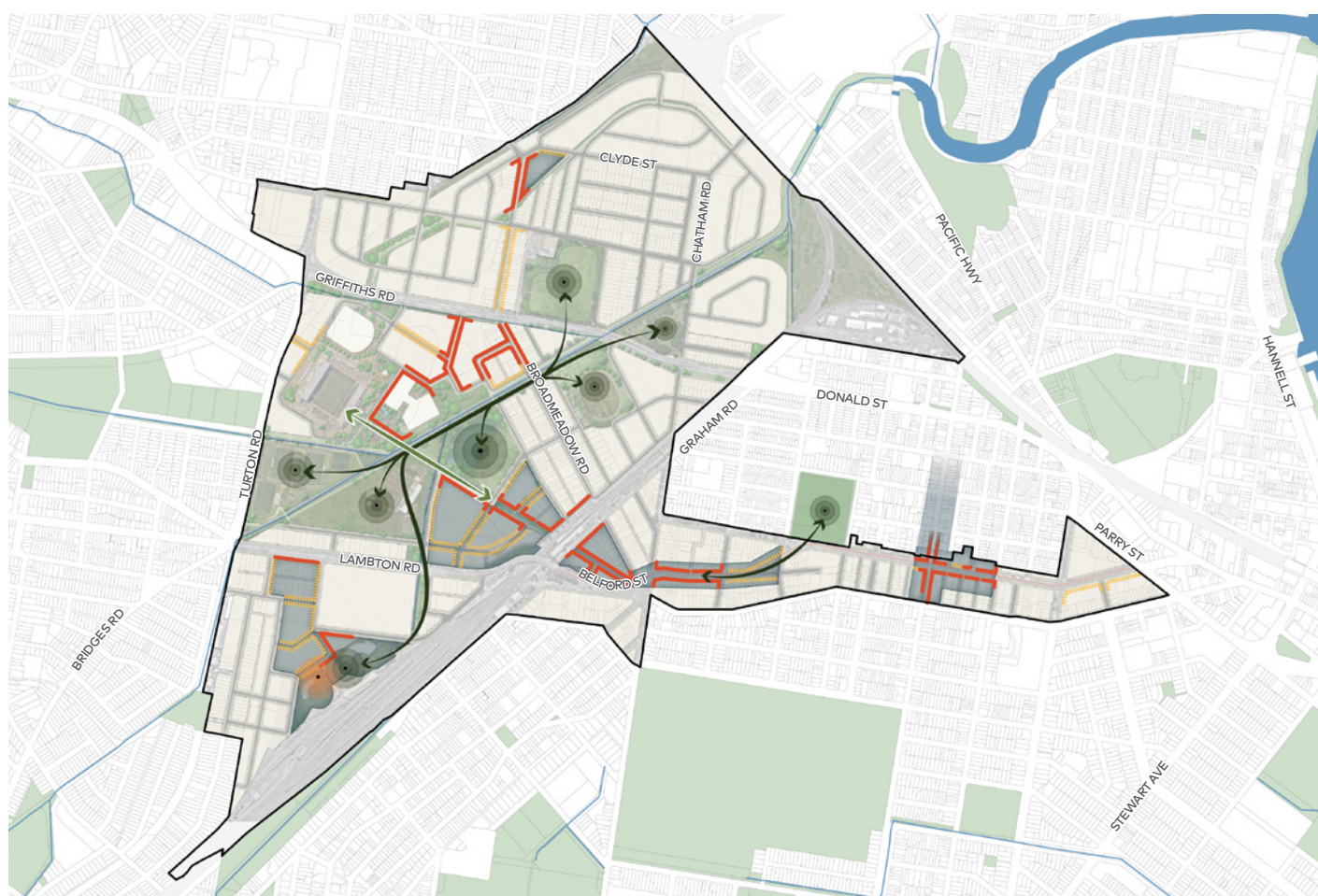


Figure 81: Activity nodes and active frontages

| | | | |
|---------------------|-----------------------|--------------------|------------------|
| Precinct boundary | Active frontages | Open space node | Open space links |
| High-activity areas | Semi-Active frontages | Entertainment node | Green boulevard |

0 250 500m

4.5 Street Typologies

The Integrated Master Plan identifies street typologies in accordance with the TfNSW Movement and Place framework. These typologies aim to emphasise:

- Pedestrian priority
- Clarity and legibility
- Heritage elements
- Amenity and shade
- Appropriate scale and dimension according to function

Further to these principles, it is critical for the public domain that building floor levels match external levels even if this requires internal stepping. Additionally, to maintain the continuity of active frontages, all service doors, fire rooms, garbage enclosure doors and venting should be accessed via streets that are of lower pedestrian priority, relative to other interfaces.

Parking requirements will be investigated further in future stages.

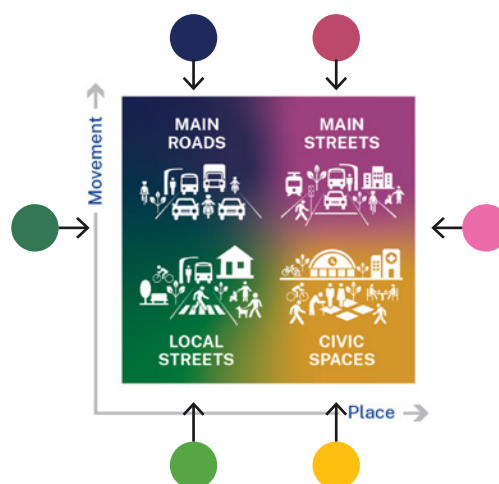


Figure 82: Movement and Place matrix (Source: TfNSW)

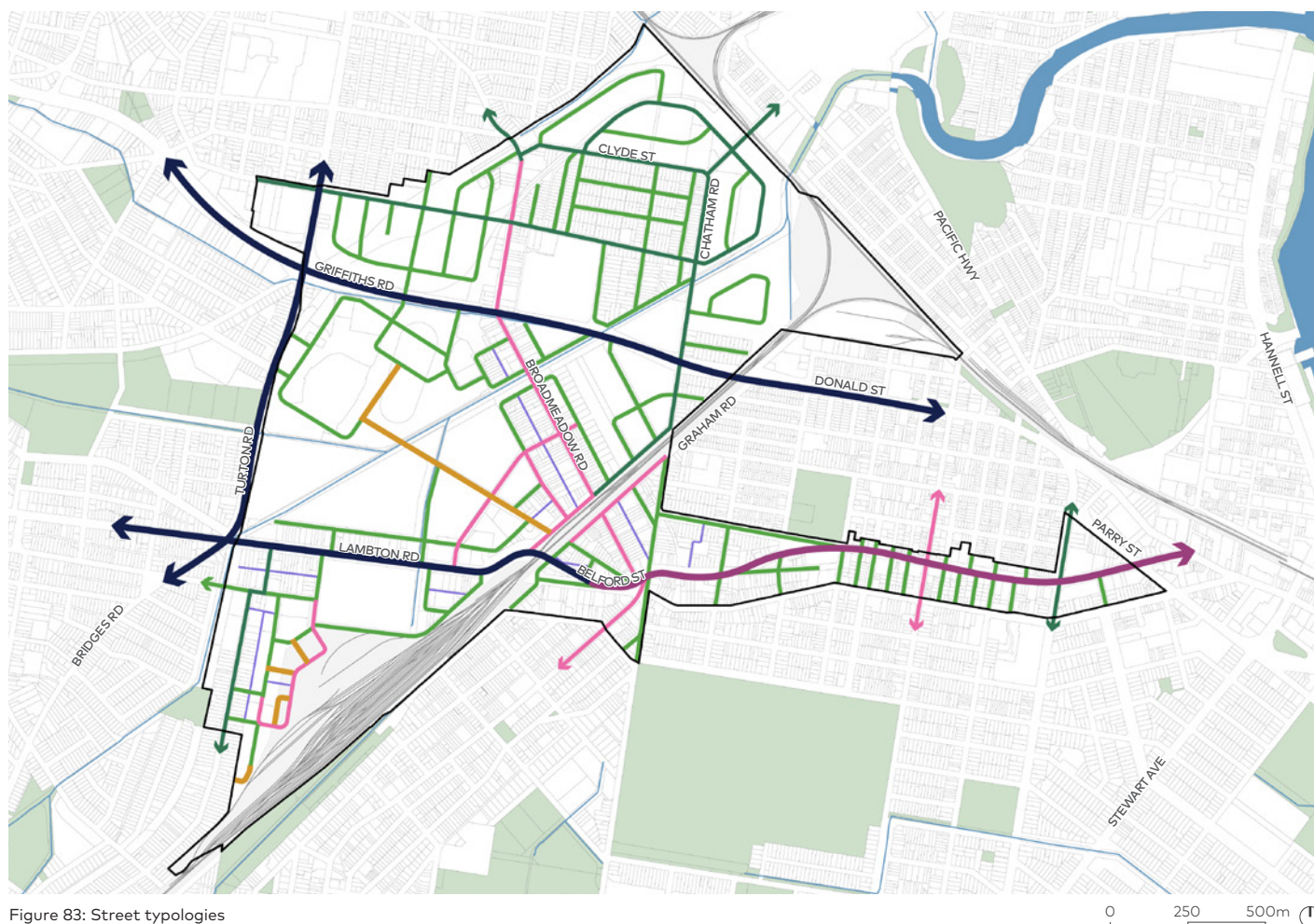
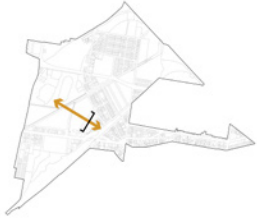


Figure 83: Street typologies

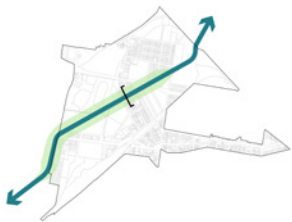
| | | | |
|-------------------|--------------|------------------------|-------------------------|
| Precinct boundary | Local street | Main road/local street | Civic space |
| Laneway | Main road | Main street | Main street/civic space |

0 250 500m



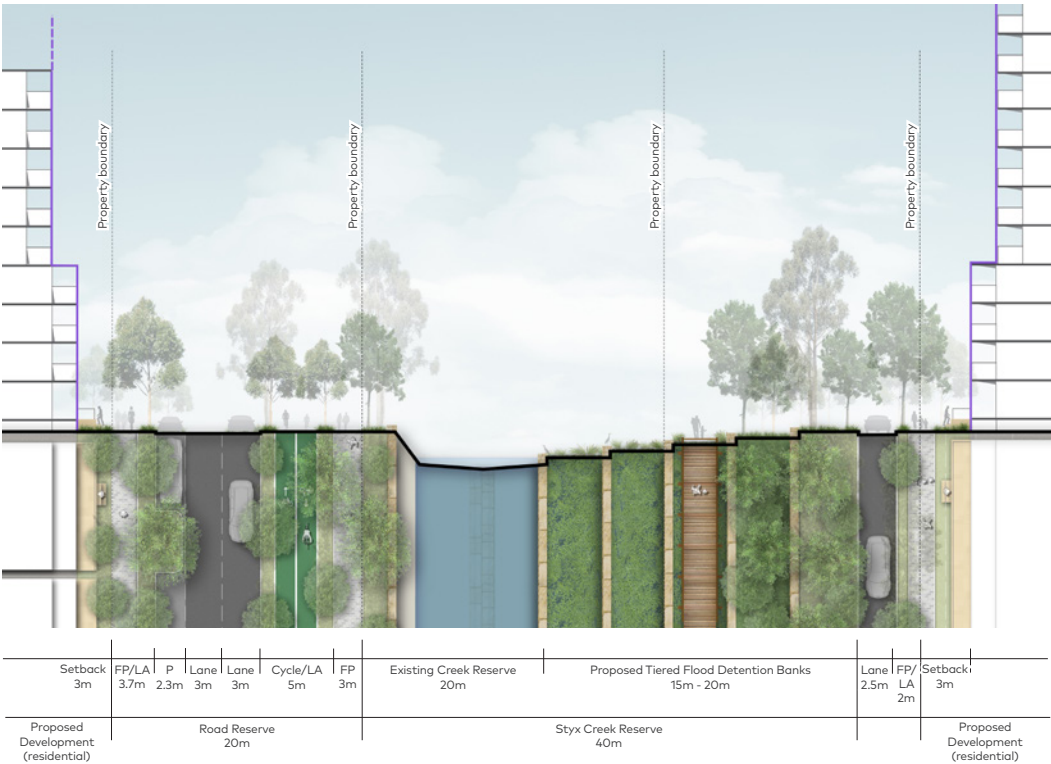
Hunter Park Boulevard

- 30 metre-wide pedestrianised boulevard with dedicated cycle lanes
- 10 metre wide rain garden for stormwater retention and treatment
- Landscape area (LA) and pedestrian footpaths (FP)
- Increased urban canopy
- Ample lighting
- Passive surveillance from adjacent mixed use development
- Active frontages



Styx Creek interface

- 20m existing creek reserve
- + 15-20m proposed widening for flood mitigation, with flood-resilient infrastructure
- Potential for pedestrian movement to circulate within corridor

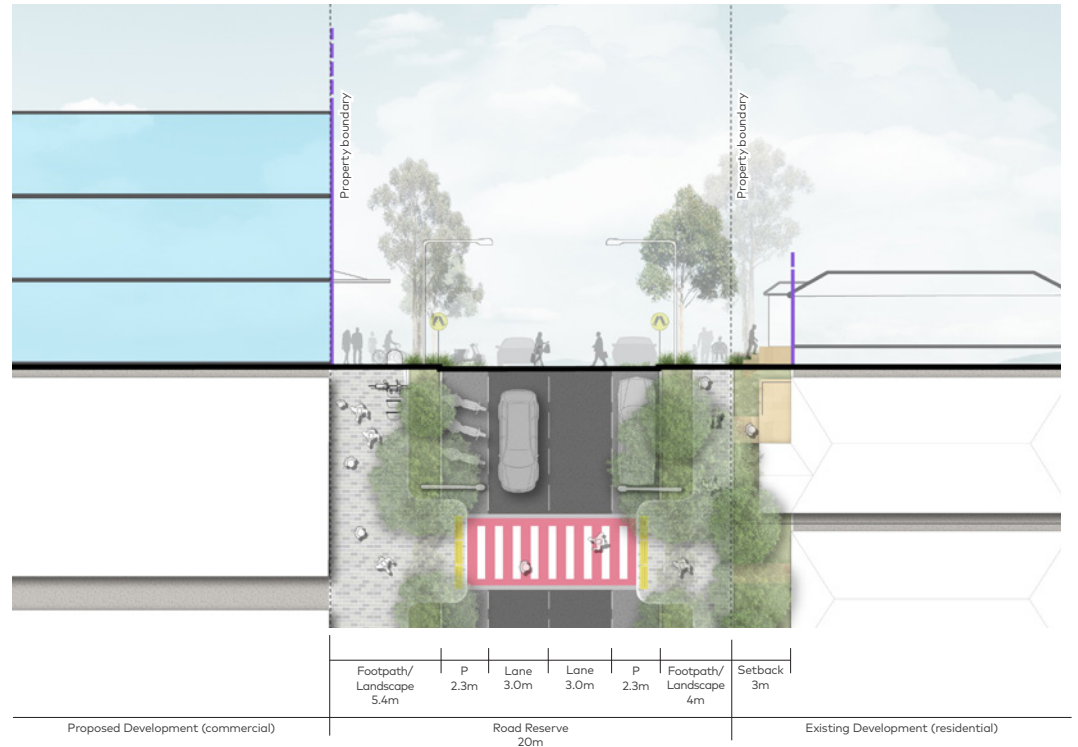




Broadmeadow Road (North)

Main street

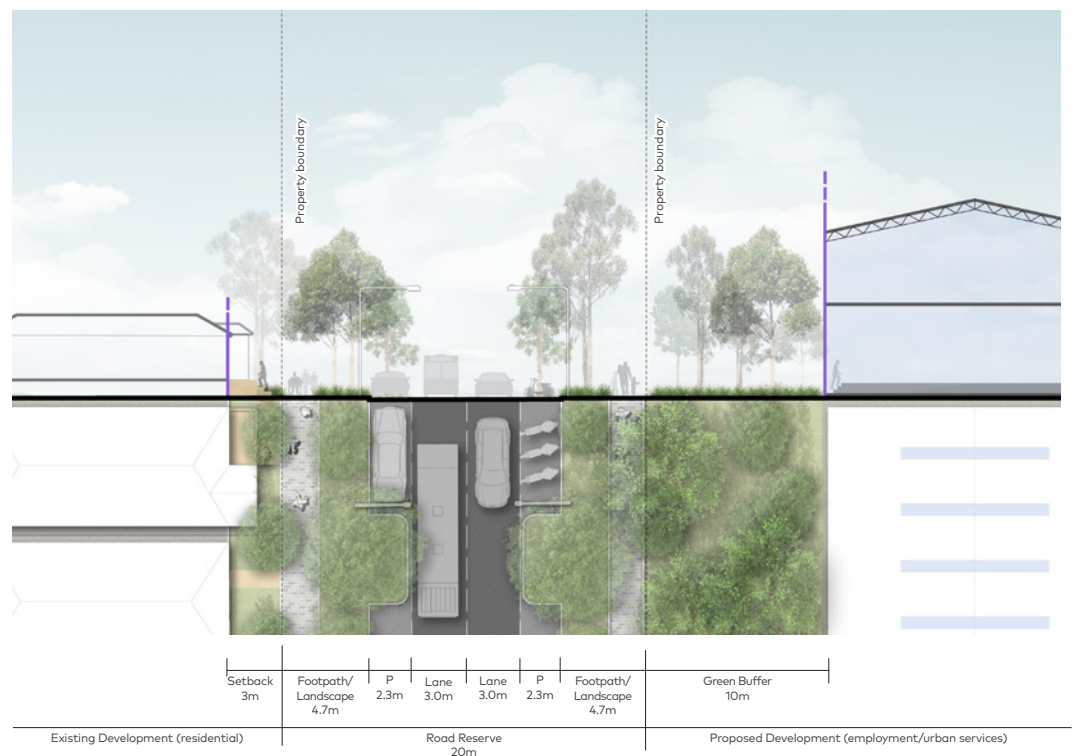
- 20m road reserve with on-street parking (P) on either side
- One lane of traffic in each direction
- Landscaped area (LA) between vehicle traffic and pedestrian footpaths
- Opportunity to extend landscaping into parking zones
- Extended footpath on commercial edge to accommodate increased pedestrian activity

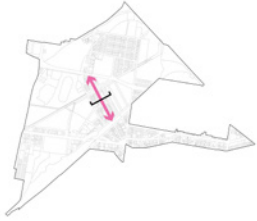


Chatham Road/Clyde Street

Local street

- 20m road reserve with on-street parking (P) on either side
- One lane of traffic in each direction
- Landscaped area (LA) between vehicle traffic and pedestrian footpaths
- 10m green buffer with deep soil planting to taper activity between light industrial and residential zones

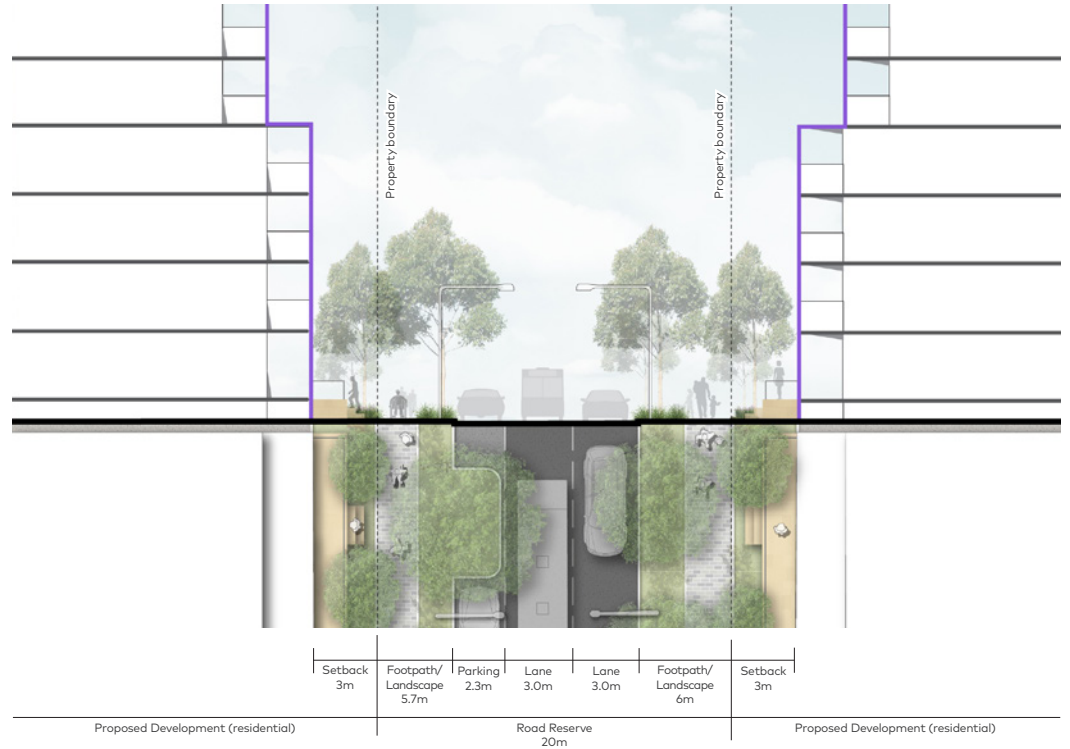




Broadmeadow Road (South)

Main street

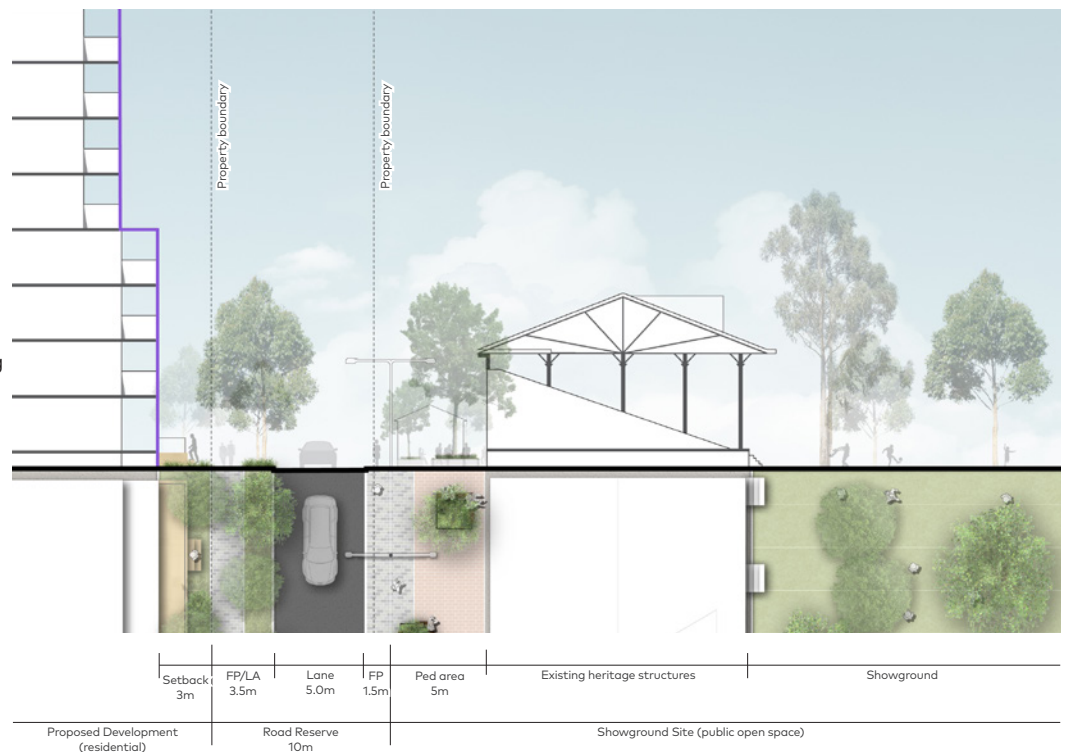
- 20m road reserve with one lane of on-street parking
- One lane of traffic in each direction
- Landscaped area (LA) between vehicle traffic and pedestrian footpaths
- Opportunity to extend landscaping into parking zones



Showground Interface

Local street

- 10m road reserve interfacing with public open space
- Rear laneway service vehicles access and parking entry
- One-way vehicle movement
- Landscape area (LA) and pedestrian footpaths (FP)



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4.6 Access and Movement

Broadmeadow's central location within the Newcastle metropolitan area creates significant opportunities for improvement in the transport network. Introducing green, high-capacity public transport will shift Newcastle away from the private vehicle and account for the projected increase in population.

The proposed access and movement network for Broadmeadow is summarised below:

Interchange

- The future Broadmeadow Interchange will prioritise simple and quick connections between different modes, though ease-of-interchange should not impact upon street life and existing movement patterns within the active Town Centre

Light rail

- Establishment of light rail corridor between Newcastle Interchange and Broadmeadow
- Interchange between light rail, rapid bus and legacy rail at Broadmeadow Station
- Potential light rail extension options through the Precinct toward destinations in Western Newcastle and through to Hamilton North

Bus network

- In-line with the Hunter Regional Plan, The Master Plan identifies a rapid bus corridor along Griffiths Road connections to Broadmeadow Station via Broadmeadow Road
 - These buses will feed commuters from the north of the Precinct into the Newcastle City Centre and patrons to events at McDonald Jones Stadium and future Multi-Purpose Indoor Arena

Heavy rail network

- Improvement of heavy rail service on the Central Coast and Newcastle and Hunter Lines, increasing frequency and establishing trains as a viable alternative to the car for commuting to both Newcastle and Broadmeadow
- Establishing Broadmeadow Station as a gateway to the regional Hunter Park sporting area

Street network

- The indicative street network to consider the Practitioner's Guide to Movement and Place which has been classified in accordance with street environments based on the interactions of movement and place. Civic spaces are places for people, with higher pedestrian activities and wider areas for non-vehicular movements and in contrast, main roads include motorways and major roads and transit corridors. A movement and place matrix provides a relative measure of how streets are classified by movement and place functions

- Future street layouts will be a natural extension of the existing street grid and organically respond to local topography and natural features
- Noting the street layouts are indicative and will be further investigated through the rezoning process

Pedestrian movement

- Permeable, walkable network with safe crossing points, sufficient footpath width and pedestrian signal phasing to meet pedestrian demand
- Signals crossings and footpaths that can accommodate peak demand on event days
- A large pedestrian boulevard to direct foot traffic between Broadmeadow station and Hunter Park
- Wide footpaths and comprehensive pedestrian connections supported with lighting, way-finding and mature trees, particularly around schools
- Kerb ramps, bus shelters, kerb out-stands and refuge crossings, particularly around schools
- Shared user paths and scooter/bicycle parking, particularly around schools
- Lower vehicle speeds around land uses with high pedestrian demands, including schools, recreation facilities and entertainment venues
- Local area traffic calming, particularly around schools
- Improved pedestrian access to bus stops and higher bus priority on roads to decrease bus journey times and improve efficiency. This includes for school buses
- Speed limits of 30 km/h on local streets and civic spaces to increase pedestrian safety

Cycleways and active transport

- Require end-of-trip facilities in new development and provide ample bicycle parking to promote a shift in commuting patterns
- Overcome barriers to movement by implementing grade separation and modal filters, creating a safe and legible cycle network
- Reduce vehicle speeds with traffic calming measures and lower speed limits to improve safety and comfort
- Implement high-quality cycling infrastructure - off-road, where possible, or on-road and separated from motor vehicle traffic with a kerb or barrier
- Prioritise bicycle-only infrastructure over shared paths to promote cycling as a viable alternative to the car



Figure 84: Newcastle Light Rail. (Source: COX)



Figure 85: NSW TrainLink. (Source: TfNSW)



Figure 86: Shared path. (Source: Willoughby Council)



Figure 87: Rapid busway. (Source: STM Montreal)



Figure 88: Bus/rail interchange. (Source: Auckland Council)

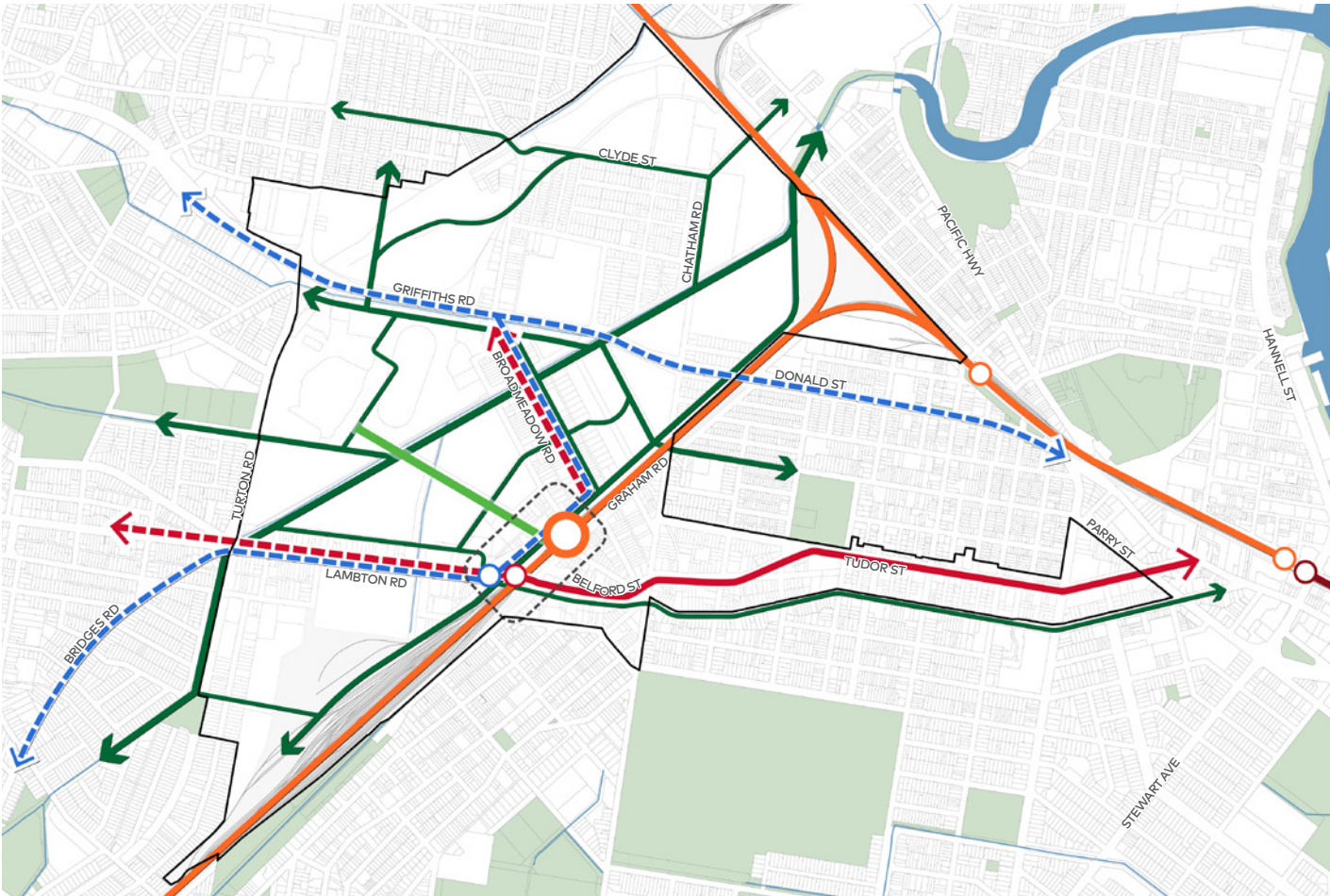
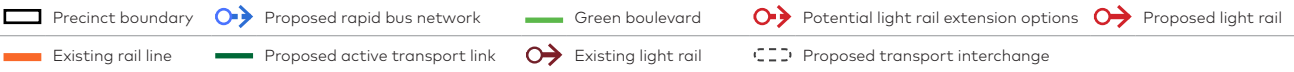


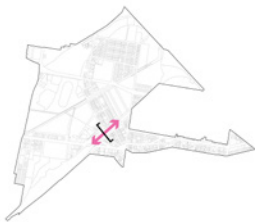
Figure 89: Access and connectivity





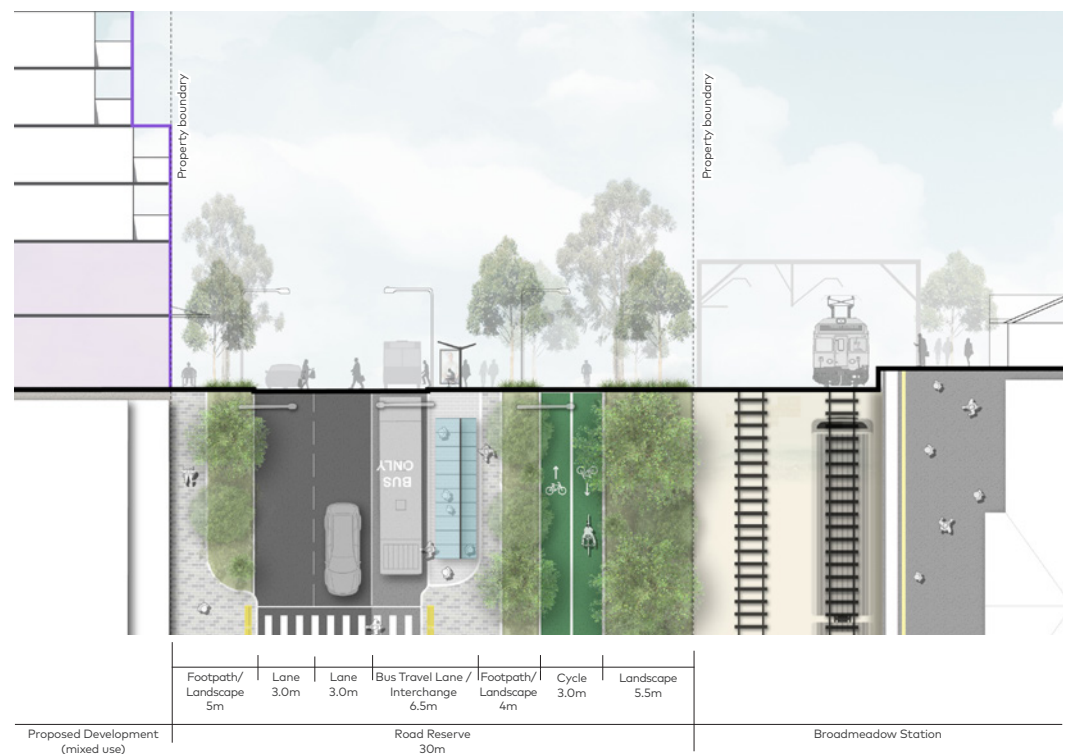
Belford/Tudor Street

- 30m road reserve with light rail corridor
- One-way traffic on either side of the light rail corridor
- Kerbside parking
- Landscaped area (LA) between light rail and vehicle traffic



Brown Road at Broadmeadow Station

- 30m road reserve with separate cycle lanes, a bus interchange and adjacent bus travel lane
- One lane of traffic in each direction
- Landscaped area between vehicle traffic, cycleways and pedestrian footpaths
- Extended footpaths to accommodate increased pedestrian activity



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Figure 90: Artist's Impression of Belford Road -Tudor Street Light Rail corridor (Source: Cox Architecture)



4.7 Height Strategy

Newcastle Skyline

The built form of Broadmeadow will be developed in accordance with the Newcastle LSPS and the Hunter Regional Plan. The Regional Plan identifies Broadmeadow as a Strategic Centre in service of the 'Metropolitan City' of the Newcastle CBD.

As Greater Newcastle experiences substantial population and economic growth over the coming decades, development in Broadmeadow should be conducted in respect of surrounding centres. Building heights across the metropolitan area should reflect the primacy of the Newcastle CBD and particularly so in Broadmeadow, given its proximity to recent high-rise development in the West End. A gradation of building heights should begin in the East End of Newcastle, rise to a peak in Newcastle West and the Broadmeadow Town Centre and transition to medium- and lower-density residential through Hunter Park and the Locomotive Heritage Park site.

Broadmeadow Skyline

The future built form of Broadmeadow will need to consider an appropriate transition to surrounding low-density residential uses. Cameron's Hill is a high-heritage value area to the southeast of Nineways and requires a sensitive approach.

Broadmeadow Town Centre

Clusters of taller buildings at Nineways and Broadmeadow Station denote the location of the town centre, capitalise upon the area's high amenity and aid legibility within the Precinct.

Belford/Tudor Corridor

Similarly, light rail on the Belford/Tudor corridor justifies greater heights, which will channel additional activity into a revived transit boulevard.

Locomotive Heritage Park

Situated at the south-western extremity of the Precinct, the Locomotive Heritage Park sub-precinct elegantly transitions to surrounding low-density residential uses. Heights will peak at the centre of the Precinct in an area of high amenity and high intensity.

Hunter Park

The built form of Hunter Park should respond to its role as a tourist destination. Lines of sight and wayfinding should be taken into consideration - creating a sense of enclosure along pedestrian thoroughfares considering the impact of overshadowing on public open spaces.

Views

Situated on former marshland at the geographic centre of Newcastle, high-rise buildings in Broadmeadow will be visible from much of the metropolitan area.

An opportunity exists in Broadmeadow to create a new view line along Belford and Tudor Streets to the new Town Centre. Future mixed-use development framing the road corridor will draw the eye to high-rise development at the centre of Broadmeadow and promote legibility within the Precinct.

The protection of view lines, the natural features of an area and solar access to the public realm are important considerations. These will need to be addressed when determining future building envelopes. The character of streets and neighbourhoods is defined by the scale, definition and extent of enclosure by buildings and landscape features. Key principles to consider:

- Protect significant views to and from public places
- Configure built form elements to enhance or frame views to significant places or element, or support the legibility of the area
- Buildings should not impede key views from the public domain to important public places, parks, heritage buildings and monuments

Wind

The Precinct, located on a large, flat plain, is prone to high wind speeds - a factor that could be worsened by high-density development. Therefore, any development in Broadmeadow must carefully consider the impact of strong winds on pedestrian comfort and amenity. This entails incorporating landscaping and deep-soil planting areas to accommodate street trees and hedges, which can act as natural barriers to screen winds at the pedestrian level.

To effectively manage wind flow within the Precinct, it is advisable to create setbacks aligned with the prevailing north-westerly wind direction. Additionally, buildings can install awnings to mitigate the effects of down-drafts, thus enhancing the overall comfort of the area.

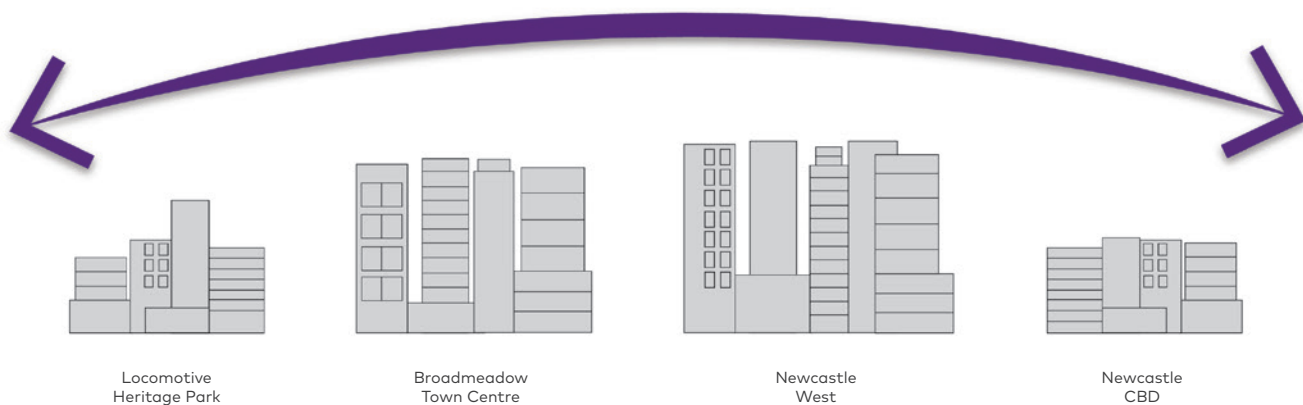


Figure 91: Building height illustration

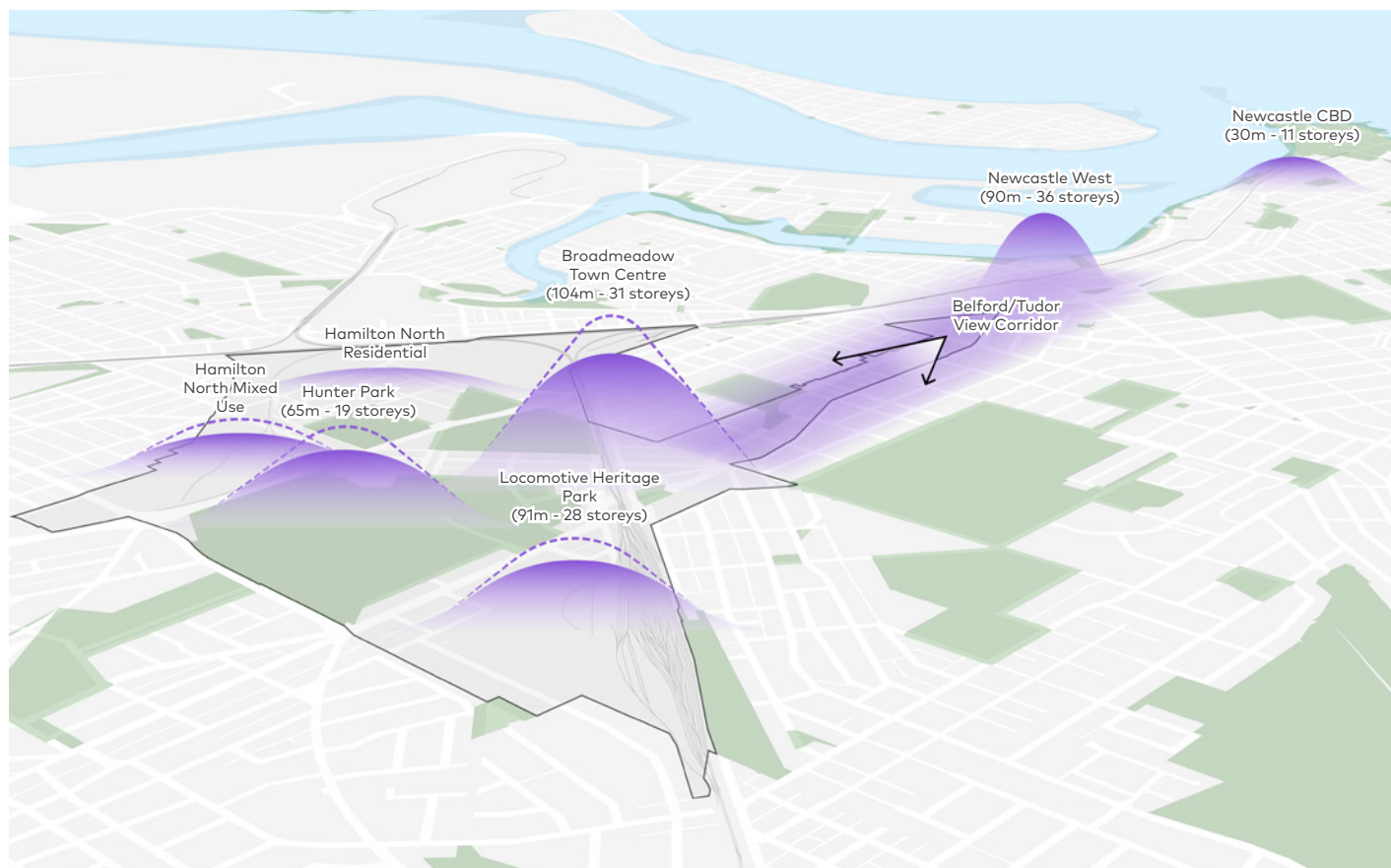


Figure 92: Building height illustration

4.8 Indicative Yields

The indicative yields for the Broadmeadow Precinct indicate a substantial increase in population, dwellings and jobs. The numbers were produced as the results of a detailed scenario assessment process, where a range of growth projections were tested against the Precinct's constraints and the stakeholder requirements.

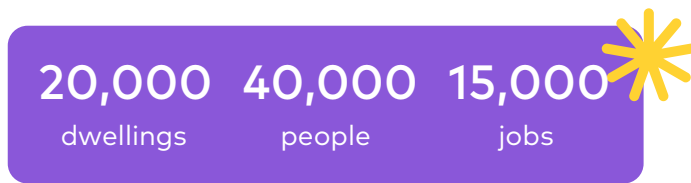


Figure 93: Projected dwellings, population and jobs

Assumptions

A series of assumptions were developed to calculate the yields.

- Mix of residential and retail/commercial;
 - Entertainment and residential: 80% residential & 20% retail/commercial
 - Town Centre: 95% residential & 5% retail/commercial
- Dwelling GFA is based on 90m² per dwelling
- Emp (x:GFA): Where possible, assumptions have been drawn from the Landcom Productive Places Common Planning Assumptions – Workspace Ratios which equate the quantum of floorspace in GFA required to support 1 full-time equivalent job within that particular use. For instance, for 1 job, it is assumed that 80m² GFA of Urban Services (average of small/high tech) and 35m² GFA for retail has been assumed

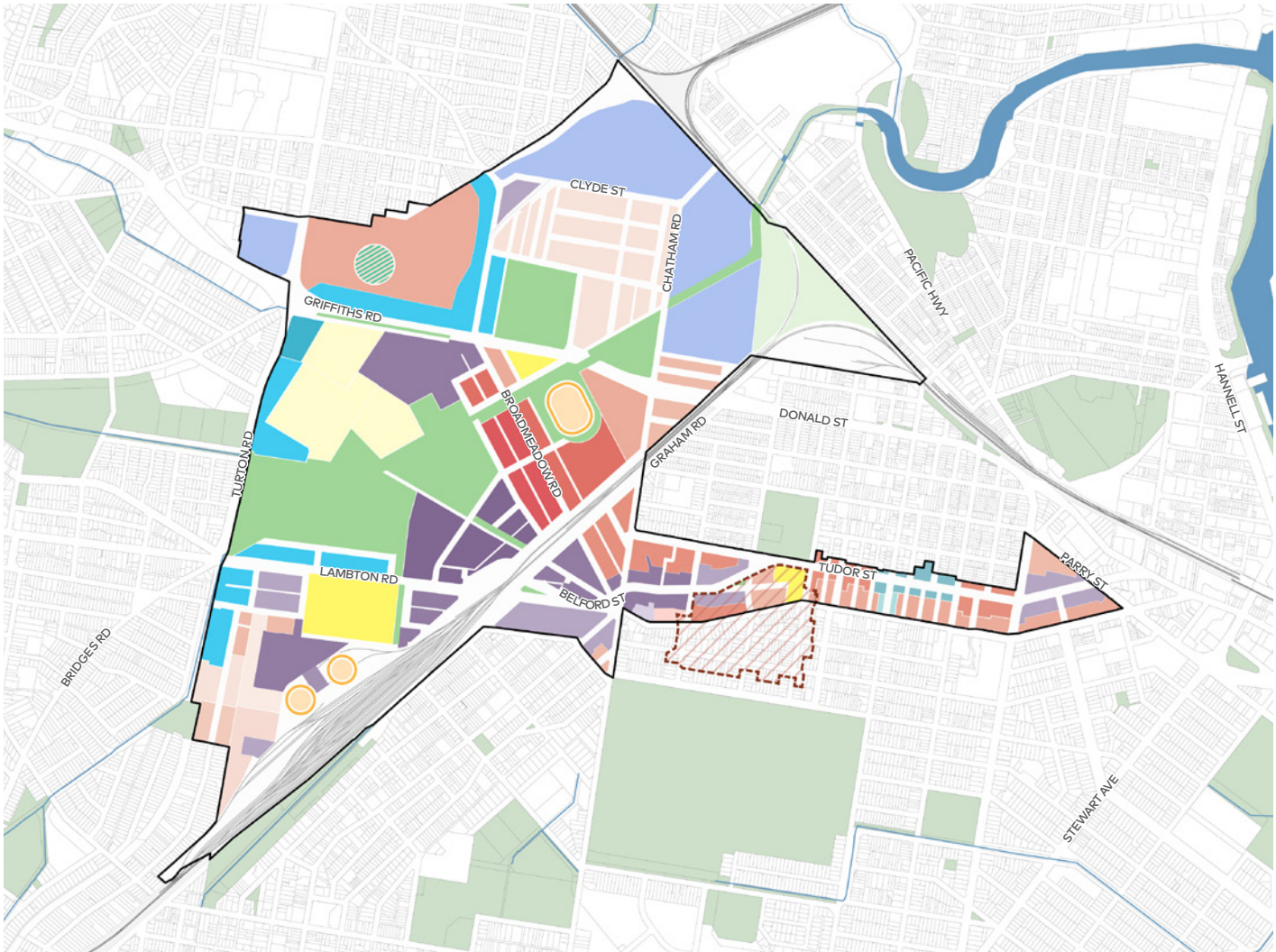


Figure 94: Land Use

| | | | | |
|--------------------|-------------------|-----------------|---------------------|---|
| Precinct boundary | Residential 1:1 | Mixed use 1.7:1 | Commercial 3:1 | Employment/urban services 1.5:1 |
| Residential 0.4:1 | Residential 1.5:1 | Mixed use 2:1 | Local centre 1.5:1 | Woodville Junction green space |
| Residential 0.6:1 | Residential 2:1 | Mixed use 2.7:1 | Local centre 2:1 | Stadium and Multi-Purpose Indoor Arena/Indoor recreation |
| Residential 0.7:1 | Residential 2.3:1 | Mixed use 3:1 | Green space | Cameron's Hill investigation area for heritage conservation |
| Residential 0.75:1 | Residential 2.8:1 | Mixed use 4:1 | Existing school | |
| Residential 0.9:1 | Residential 3.6:1 | Commercial 2:1 | Heritage protection | |



Figure 95: Enquiry by Design Workshop 2

4.9 Government Moves

The Integrated Master Plan identifies the Newcastle Showground site, Basketball Stadium and PCYC, Locomotive Heritage Park and Go Karts and Stadium Forecourt as Government moves rezoning sites. Government ownership and large lot sizes render these sites more feasible for development.

The Basketball Stadium and PCYC and Newcastle Showground sites will catalyse development in the centre of the Broadmeadow Precinct and establish a local vernacular for future development. New and rejuvenated open spaces are accompanied by active streetscapes that respond to the pedestrian scale, defining new 15-minute neighbourhoods with easy access to daily needs and strong active transport connections.

The sites identified for Government moves rezoning will provide the capacity for approximately 3,200 new dwellings, 8,200 new residents and 2,350 new jobs. These figures equate to 160% of the dwellings required of the Broadmeadow Place Strategy by the Hunter Regional Plan 2041.

Refer to the Economic Impact Assessment prepared by Atlas Economics for greater detail.

| Land Use | Area (m ²) | Market dwellings | Affordable dwellings | Total Dwellings | Population | Employment GFA | Jobs |
|--------------------------------|------------------------|------------------|----------------------|-----------------|--------------|----------------|--------------|
| Mixed Use | 26,060 | 730 | 313 | 1,042 | 2,502 | 10,424 | 298 |
| Residential | 64,782 | 799 | 342 | 1,141 | 2,739 | - | - |
| Residential/Mixed Use (Depot) | 132,779 | 713 | 305 | 1,017 | 2,969 | - | 750 |
| Commercial | 43,643 | - | - | - | - | 91,558 | 1,191 |
| Special Use | 34,911 | - | - | - | - | 8,728 | 109 |
| Publicly Accessible Open Space | 41,317 | - | - | - | - | - | - |
| TOTAL | 343,492 | 2,241 | 960 | 3,200 | 8,209 | 110,710 | 2,350 |

Table 4: Government moves yields

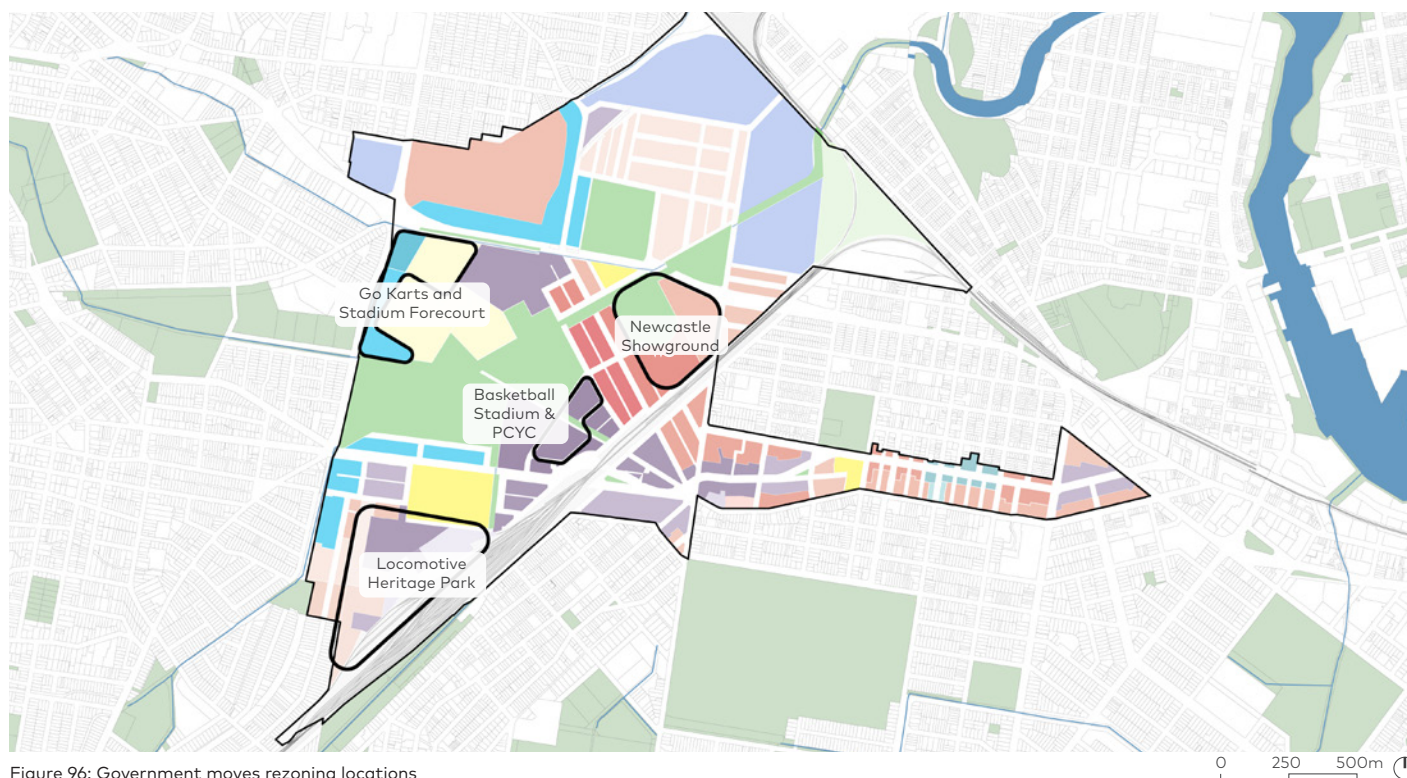


Figure 96: Government moves rezoning locations

Locomotive Heritage Park

Proposed Uses

The Integrated Master Plan envisions a lively town centre, with medium and high density mixed-use development at its core. The Locomotive Heritage Park site will augment this with medium-density mixed-use and associated medium to low density residential dwellings.

The Locomotive Precinct will consider existing uses and improvements on the site with the adaptive-reuse of the existing roundhouses. This will help foster a transition of the site from a vacant and underutilised rail service depot into a thriving new mixed-use community.

Commercial and cultural destinations will be combined with high quality dwellings and a responsive public domain.

Floor Space Ratios and Yields

Higher densities will be consolidated at the centre of the site, rising to 3.7:1 FSR. A transition zone is located on the western boundary to provide an appropriate transition to low density housing.

The north of the site can support higher densities due to its interface with Productivity Support land uses, which are less sensitive to shading and view-line impacts.

Placing the majority of dwellings away from the rail corridor will reduce noise impacts.

Building Heights

In alignment with proposed densities, heights rise to their maximum at the centre of the site and on the railway heritage site. Increased heights are proposed to provide to facilitate the proposed uses.

| Land Use | Affordable dwellings @90m2 GFA | Total Dwellings | Population (@2.4ppd) | Jobs |
|------------------------|--------------------------------|-----------------|----------------------|------|
| Residential/ Mixed Use | 305 | 1,017 | 2,969 | 750 |
| TOTAL | 305 | 1,017 | 2,969 | 750 |

Table 5: Locomotive Heritage Park - yields

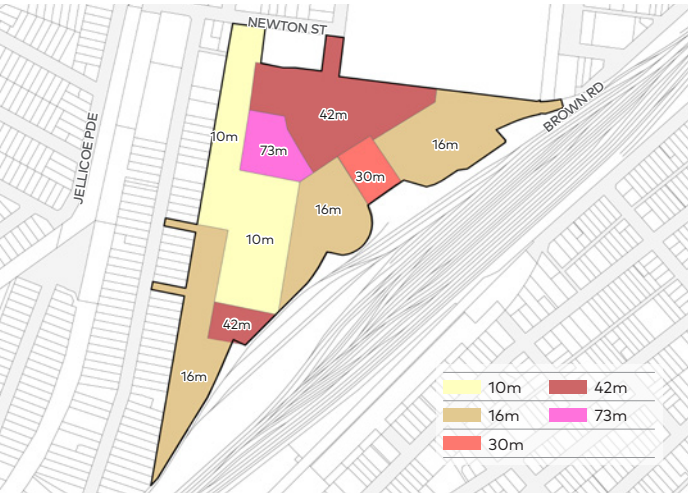


Figure 98: Locomotive Heritage Park - Proposed Building Height

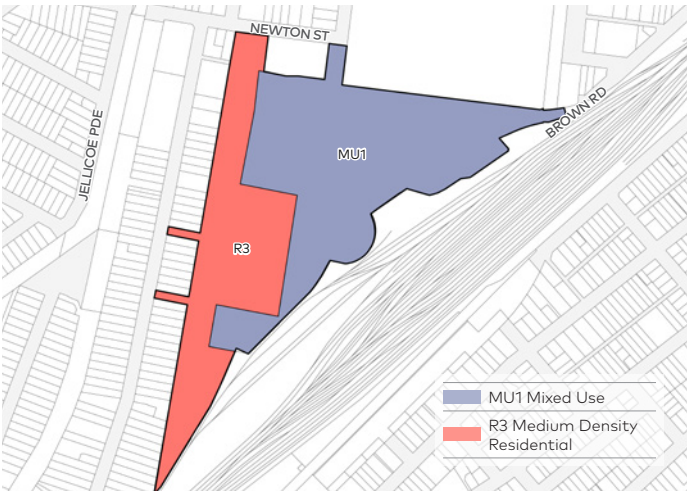


Figure 97: Locomotive Heritage Park - Proposed Land Use

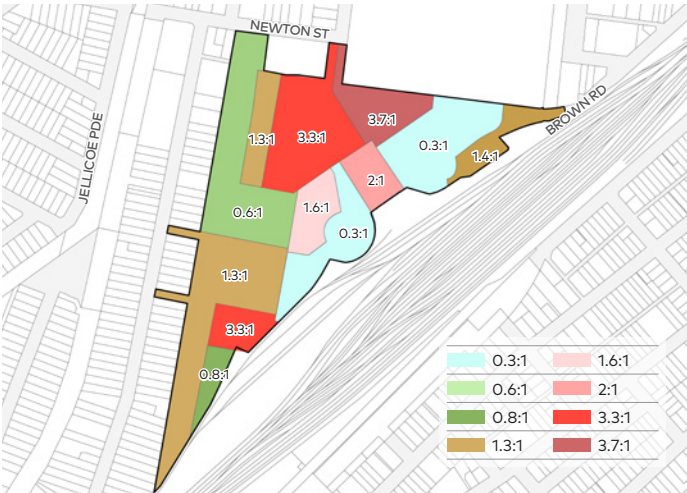


Figure 99: Locomotive Heritage Park - Proposed FSR

Setbacks

Setbacks are intended to provide a varied and amenable streetscape. Large setbacks in the mixed-use centre of the site will break up the building mass above and expand circulation spaces in high-activity areas. Setbacks will also promote integration with adjacent open space.

Podium Height

Podium heights reflect the commercial and retail potential of a building. Taller podiums at the site's centre will promote a sense of enclosure and generate higher levels of pedestrian activity. In the west of the Precinct, lower scale residential uses will achieve separation from the roadway through setbacks.

Active Frontages

Active frontages mark the Locomotive Precinct's 'high street' character area. A consistent street wall will support a range of active uses that promote passive surveillance of the streetscape and draw pedestrian movement into the heart of the site, toward public open space and community uses.

Open Space and Landscape

The Locomotive Depot leverages its heritage assets to invigorate public open space. The former railway roundhouses sit within landscaped parkland and frame public plazas that absorb the overflow from adjacent active uses.



Figure 100: Locomotive Heritage Park - Setbacks



Figure 101: Locomotive Heritage Park - Podium Height



Figure 102: Locomotive Heritage Park - Active frontages



Figure 103: Locomotive Heritage Park - Open Space

Basketball Stadium and PCYC

Proposed Uses

Blanket MU1 Mixed Use zoning will provide the flexibility required to activate the Broadmeadow Centre. A large residential population situated above a range of retail, services and community uses will drive pedestrian activity and aid in transforming the Precinct into a regional, national and global destination.

Forming the gateway to the Sports and Recreation precinct, development will capture incidental food and beverage and retail on the pedestrian route to Broadmeadow Station.

Floor Space Ratios and Yields

A high-density floor-space ratio of 4:1 will be applied across the site, responding to the connectivity and amenity of Broadmeadow Station and a location within the future Broadmeadow Centre. Approximately 1,000 new dwellings are projected to be delivered, housing 2,500 people.

Building Heights

Tall building heights are appropriate for the site, which is situated at the core of the Broadmeadow Centre. Open space to the north of the site means that tall buildings will not impact upon public open space through overshadowing.

| Land Use | Affordable dwellings @90m2 GFA | Total Dwellings | Population (@2.4ppd) | Jobs |
|-----------|--------------------------------|-----------------|----------------------|------|
| Mixed Use | 313 | 1,042 | 2,502 | 298 |
| TOTAL | 313 | 1,042 | 2,502 | 298 |

Table 6: Basketball Stadium and PCYC - yields

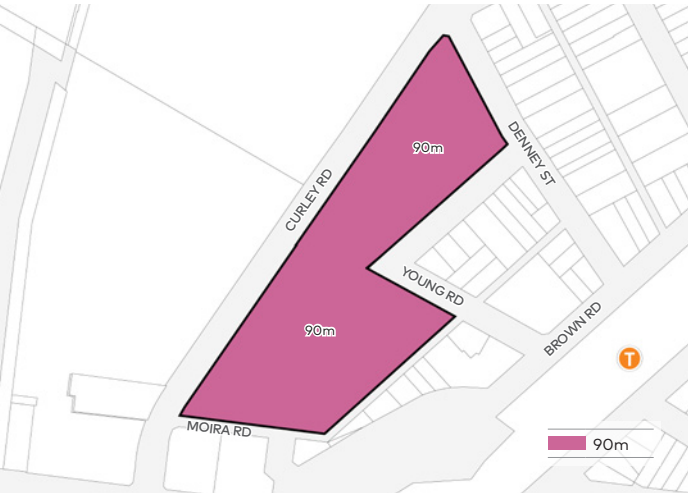


Figure 104: Basketball Stadium and PCYC - Proposed Building Height

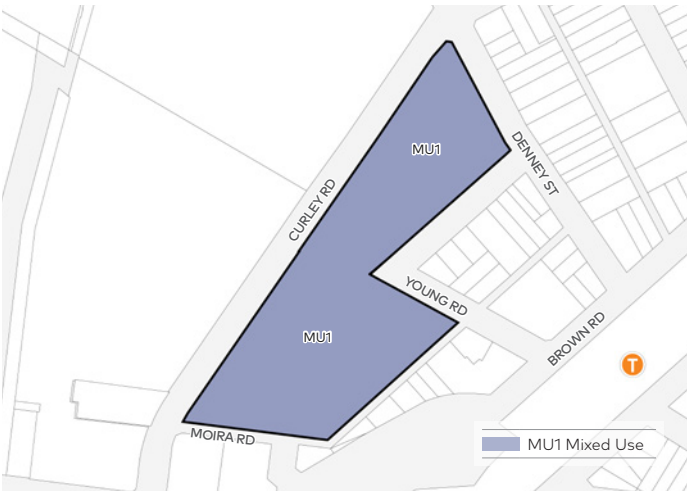


Figure 105: Basketball Stadium and PCYC - Proposed Land Use

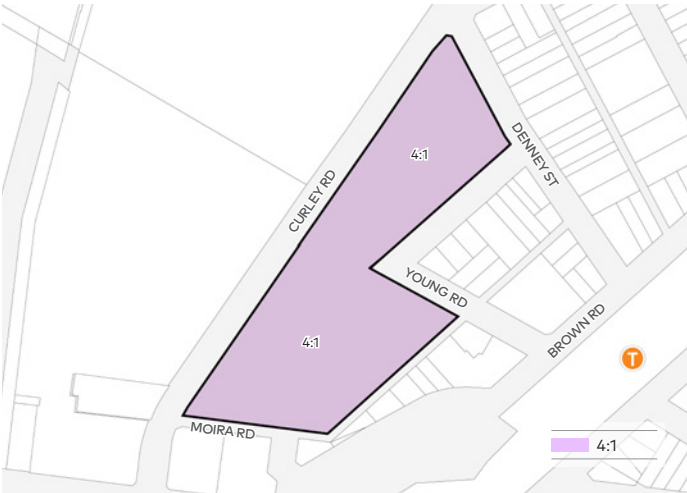


Figure 106: Basketball Stadium and PCYC - Proposed FSR

Setbacks

A setback of zero metres will be applied at the proposed Green Boulevard interface to promote activation and create passive surveillance over the public domain. Community and commercial uses will frame the boulevard and benefit from incidental patronage to and from the Sports and Recreation precinct.

Podium Height

Podium heights within the Basketball Stadium and PCYC are intended to accommodate the displaced uses from the site's current sporting and community facilities. High floor-to -floor heights will create the flexibility to provide for a range of community uses.

Active Frontages

The proposed active frontages respond to the future Green Boulevard interface. Young Road will be lined by active shopfronts, cafés and restaurants, framing the street with a 90% build-to-Line control. In anticipation of future mixed use development and to activate the site's interface with parkland, Curley Road will host semi-active frontages with a 75% build-to-line control.

Open Space and Landscape

The built form of the Basketball Stadium and PCYC surrounds generous green communal areas for the use of residents, while promoting permeability through the site. Podiums on the southern interface of Young Road invite pedestrians into a public urban plaza, framed by commercial and community uses. This space will draw activity from the proposed Green Boulevard on Young Road.



Figure 107: Basketball Stadium and PCYC - Setbacks



Figure 108: Basketball Stadium and PCYC - Podium Height

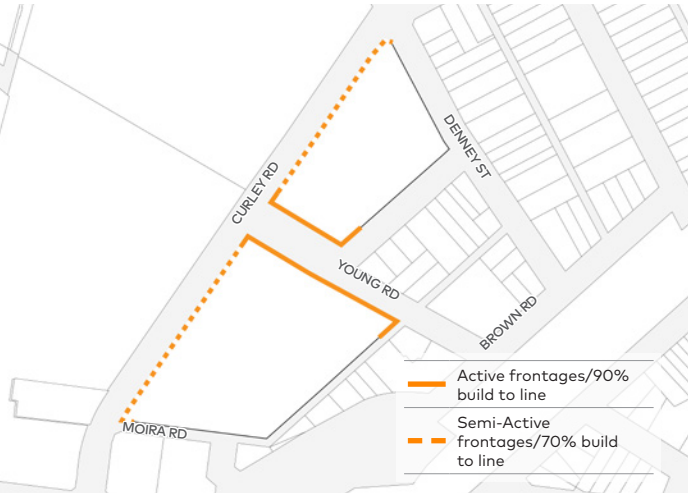


Figure 109: Basketball Stadium and PCYC - Active Frontages



Figure 110: Basketball Stadium and PCYC -Landscape and Open Space



Figure 111: Artist's Impression of new multi-purpose community facility and PCYC on Young Road (Source: Scharp and Cox Architecture)



Newcastle Showground

Proposed Uses

The proposed uses for the Newcastle Showground will create a new, liveable residential community that is anchored by high-quality green space. R4 High Density Residential land in the south of the site shares an interface with the Broadmeadow Centre and transitions away from high-intensity mixed use through to R3 Medium Density Residential in the east. The Show-ring will remain RE1 Public Recreation, though the parkland will be accessible by the public outside of event days.

Floor Space Ratios and Yields

In keeping with a transition in intensity away from the Broadmeadow Centre, FSRs will decrease from 3.6:1 to 2.3:1 from west to east. High and medium density residential development will deliver approximately 1,100 dwellings.

Building Heights

Proposed building heights reduce in accordance with distance from the Broadmeadow Centre. The future built form will appropriately frame the Showground open space, and reduce the impact of overshadowing on proposed and existing open spaces where possible.

| Land Use | Affordable dwellings @90m2 GFA | Total Dwellings | Population (@2.4ppd) | Jobs |
|-------------|--------------------------------|-----------------|----------------------|------|
| Residential | 342 | 1,141 | 2,739 | - |
| TOTAL | 342 | 1,141 | 2,739 | - |

Table 7: Newcastle Showground - yields



Figure 113: Newcastle Showground - Proposed Land Use

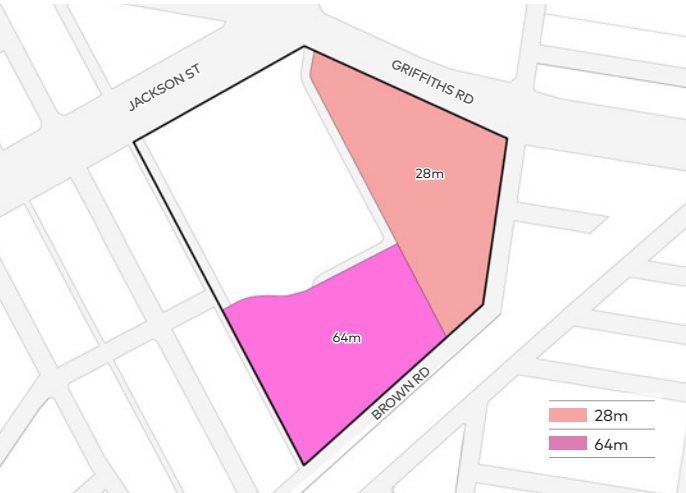


Figure 112: Newcastle Showground - Proposed Building Height

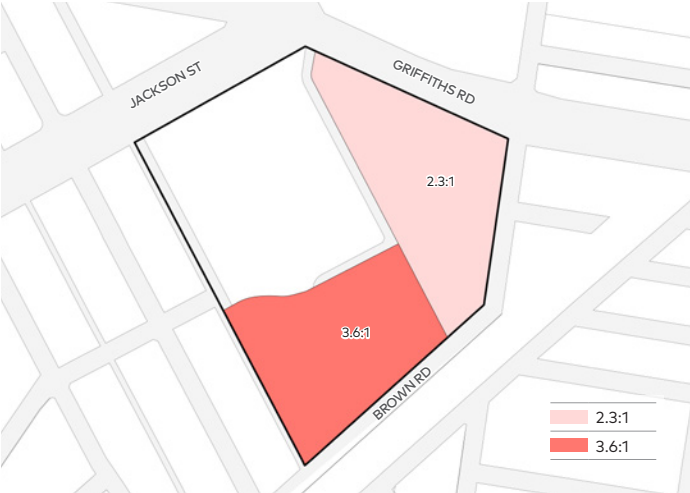


Figure 114: Newcastle Showground - Proposed FSR

Setbacks

The future residential neighbourhood will have a three- to six-metre setback to the street to allow for appropriate building separation and landscaping zones. Deep-soil planting will foster an urban canopy and reduce the impact of the urban heat island effect.

Height Strategy

The future built form of the Newcastle Showground will need to consider its interface with the adjacent show-ring and the Main North railway line to the south. Additional height can be placed against the railway line due to the reduced impact of overshadowing. To the east, heights will transition down to meet the existing single-detached homes east of Chatham Road.

Open Space and Landscape

Unlocking the show ring to the public provides a substantial amount of recreation space for local residents and visitors alike. Communal courtyards provide ample spaces to gather in the middle of new development, breaking up the built form and creating opportunities for new through-site links.

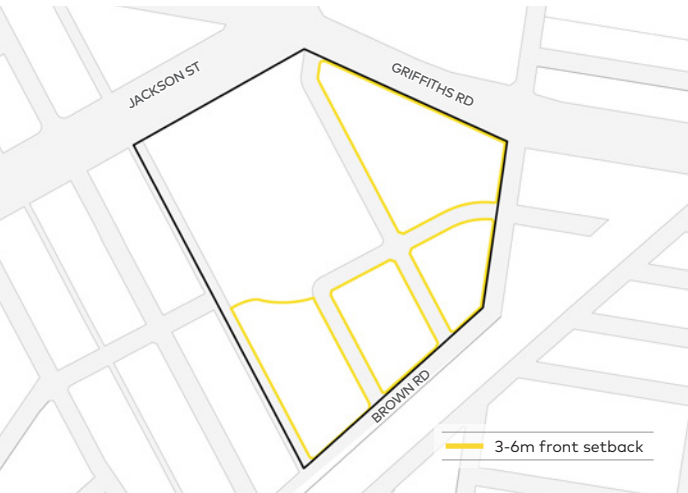


Figure 115: Newcastle Showground - Proposed Setbacks

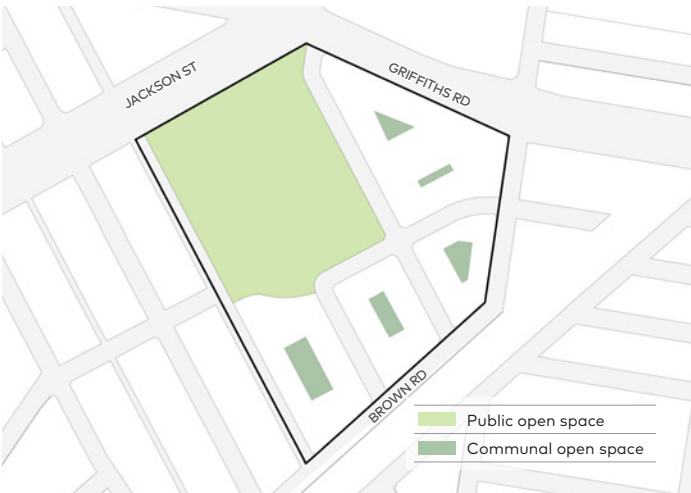


Figure 116: Newcastle Showground - Proposed Open Space



Figure 117: Newcastle Showground - Height Strategy



Figure 118: Artist's Impression of retained Newcastle Showground arena and heritage buildings (right) as part of a new residential community
(Source: Scharp and Cox Architecture)



Go Karts and Stadium Forecourt

Proposed Uses

The proposed uses for the Go Karts and Stadium Forecourt site are intended to support activities within the Sport and Recreation precinct. E2 Commercial Centre zoning along the western boundary allows for the development of hotel accommodation adjacent to major sporting facilities. Ground-floor activation with minor retail and food & beverage uses welcome patrons on game days, and transitions to a small-scale, attractive local centre during the week.

The future Entertainment Centre will be developed on SP1 Special Activities land.

Floor Space Ratios and Yields

Floor-space ratios of 2:1 and 3:1 allow for flexibility in the delivery of commercial floorspace on Turton Road, which provides capacity for 1,221 new jobs within the Commercial Centre zoning, and an additional 109 within the future Entertainment Centre, which will develop to FSR 0.5:1.

Building Heights

Buildings to heights of 30-50m will frame the Turton Road interface. Buildings rising to 50m on the Griffiths Road and Turton Road intersection will mark the entry to the site, and 6 storey commercial buildings to the south create a sense of enclosure at the street level without overwhelming the pedestrian scale.

| Land Use | Affordable dwellings @90m2 GFA | Total Dwellings | Population (@2.4ppd) | Jobs |
|-------------|--------------------------------|-----------------|----------------------|-------|
| Commercial | - | - | - | 1,191 |
| Special Use | - | - | - | 109 |
| TOTAL | - | - | - | 1,300 |

Table 8: Go-Karts and Stadium Forecourt - yields

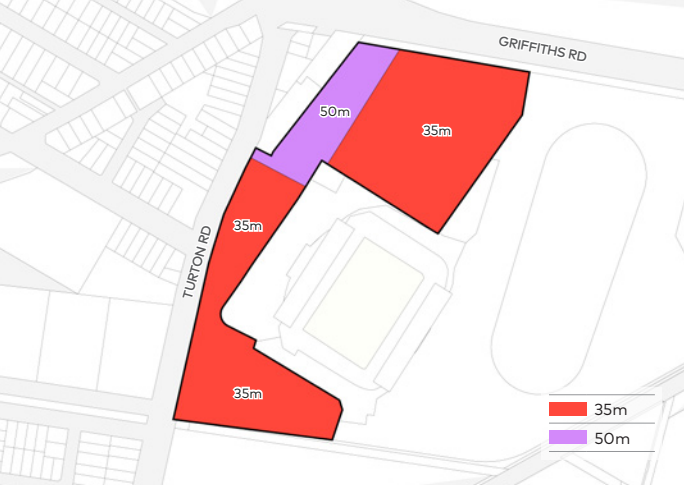


Figure 119: Go-Karts and Stadium Forecourt - Proposed Building Height

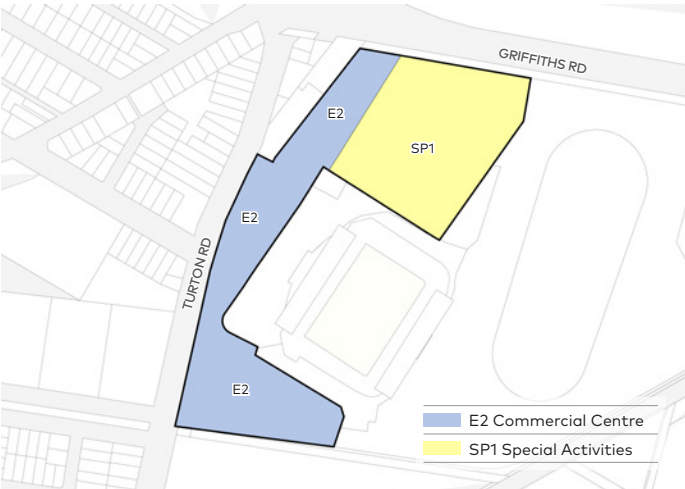


Figure 120: Go-Karts and Stadium Forecourt - Proposed Land Use

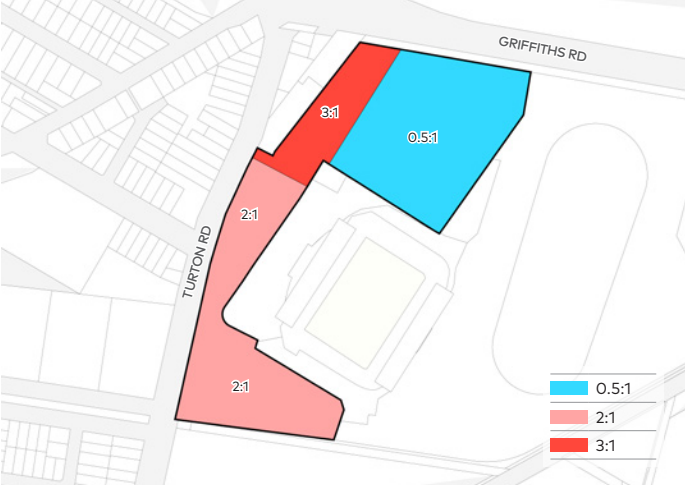


Figure 121: Go-Karts and Stadium Forecourt - Proposed FSR

Setbacks

Setbacks are minimal throughout the site, to build flexibility into future development and allow the built form to adequately frame the streetscape for potential active uses at the stadium forecourt.

Active Frontages

Potential active and semi-active frontages seek to create an inviting gateway to the Sports and Recreation precinct. Pedestrians from Turton Road will encounter a vibrant streetscape that leverages the civic plaza space at the stadium forecourt.

Open Space and Landscape

The Indoor Arena and McDonald Jones Stadium frame a new public space that can successfully manage crowds on event days and remain a viable destination and gathering space during the week. The built form in the south of the site leads pedestrians to major attractions from the proposed Green Boulevard in the southeast.

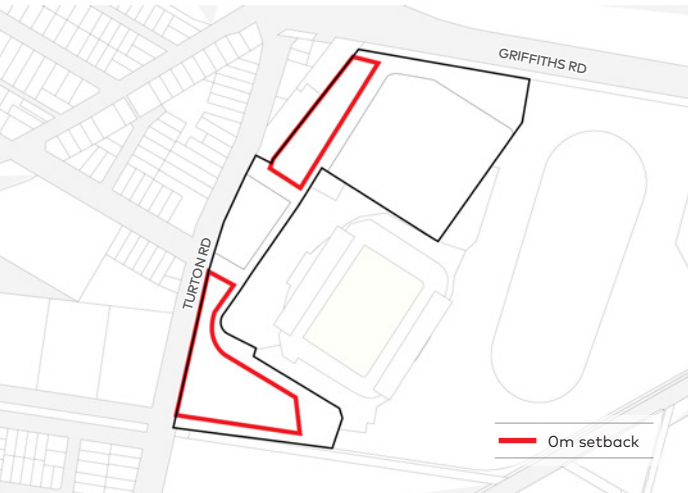


Figure 123: Go-Karts and Stadium Forecourt - Setbacks

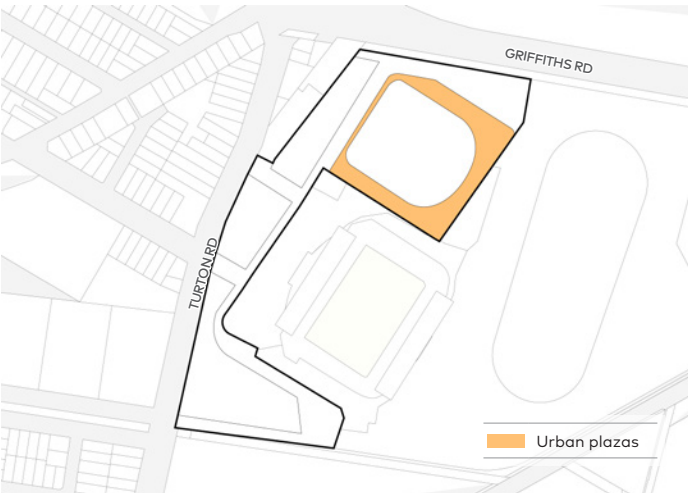


Figure 124: Go-Karts and Stadium Forecourt - Open Space and Landscape

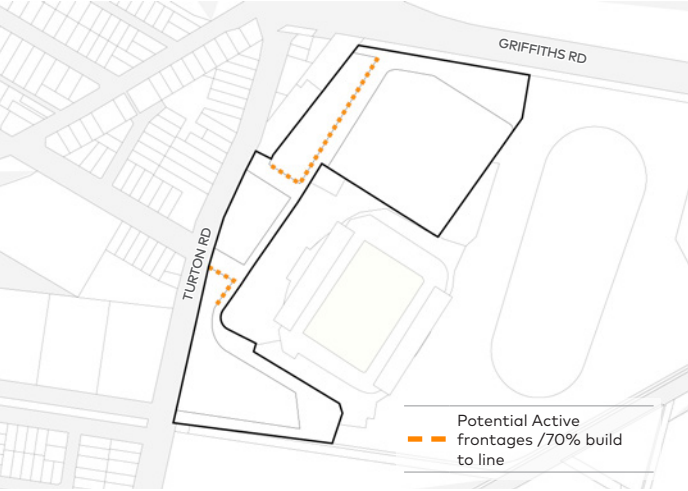


Figure 122: Go-Karts and Stadium Forecourt - Active Frontages



Figure 125: Artist's Impression of public access to the turntable and new public spaces within the Locomotive Workshop Precinct
(Source: Scharp and Cox Architecture)





Figure 126: Artist's Impression of Hunter Park (Source: Cox Architecture)



4.10 Potential Staging

Short Term 0 - 10 Years

Broadmeadow has the opportunity to prioritise the delivery of Government moves of the basketball and PCYC site, Transport landholdings and Venues NSW landholdings in the short term to provide the catalyst for the Precinct.

In the southwest, Transport landholdings represent a first step for development under a single landholder. Development of the railway precinct will give Newcastle residents access to the state heritage-listed roundhouses for the first time.

Relocation of the regional basketball stadium will allow the site to provide the relocation of the Police Citizens Youth Club and new multi-purpose community facility, along with mixed use and residential uses on the Basketball and PCYC site.

Likewise, large Venues NSW landholdings on the existing Showground site are conducive for development and will provide access to a rejuvenated Showground ring to the general public.

In the short term, parts of a new pedestrian-oriented boulevard will extend from Broadmeadow Station to the stadium precinct with a bridge over Styx Creek, alongside a new active transport link along Styx Creek to connect to the existing cycle network.

Creating provisions for areas adjacent to the Government moves will attract people to the Precinct in early stages of development. In the short term, other precinct amenities such as active transport link along the rail corridor can connect the urban services north of the Precinct to Newcastle Showground site, basketball stadium site and police Citizens Youth Club site and Broadmeadow Locomotive Heritage Park site.

Infrastructure

Government Moves

- Identify a light rail corridor along Belford and Tudor Streets
- Pedestrian-priority boulevard from Broadmeadow station to McDonald Jones Stadium and the new multi-purpose indoor arena
- Active transport link along Styx Creek

Outside of government moves

- Active transport link along rail corridor

Employment uses

Outside of government moves

- Employment/Urban Service: General industrial areas begin to shift toward finer-grain, service-oriented businesses that provide a softer interface to existing residential
- Commercial development on Lambton Road

Town centre, residential and entertainment precincts

Government Moves

- Adaptive reuse of Locomotive Heritage Park state-significant heritage items
- Mixed-Use and residential development (including affordable housing) - Broadmeadow Locomotive Heritage Park site (potential for 1,100 homes)
- Relocation of the Police Citizens Youth Club and new multi-purpose community facility - relocated basketball stadium site
- Mixed-Use and residential development (including affordable housing) - relocated basketball stadium site (potential for 700 homes)
- Mixed-Use and residential development (including affordable housing) - relocated Police Citizens Youth Club site (potential for 400 homes)
- Relocation of the Entertainment Centre - New multi-purpose indoor arena (this will replace the existing Entertainment Centre) with commercial opportunity
- Mixed-Use and residential development (including affordable housing) - Newcastle showground (potential for 1,100 homes)
- Upgrades to McDonald Jones stadium

Outside of government moves

- Mixed-Use and residential development at Nineways
- Mixed-Use and residential development east of the Precinct on Tudor Street
- Mixed-Use and residential development adjacent to Broadmeadow Locomotive Heritage Park site
- Mixed-Use and Residential development south of basketball stadium site and police Citizens Youth Club site

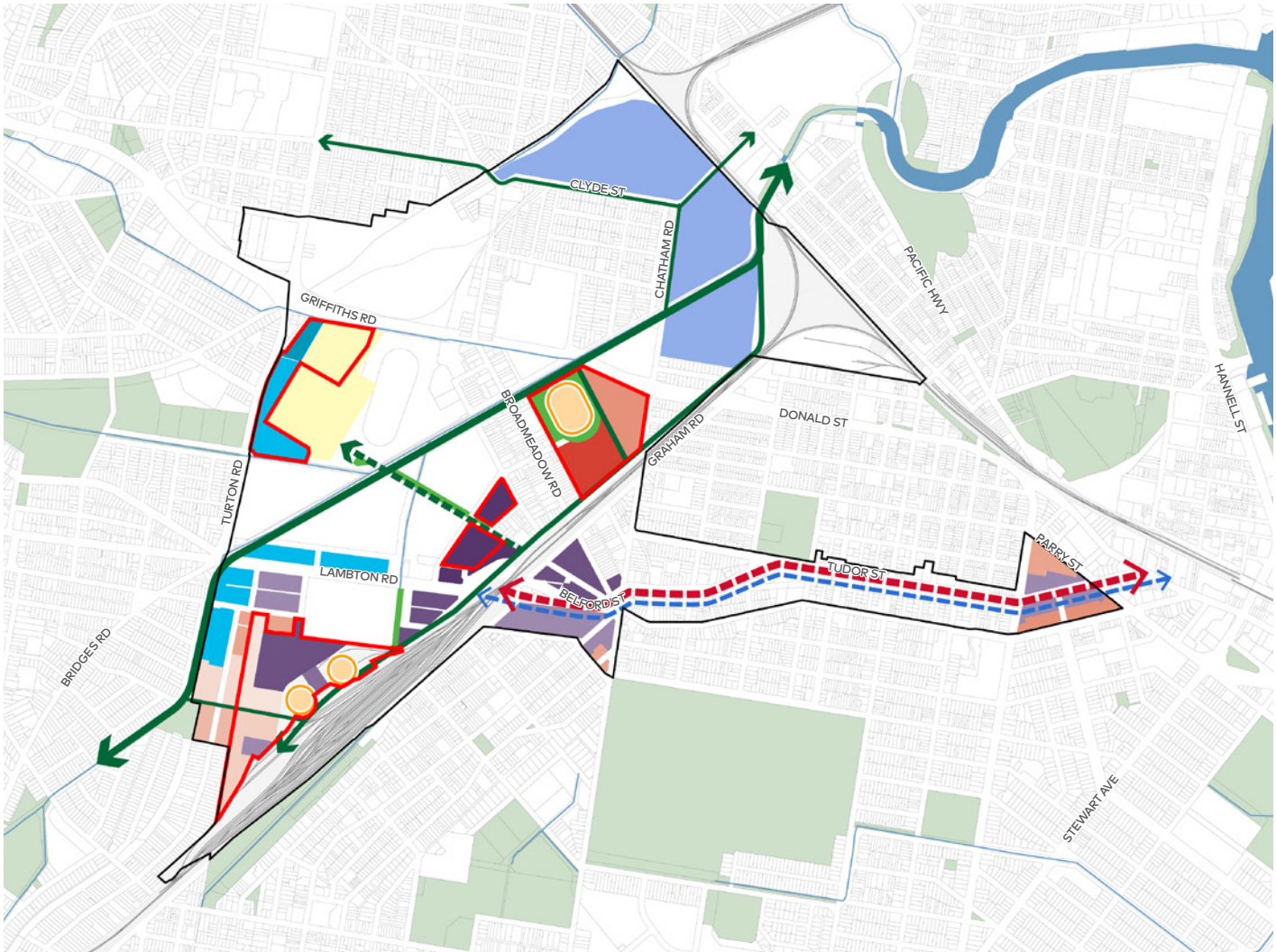


Figure 127: Stage 1, short term 0 - 10 years

| | | | | |
|-------------------------------|---------------------------|----------------------------|---------------------|------------------------------|
| Precinct boundary | Lower density residential | Urban services | Active connection | Proposed rapid bus |
| First-move state-led rezoning | Higher density mixed-use | Higher density residential | Green link | Preserve light rail corridor |
| Green space | Medium density mixed-use | Medium density residential | Heritage protection | |
| Recreation | Lower density mixed-use | Commercial | | |

Medium Term 10 - 20 Years

The Multi-Purpose Indoor Arena enables the delivery of high-density mixed use development on the harness racing site. Further mixed-use will complete the town centre in proximity to Broadmeadow Station and frame a new district-level park in the heart of the Precinct.

Provision for light rail corridor along Belford-Tudor Streets to Broadmeadow Station will spur the renewal of the Belford and Tudor Road corridor, creating an active and vibrant streetscape with a pedestrian-friendly public domain.

Infrastructure

- Active transport connecting the Precinct east-west south of the Belford-Tudor Streets corridor
- Active transport from the new town centre to the Newcastle Showground site

Employment uses

- Further delivery of retail space with the mixed-use zone and along Belford-Tudor Streets corridor

Town centre, residential and entertainment precincts

- Mixed-Use and residential development adjacent to the Multi-Purpose Indoor Arena
- The regional leisure centre completes the entertainment and recreation precinct
- Dwelling growth is concentrated in high-density mixed use buildings in the Town Centre
- Residential densification to occur on the Belford/Tudor corridor

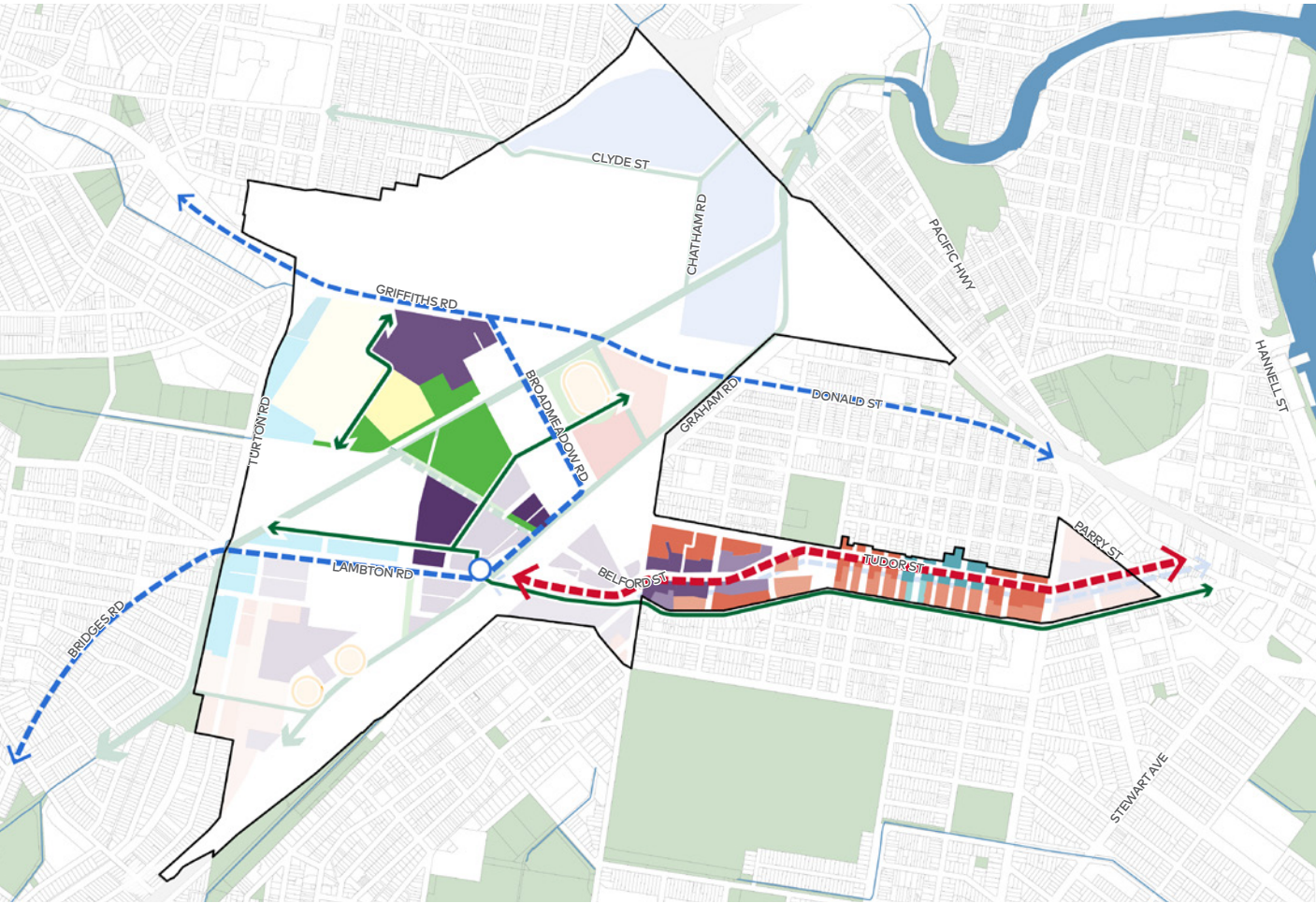


Figure 128: Stage 2, medium term 10 - 20 years

| | | | | |
|-------------------|----------------------------|-----------------------------|-------------------------|------------------------------|
| Precinct boundary | Medium density residential | Medium density local centre | Lower density mixed-use | Proposed rapid bus |
| Green space | Lower density residential | Higher density mixed-use | Active connection | Preserve light rail corridor |
| Indoor recreation | Lower density local centre | Medium density mixed-use | | |

Long Term 20+ Years

Provision and implementation of rapid bus and light rail connections justifies the development of the UGL site. New residential stock will necessitate a mixed-use town centre in Hamilton North and commercial development rings Griffith Road and Broadmeadow Road.

High-density infill development will occur between Griffiths Road and Broadmeadow Station, now hemmed by attractive open spaces on two sides.

Infrastructure

- Implementation of light rail and rapid bus network

Employment uses

- Commercial development on Broadmeadow Road north of Griffiths Road

Town centre, residential and entertainment precincts

- High-density residential development between Broadmeadow Road and Griffiths Road
- Medium-density residential development on UGL site and south of the railway corridor

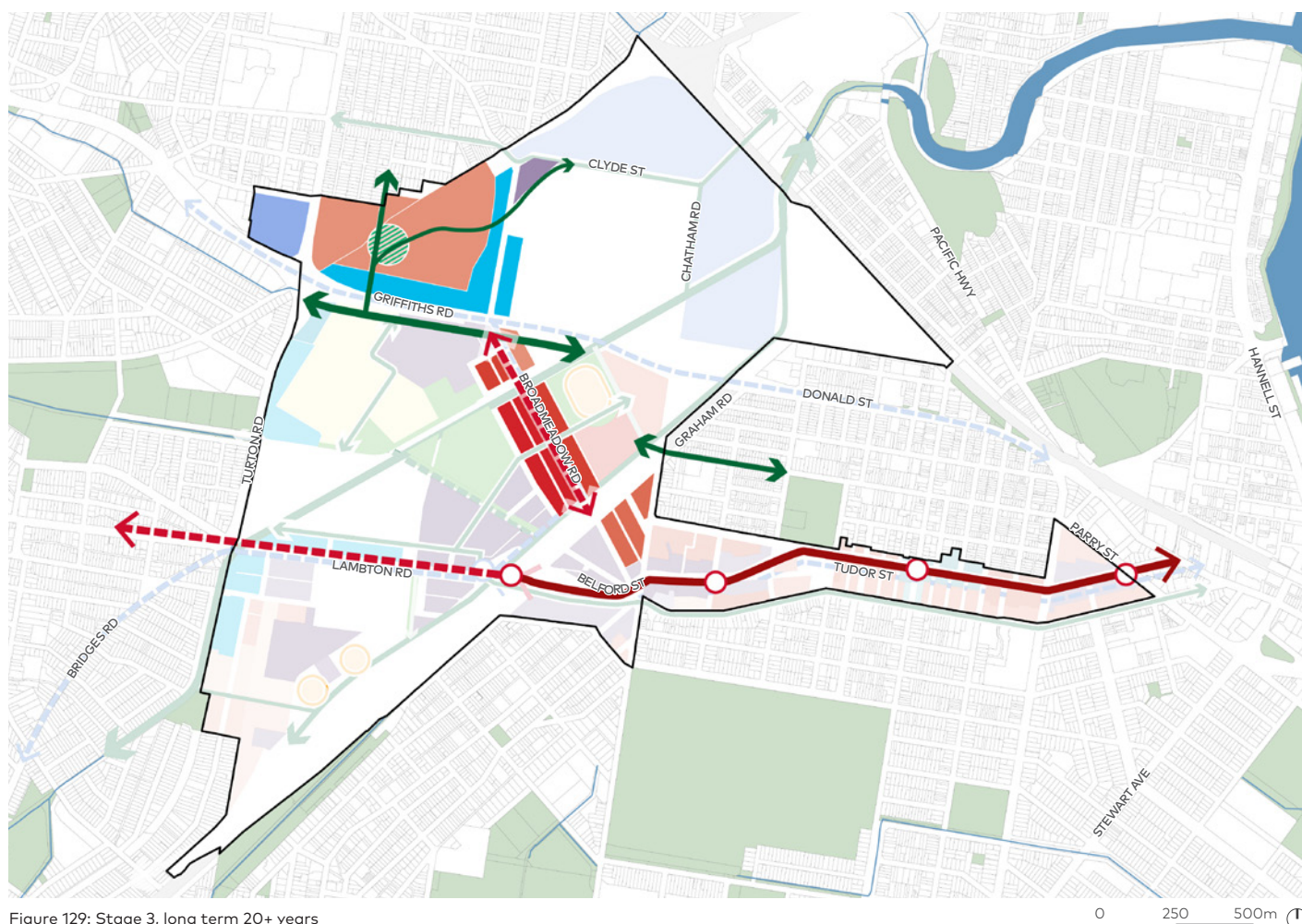


Figure 129: Stage 3, long term 20+ years

| | | | | |
|-------------------|----------------------------|--------------------------|--|-----------------------|
| Precinct boundary | Higher density residential | Medium density mixed-use | Potential light rail extension options | Indicative open space |
| Commercial | Medium density residential | Urban services | Proposed light rail | Active connection |



Figure 130: Artist's Impression of the interface and new public spaces between the new aquatic and leisure centre (left) and McDonald Jones Stadium (right) (Source: Scharp and Cox Architecture)



Glossary/Abbreviations

AEP - Annual Exceedance Probability. The probability that a design event (rainfall or flood) has of occurring in any 1 year period

AHIMS - Aboriginal Heritage Information Management System

CAMP - Contamination Assessment and Management Plan

CBD - Central Business District

Council - City of Newcastle Council

DCP - Development Control Plan

DPHI - Department of Planning, Housing and Infrastructure

EbD - Enquiry by Design

Emp - Employment

FP - Footpath

GANSW - Government Architect New South Wales

GFA - Gross Floor Area

LA - Landscaped Area

LGA - Local Government Area

LHS - Local Housing Strategy

LSPS - Local Strategic Planning Statement

M - Metre

NPP - (Planning for Growth) New Planning Proposal

P - Parking

PAD - Potential Archaeological Deposit

PpD - People per Dwelling

SEPP - State Environmental Planning Policy

TAHE - Transport Asset Holding Entity

The Precinct - The Broadmeadow Precinct

WSUD - Water Sensitive Urban Design

Appendices



Broadmeadow Integrated Master Plan

Proof of Concept

June 2024



Acknowledgment of Country

We acknowledge Country and pay our respects to the Awabakal People as the Traditional Owners and Custodians of the land and waters on which Broadmeadow is located.

We recognise their continued connection to Country and that this connection can be seen through stories of place and cultural practices such as language, art, songs, dances, storytelling and caring for the natural and cultural landscape of the area.

We also recognise the continuing living culture of Aboriginal People, and the significance of living culture

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|-------------|------------|----|---------|
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| Final Draft | 15/05/2024 | JT | SA/LA |
| | | | |
| | | | |

Disclaimer

NOTE: School infrastructure and transport initiatives are indicative only and subject to detailed design, analysis, feasibility review, funding commitments etc. No investment decisions have been made. Furthermore, the final list, extent, details, locations of initiatives will be subject to the satisfactory resolution of the above.

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- 2.2 Key Moves and Urban Design Principles 19
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Overview of the Proof of Concept

The intention of the Proof of Concept is to test the recommended planning controls for the Basketball Stadium and PCYC Site, and the Showground site as part of Broadmeadow Place Strategy and demonstrate one of the many permutations in which development may be designed and delivered to meet the objectives and aspirations outlined in the Strategy.

The following pages outline this testing with overview of:

- Height strategy
- Indicative footprints with separation and building depths
- Solar access assessment for open space and facades
- Typical floor plans for lower and upper levels
- Indicative yields

This is the first iteration of many as the sites are tested in line with the overall Place Strategy.

It is to be read in conjunction with the controls within the Place Strategy and the Integrated Master Plan documents.



Figure 131: Project Principles

Methodology

The testing was undertaken in the following way:

1. Establish key moves and supporting urban design principles:

These respond to the overall project principles and provide specific place specific opportunities for each site, responsive to the particular conditions, and are illustrated in an indicative concept plan. All urban design principles and testing outlined this Proof of Concept align with the Project Principles, illustrated in Figure 1 adjacent.

2. Develop an indicative structure plan which outlines the building footprints and key open space:

Building footprints are developed using the Apartment Design Guide parameters for building depth and separation as a guide. Building depth is guided by the site location, orientation and appropriate dwelling typology. Building separation ensures adequate space between buildings for privacy and solar access. The building footprints demonstrate the ability to integrate a range of housing types to allow diversity for a range of household configurations and tenures.

3. Undertake solar testing:

Receiving sunlight hours is essential for a building's solar performance. It reduces reliance on artificial lighting, heating and creates enjoyable living spaces. Beams of sunlight can be quantified and measured to ensure the facade of a building reaches an optimal standard of living.

The Apartment Design Guide (ADG) requires living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas.

In cases where the design of a building hasn't progressed to floorplans, analysing the facades solar performance can be a valuable indicator. Converting the ADG guidelines to script format in the Dynamic Design Environment, the facade is evaluated for its solar performance. At each level, the facade is divided into 10m sections. Beams of sunlight in a 3D model test if contextual buildings obstruct each section.

If the section receives 2-6 hours of unimpeded sunlight hours, it passes the ADG guidelines. A section does not pass if its solar performance is between 0 and 2 hours. The rate of passing sections in a building is totalled to a percentage. This serves as a constructive indicator of solar performance for future apartment layouts.

4. Example dwelling layouts

Section 3 illustrates dwelling layouts which respond to particular conditions, such as against a noisy constraint of major road or rail line.

1. Basketball Stadium and PCYC Site



1.1 Character and Identity

Existing Character

The Basketball Stadium and PCYC site is bounded by Denney Street to the north, Melbourne Road to the east, Moira Road to the South and Curley Road to west.

Within proximity of the site. Broadmeadow Station is located to the east, Lambton Road to the south, and Magic Park to the west.

The overall site area is 27,832m².

It characterised by a flat topography, wide streets, generous setbacks and regional sporting and recreational facilities.

1. Wide generous streets;
2. Good proximity to open space;
3. Some mature trees, **however not consistent in location along key streets;**
4. **Flat topography;**
5. **Detached low-rise established dwellings in Denney Street;** and
6. **Heritage character of Broadmeadow station.** Precinct.



Figure 133: View 1



Figure 134: View 2



Figure 135: View 3



Figure 136: View 4



Figure 132: Basketball Stadium and PCYC Site View Locations



- Site Boundary
- Ⓣ Broadmeadow Station

Future Character

The following images illustrate possible key qualities:

1. Active spaces adjacent to public space and pedestrian connections are a key feature of East End, Newcastle (SJB, Durbach Block Jaggers with Aspect Studios)
2. High quality accessible landscape settings of UK residential development Baker Place, Manchester (OMI Architects)
3. Interaction between community and retail uses at James St Market, Brisbane (COX Architecture)
4. Street trees line the public domain adjacent to active frontages at St Margaret's development, Surry Hills, Sydney (SJB)



Figure 137: East End, Newcastle



Figure 138: Baker Place, Manchester



Figure 139: James St Market, Brisbane



Figure 140: Surry Hills, Sydney

1.2 Key Moves and Urban Design Principles

The Basketball Stadium and PCYC site is proposed to be a higher density mixed use community, extending as part of the Town Centre along an active high street on Young Road, with new and relocated community facilities and supporting public open space.

A proposed green boulevard, connecting the Broadmeadow Interchange to Hunter Park is one of the key organising moves within the site.

The following key moves are illustrated in the adjacent Indicative Concept Plan (Figure 12).

Key Move 1: Create a vibrant, local centre with strong focal point

Urban Design Principles

- Allow for an active 'high street' to respond to the qualities of the area and it's regional nature.
- Plan for a highly pedestrianised green boulevard that connects from Broadmeadow Station to Hunter Park via the PCYC/ Basketball Stadium site.
- Integrate a centrally located and highly visible community facility with adjacent public open space.
- Create generous public open space adjacent to the street and with good amenity.
- Locate taller built form at strategic points as markers, and responsive to orientation, wind patterns and biodiversity.

Key Move 2: Create a green/blue spine

Urban Design Principles

- Plan for the integration of a green and blue infrastructure link running east-west along Young Road.

Key Move 3: Provide connection to surrounding open space

Urban Design Principles

- Optimise views over Magic Park.
- Create a series of smaller parks which link to future development to the north.

Key Move 4: Create a legible and permeable block and street pattern which responds to existing conditions

Urban Design Principles

- A perimeter block edge with internal open space to allow flexibility in building and dwelling type.
- Create a series of through-site pedestrian links.

Indicative Concept Plan



Figure 141: Basketball Stadium and PCYC Site Indicative Concept Plan



- Green open space/green infrastructure/connections
- ➡ Potential green boulevard
- Key movement corridor
- ➡ Pedestrian connections
- Key views and vistas
- Areas of height
- Active frontages

- Lower-scale
- Mid-scale
- Higher-scale



Figure 142: Basketball Stadium and PCYC Site Indicative Height Strategy



1.3 Proof of Concept

Indicative Yields

The following Proof of Concept represents just one of many permutations of what may be developed under the proposed permissible Land Uses and Floor Space Ratios and are not representative of any development outcomes that may be achieved through a development application and/or design excellence process.

Assumptions:

1. Residential efficiencies GBA-GFA 78%
2. Non-residential efficiencies GBA-GFA 90%
3. Dwelling size - 90m²
4. Number of people per dwelling - 2.4
5. No of jobs - commercial 75 per m²/retail or community 35 per m²

| Site | Site Area m ² | Use | Building GFA m ² | Dwellings | People | Jobs | FSR |
|---------------|--------------------------------|-------------|-----------------------------|--------------|--------------|------------|--------|
| 1 | 9,873 | Commercial | 2,905 | | | 39 | 3.91:1 |
| | | Residential | 35,683 | 396 | 951 | | |
| 2 | 16,324 | Community | 9,433 | | | 269 | 4.04:1 |
| | | Residential | 56,505 | 596 | 1,431 | | |
| TOTALS | 26,197 (sites combined) | | 104,526 | 1,161 | 2,787 | 308 | |

Table 9: Basketball Stadium and PCYC Site Indicative Yields

Indicative Heights and Footprint



Figure 143: Basketball Stadium and PCYC Site Indicative Height Strategy

| | | |
|-------------------------|-----------------------|-----------------------------|
| ● Overall Site Boundary | ○ Site Boundary | ○ Building height (storeys) |
| ● Indicative footprint | T Broadmeadow Station | |

Built Form

The following figures illustrate the indicative built form of the Basketball Stadium and PCYC site in Figure 13.



Figure 144: Basketball Stadium and PCYC Site Built Form View 1



Figure 145: Basketball Stadium and PCYC Site Built Form View 2

Solar Access: Open Space and Facades

The following section of the Proof of Concept tests the impacts of the proposed building heights and footprints within the broader site in relation to solar access to primary open spaces and facades.

Open Space

Figure 17 below illustrates the open space solar hours achieved during winter solstice. All sites meet or exceed the minimum requirements of 2 hours during the winter solstice (21 June). Private common open space is incorporated at ground and rooftop (*).

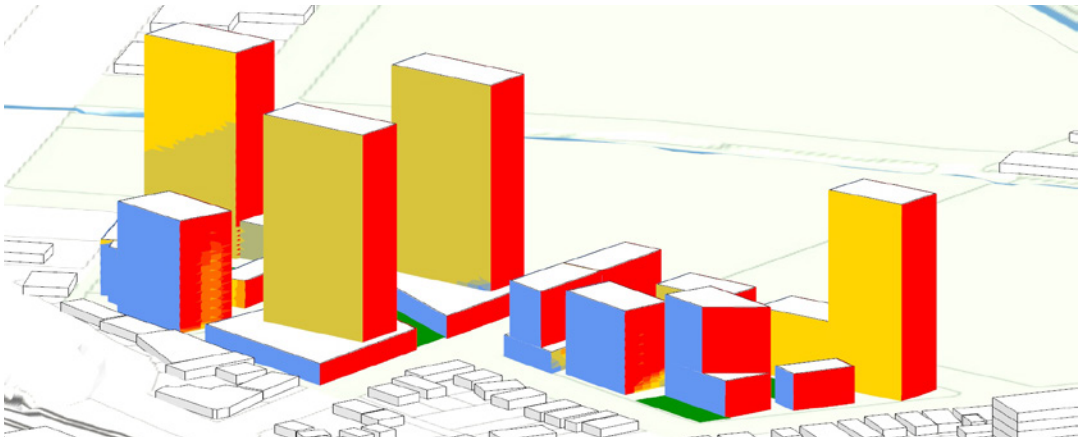
Facades

Figures 18 to 20 illustrate the amount of solar access to facades on buildings located on the site. Where facades are impacted by shadowing, apartment building layouts will be designed to allow solar access to habitable rooms and balconies.



Figure 146: Basketball Stadium and PCYC Site Open Space Direct Sunlight





- Legend**
- <2 Hours Direct Sunlight
 - >2 Hours Direct Sunlight
 - 0 Hours Direct Sunlight

Figure 147: Basketball Stadium and PCYC Site Solar Access Facade 1

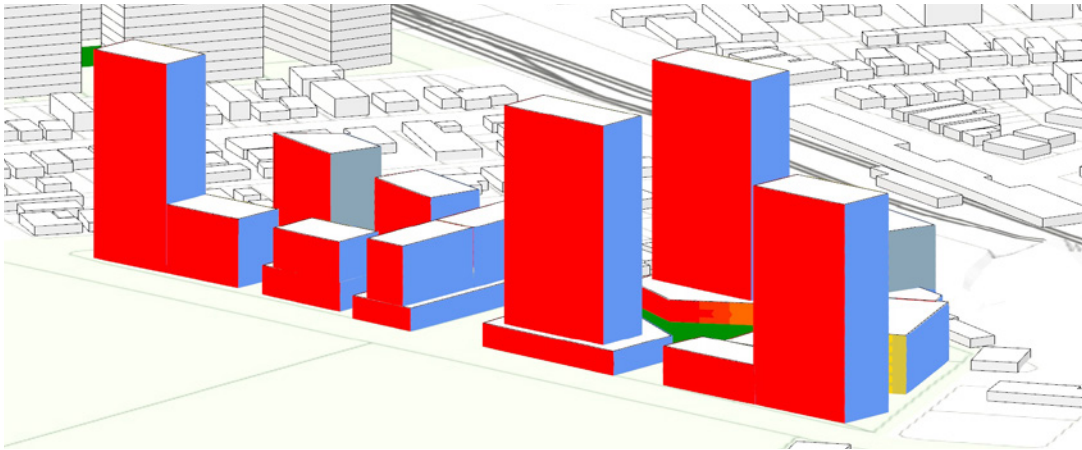


Figure 148: Basketball Stadium and PCYC Site Solar Access Facade 2

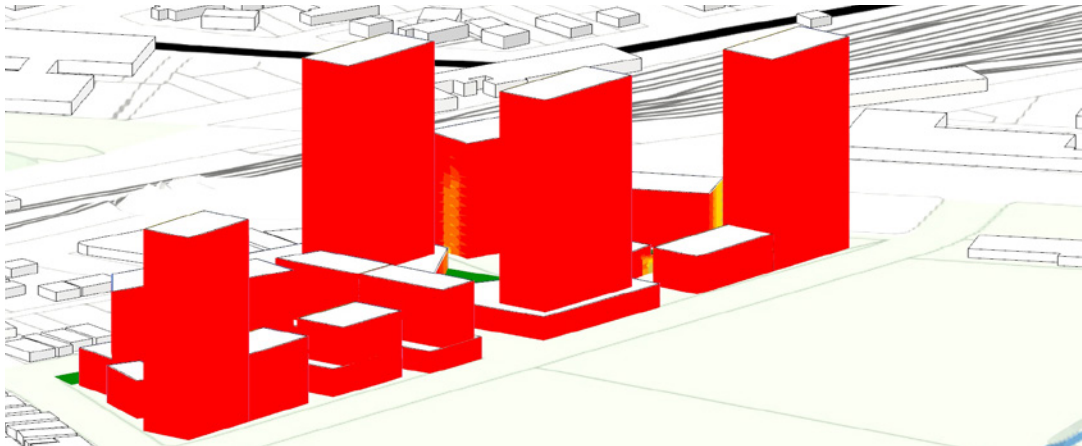


Figure 149: Basketball Stadium and PCYC Site Solar Access Facade 3








Typical Ground Floor/Podium Plan

The following typical ground floor plan is indicative, to show one permutation of a layout which responds to the testing of the proposed controls and ADG criteria.

The ground floor and second floor of the mixed use buildings along the Young Road interface are proposed to be non-residential uses, including a new multipurpose community facility and relocated PCYC.



Figure 150: Basketball Stadium and PCYC Site Typical Floor Plan

| | | | | | | | |
|---|---------------|---|---------------------|---|-----------------------------------|---|---------------------|
|  | Site boundary |  | Building core |  | Publicly accessible open space |  | Broadmeadow station |
|  | Community use |  | Non-residential use |  | Private owned communal open space | | |







Typical Residential Floor Plan

The following typical residential floor plan is indicative, to show one permutation of a layout which responds to the testing of the proposed controls and ADG criteria.

The upper levels of all buildings within the Proof of Concept are assumed to residential uses and to provide a variety of housing choices and typologies.



Figure 151: Basketball Stadium and PCYC Site Typical Floor Plan

| | | | | | |
|--|---------------|---|--------------------------------|---|-----------------------------------|
|  | Site boundary |  | Building core |  | Private owned communal open space |
|  | Community use |  | Publicly accessible open space |  | Broadmeadow station |

2. Newcastle Showground Site



2.1 Character and Identity

Existing Character

The Showground site is bounded by Styx Creek and Griffiths Road to the north, Chatham Road to the east, Brown Road to the South and Broadmeadow Road to west.

The overall site area is 107,575 m².

The Newcastle Showground and Styx Creek are the predominant features of the site and form a key part of the response.

Surrounding uses include existing low density residential uses to the east and west, the rail line to the south

The existing character of the Showground site can be described in the following images:

1. Wide generous streets;
2. Generous setbacks;
3. Some mature trees, however not consistent in location along key streets;
4. Flat topography;
5. Distant views to the south; and
6. Low-rise detached dwellings to Chatham Road.



Figure 152: Showground Site View Locations

● Site Boundary

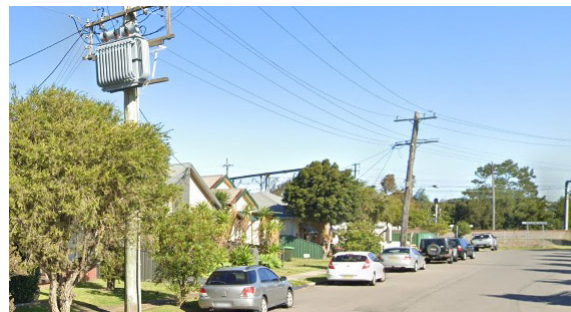


Figure 153: View 1



Figure 154: View 2



Figure 155: View 3



Figure 156: View 4

Future Character

1. Dwellings overlook parkland settings with mature trees on Forbes Street, Canberra (COX)
2. High quality spaces are created between dwellings for access and incidental play in the Pesseig de Sant Joan Boulevard, Barcelona, Spain (Lola Domenech)
3. Transition landscape between showing and new built form at Accordia, Cambridge (Fielden Clegg Bradley)
4. Areas of tree canopy to create presence and buffer to the edges in Hartcliffe, Bristol (Ferguson Mann Architects)



Figure 157: Forbes Street, Canberra



Figure 158: Passeig de Sant Joan Boulevard, Barcelona, Spain



Figure 159: Accordia, Cambridge, UK

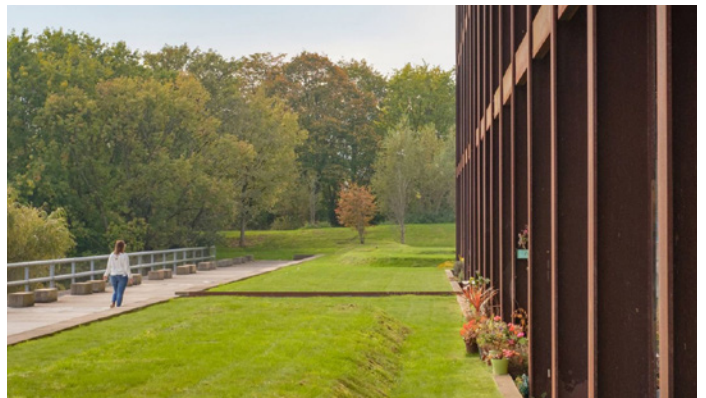


Figure 160: Hartcliffe, Bristol, UK

2.2 Key Moves and Urban Design Principles

The Showground Site is proposed as a medium-high density residential neighbourhood, focused around the Show-ring as a key public open space and the retention of heritage buildings on the western side of the Showground. The following key urban design moves respond to the overarching project principles.

The following key moves are illustrated in the adjacent Indicative Concept Plan (Figure 33).

Key Move 1: Create a distinct response to the significance of the Showground

Urban Design Principles

Create clear landscape backdrop between new built form and the show ring with landscape areas

- Locate taller built form at strategic points to define the showground, and responsive to orientation, wind patterns and biodiversity.
- Optimise views over the show ring.

Key Move 2: Provide connection to key surrounding open space and green infrastructure

Urban Design Principles

- Plan for integration of Styx Creek as a key element of green/blue infrastructure.
- Optimise views over Showground, Styx Creek and Richardson Park.

Key Move 3: Create a legible block and street pattern which responds to existing lot pattern

- A perimeter block edge with internal open space to allow flexibility in building and dwelling type.
- A variety of built form types within the proximity of a parkland/showground setting.

Key Move 4: Respond carefully to edge conditions

- Locate built form adjacent to the railway as a means to protect from railway, with primary orientation facing away to the north and the interface to Griffiths Road.
- Lower scale built form to the adjacent existing dwellings.

Indicative Concept Plan

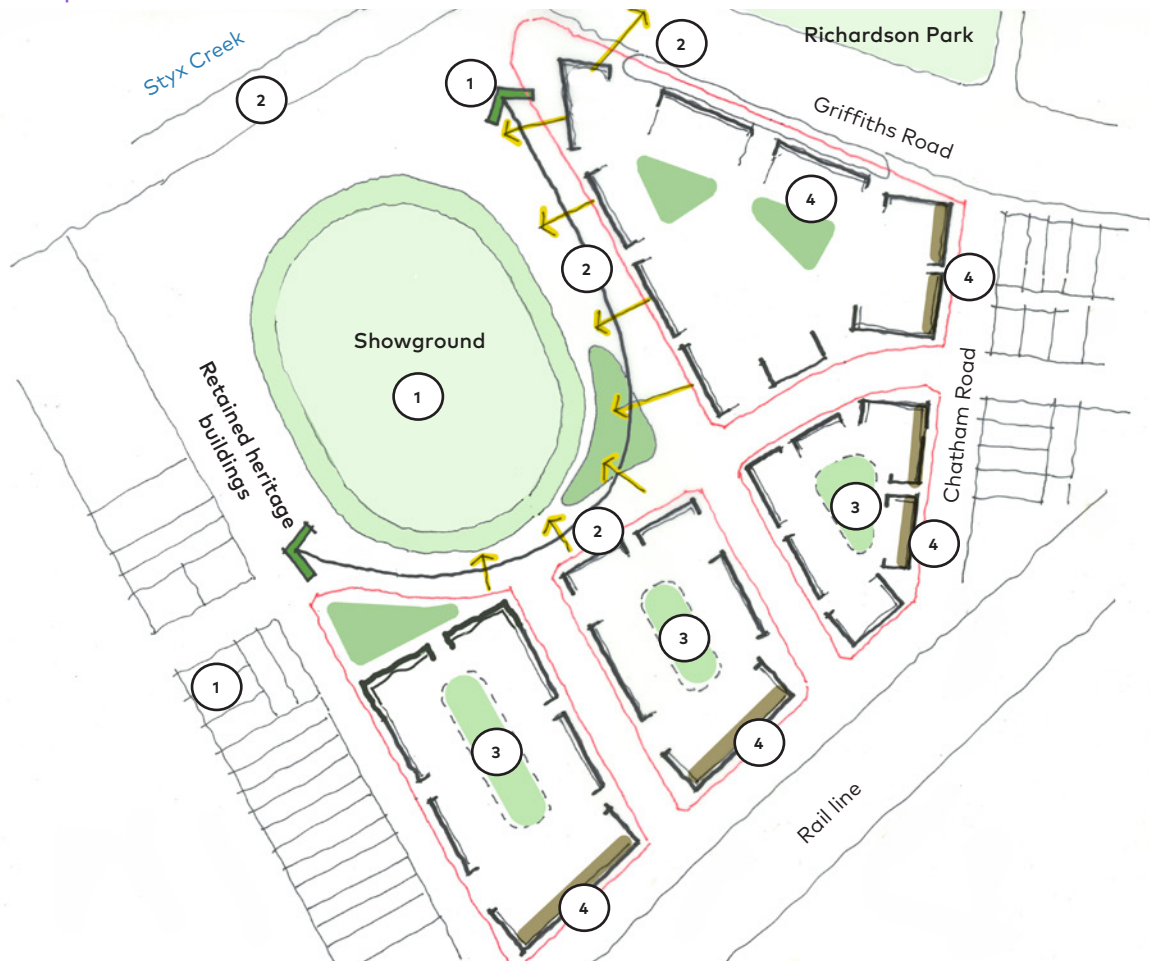


Figure 161: Showground Site Indicative Concept Plan

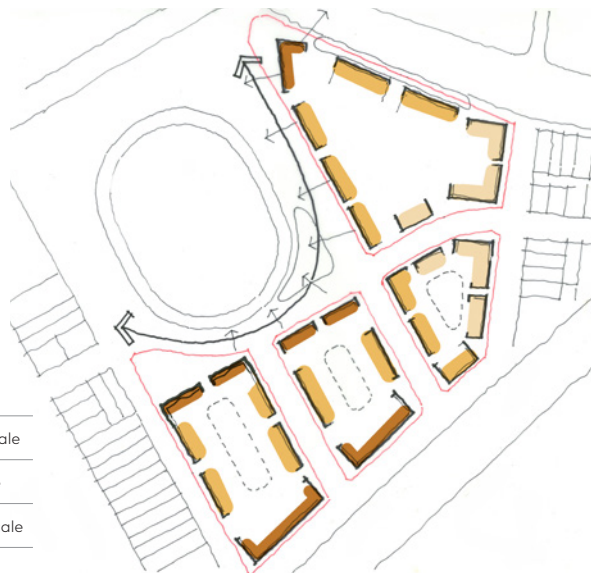
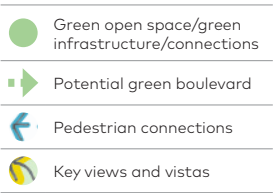


Figure 162: Showground Site Indicative Height Strategy

2.3 Proof of Concept

Indicative Yields

The following Proof of Concept represents just one of many permutations of what may be developed under the proposed permissible Land Uses and Floor Space Ratios and are not representative of any development outcomes that may be achieved through a development application and/or design excellence process.

Assumptions:

1. Residential efficiencies GBA-GFA 80%
2. Non-residential efficiencies GBA-GFA 90%
3. Dwelling size - 90m²
4. Number of people per dwelling - 2.4

| Site | Site Area m ² | Use | Total GFAm ² | Dwellings | People | FSR |
|--------|--------------------------|-------------|-------------------------|-----------|--------|--------|
| 1 | 30,266 | Residential | 68,356 | 759 | 1,821 | 2.26:1 |
| 2 | 28,502 | Residential | 99,953 | 1,110 | 2,664 | 3.5:1 |
| TOTALS | 58,768 | | 168,309 | 1,870 | 4,485 | 2.88 |

Table 10: Showground Site Indicative Yields

Indicative Height and Footprint Strategy



Figure 163: Showground Site Height and Footprint Strategy

| | |
|-------------------------|-----------------------------|
| ● Overall Site Boundary | ○ Building height (storeys) |
| ○ Site Boundary | ■ Indicative footprint |

Built Form

The following views illustrate key views of the Showground site taking into account height and footprints in Figure 34.

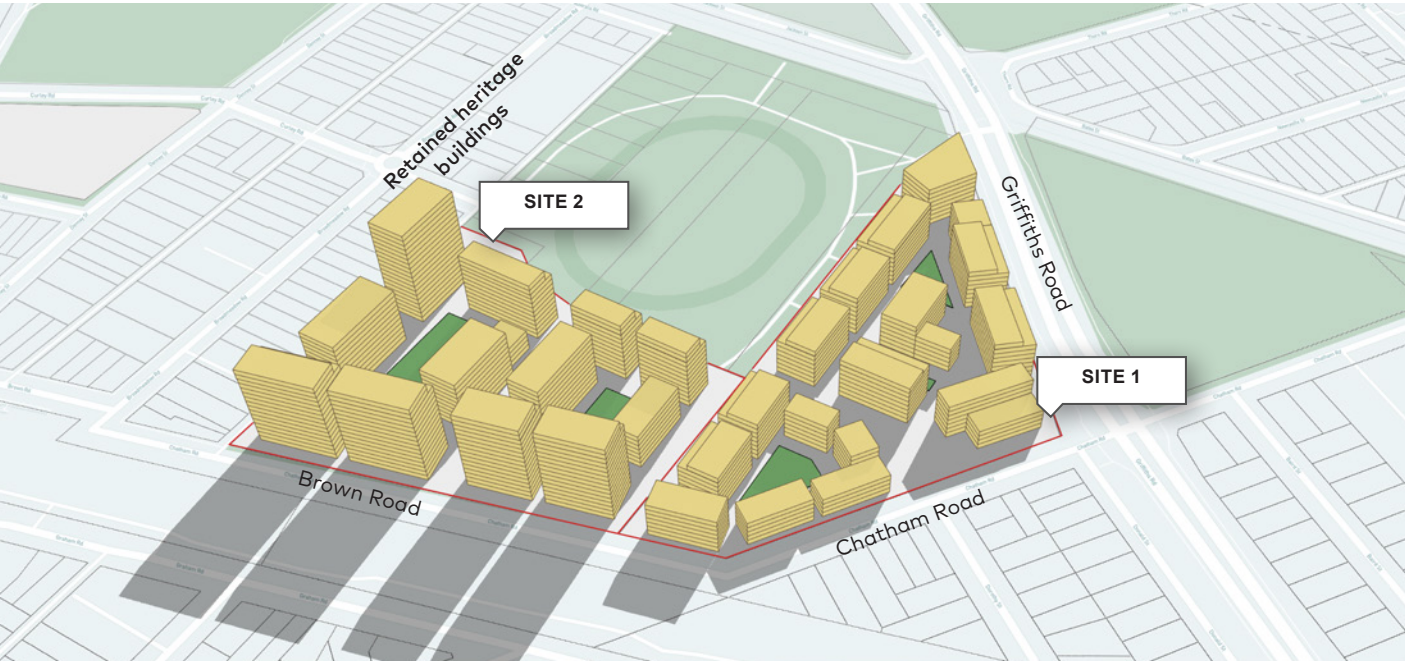


Figure 164: Showground Site Built Form View 1



Figure 165: Showground Site Built Form View 2

Solar Access: Open Space and Facades

The following section of the Proof of Concept tests the impacts of the proposed building heights and footprints within the broader site in relation to solar access to primary open spaces and facades.

Open Space

Figure 38 illustrates the open space solar hours achieved during winter solstice. All sites meet or exceed the minimum requirements of 2 hours during the winter solstice (21 June). Private common open space is incorporated at ground and rooftop (*).

Facades

Figures 39 and 40 illustrate the amount of solar access to facades on buildings located on the site. Where facades are impacted by shadowing, apartment building layouts will be designed to improve solar access to habitable rooms and balconies.



Figure 166: Showground Site Open Space



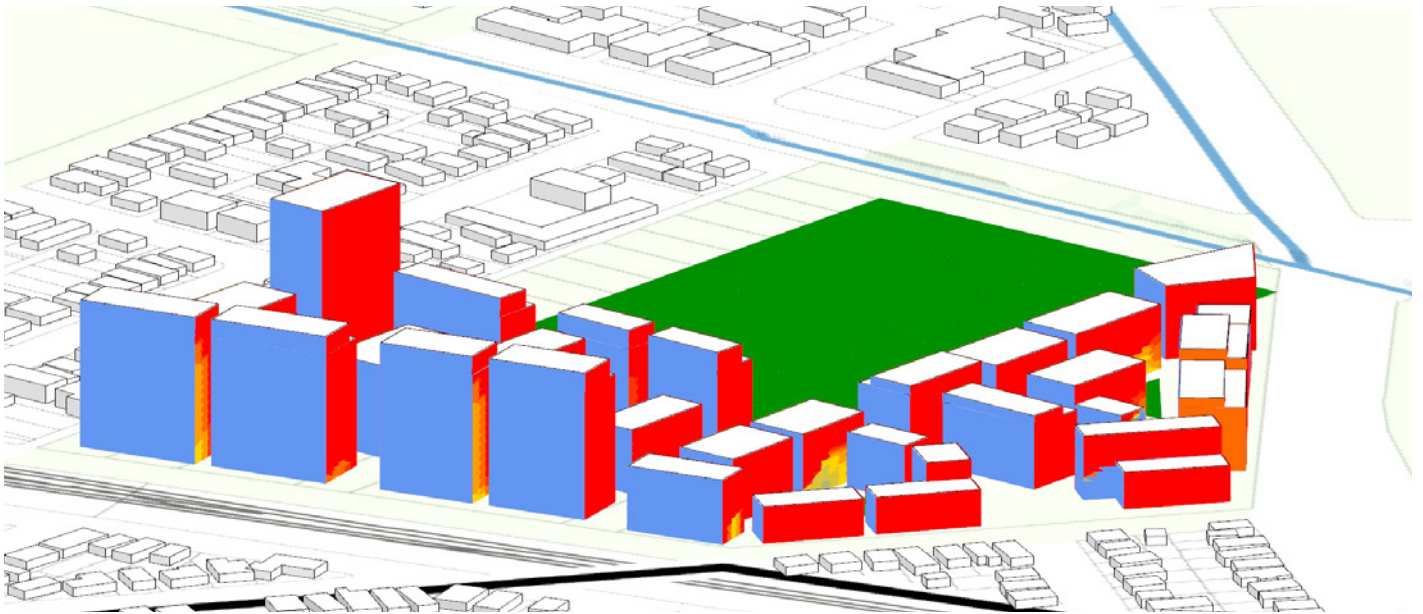


Figure 167: Showground Site Solar Access Facade 1

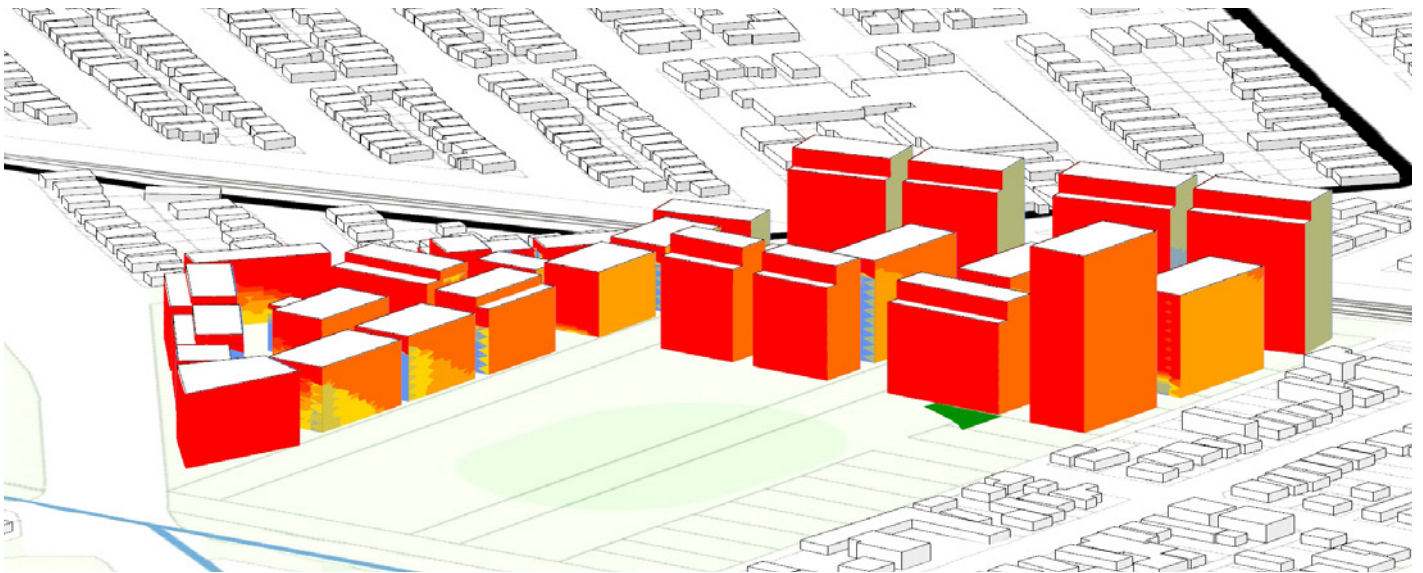
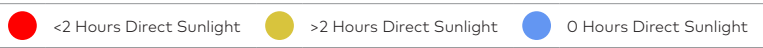


Figure 168: Showground Site Solar Access Facade 2

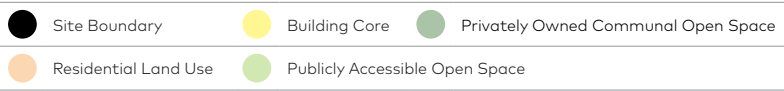


Residential Typical Floor Plan

The following typical residential floor plan is indicative, to show one permutation of a layout which responds to the testing of the proposed controls and ADG criteria. The ground floor and upper levels of all buildings within the Proof of Concept are assumed to be residential uses and to provide a variety of housing choices and typologies.



Figure 169: Showground Site Typical Floor Plan



3. Further Details



3.1 Apartment Case Studies

The following case studies illustrate dwelling typologies that respond to particular conditions, such as cross ventilation and noisy road and rail corridors.

Lumina, Penrith

- Optimises cross through north facing apartments
- Minimises south facing apartments



Figure 171: Typical floor plans (source <https://www.planning.nsw.gov.au/sites/default/files/2023-04/lumina-apartments-penrith-case-study.pdf>)

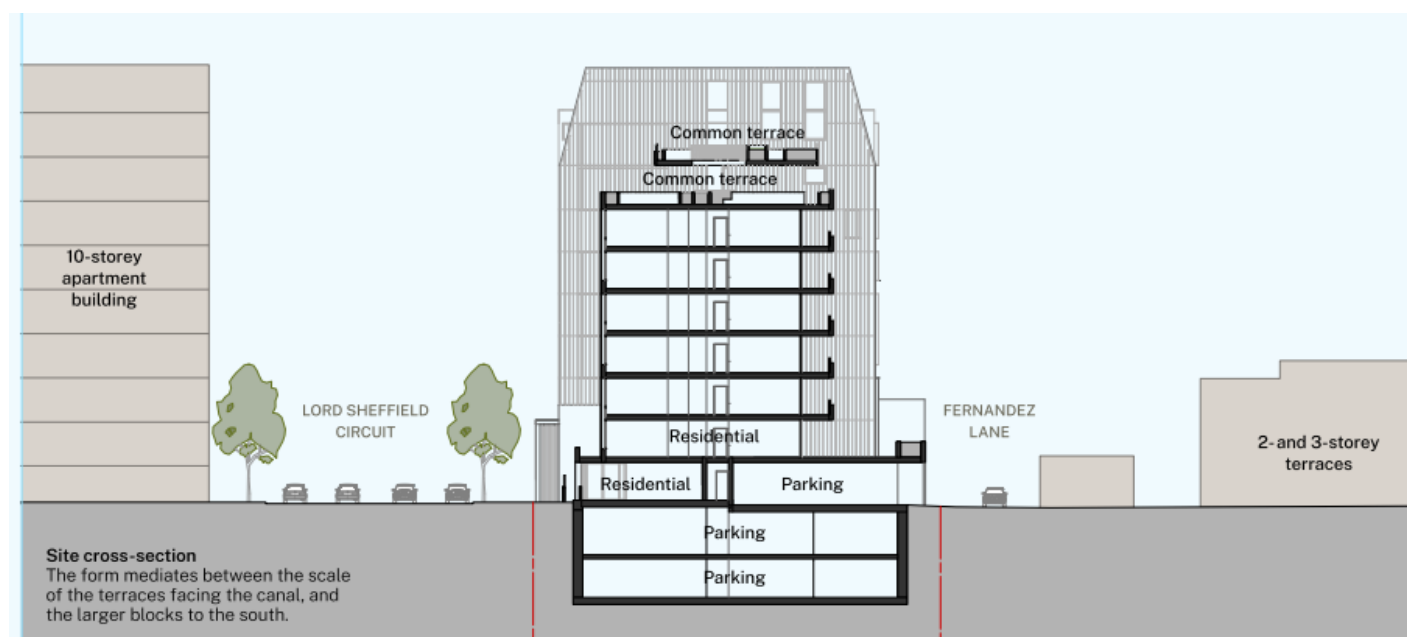


Figure 170: Cross Section (source <https://www.planning.nsw.gov.au/sites/default/files/2023-04/lumina-apartments-penrith-case-study.pdf>)

3.1 Apartment Case Studies

Revolution, Marrickville

- Optimises cross through north facing apartments
- Good for constrained undesirable edges eg noise
- Open deck access

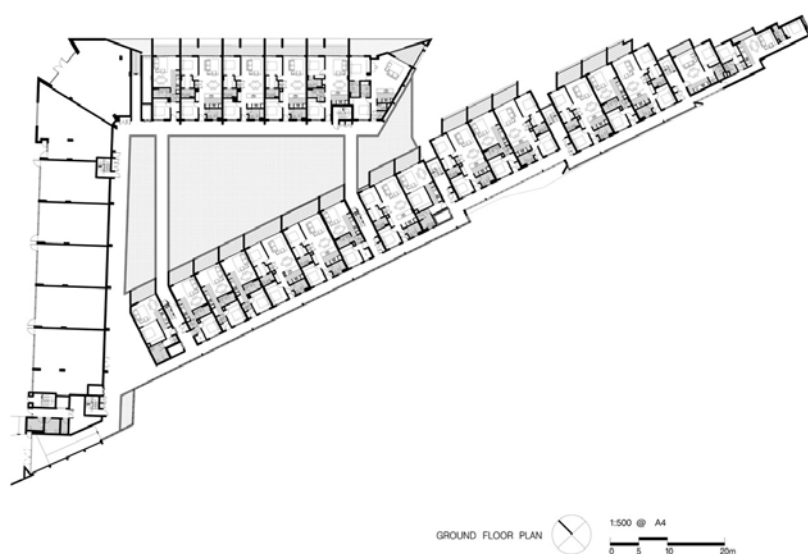


Figure 172: Ground floor plans (source <https://www.candalepas.com.au/home/projects/revolution-apartments/>)



Figure 174: Interface with rail line (source <https://www.candalepas.com.au/home/projects/revolution-apartments/>)

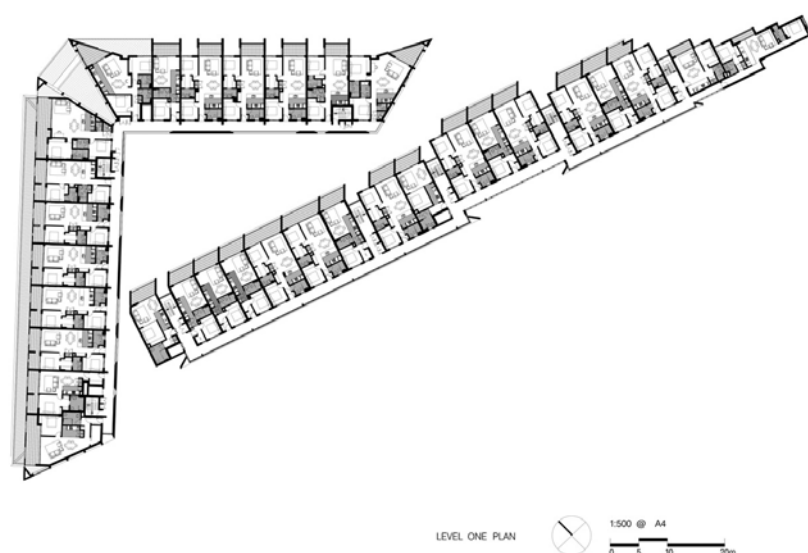


Figure 173: Upper level floor plans (source <https://www.candalepas.com.au/home/projects/revolution-apartments/>)

Bourke Street, Woolloomooloo

- Optimises cross through north facing apartments
- Good for constrained undesirable edges eg noise
- Two storey maisonettes
- Open deck access



Figure 175: Typical floor plans (source <https://www.planning.nsw.gov.au/sites/default/files/2023-04/bourke-street-apartments-woolloomooloo-case-study.pdf>)



Figure 176: Cross Section illustrating relationship to Eastern Distributor (source <https://www.planning.nsw.gov.au/sites/default/files/2023-04/bourke-street-apartments-woolloomooloo-case-study.pdf>)



Figure 177: Dwelling access

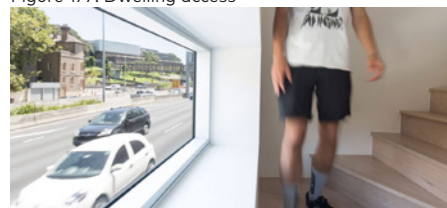


Figure 178: Non-habitable spaces as buffer to busy roads

