

Bundawarra Estate



BUNDAWARRAH ROAD ESTATE PRECINCT MASTER PLAN

FEBRUARY 2025

ACKNOWLEDGMENT OF COUNTRY

Habitat Planning acknowledges Traditional Owners of Country throughout Australia and recognises the continuing connection to lands, waters and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures; and to Elders past and present.

PREPARED FOR

Temora Shire Council

PROJECT CONTACT



Habitat Planning
Matt Johnson, Associate

409 Kiewa Street Albury NSW 2640
02 6021 0662
habitat@habitatplanning.com.au
habitatplanning.com.au

Habitat Planning Pty Ltd
ABN 29 451 913 703
ACN 606 650 837

PROJECT PARTNER



Maker ENG
James Agustin, Director

Suite 3, Level 2, 280 Keira Street
Wollongong NSW 2500
02 4288 4401
www.makereng.com.au

ABN: 50 628 452 719
ACN: 628 452 719

PROJECT SPONSOR



Temora Shire Council
Claire Golder, Strategic Projects Officer

105 Loftus Street
Temora NSW 2666
02 6980 1108
www.temora.nsw.gov.au

PROJECT ACKNOWLEDGEMENT

Temora Shire Council have received funding under the Federal Government's Housing Grant Stream 1

Contents

Introduction	4	Vision	27
Overview	5	The Precinct	28
Project Objectives	6	Design Principles	29
Temora Snapshot	7	Concept Master Plans	31
Strategic Planning Context	8	Concept 1	32
Locality Context	9	Concept 2	33
Site Context	10	Concept Comparison	34
Study Area	11	Preferred Master Plan	35
Site Photos	12	Master Plan Principles	36
Opportunities & Challenges	14	Master Plan	37
Existing Built Form	15	Access	38
Access	16	Open Space	39
Biodiversity	17	Regional Open Space	40
Topography	18	Infrastructure and Services	43
Open Space	19	Staging	45
Natural Hazards	20	Implementation	46
Infrastructure and Services	22	Future Actions	47
Consultation	24		
Landowners	25		
Government Agencies	26		

Introduction

Overview

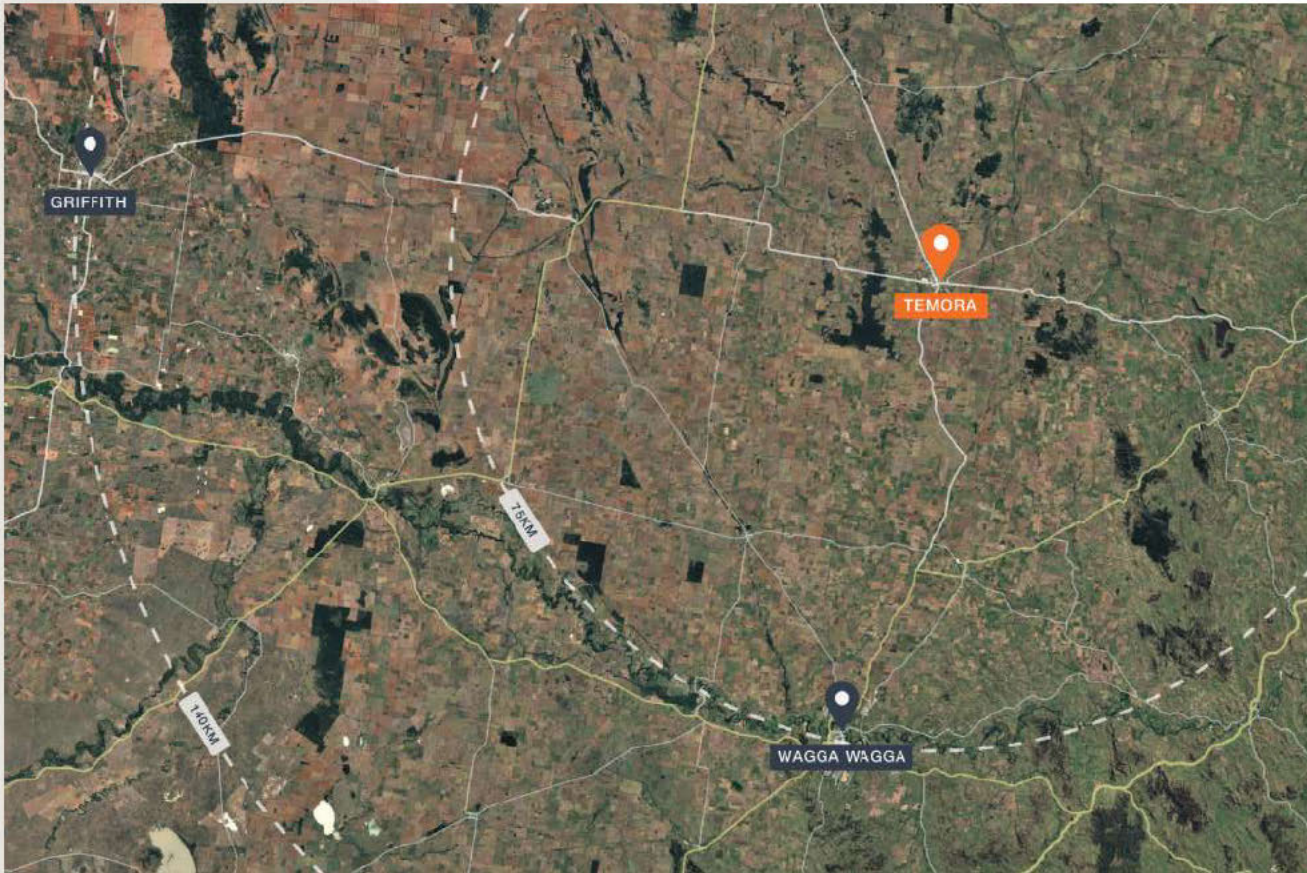


Figure 1 | Regional Context Plan

Habitat Planning have been engaged by Temora Shire Council to prepare a Precinct Master Plan for Bundawarra Estate located to the north east of the main township of Temora.

The land and the township more broadly, are strategically located in proximity to the regional centres of Wagga Wagga to the south and Griffith to the west.

Project Objectives

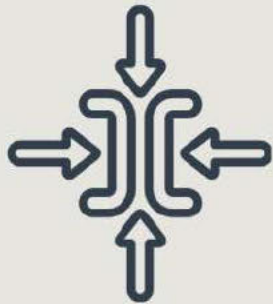
The purpose of the Master Plan is to guide the potential future subdivision and servicing of Bundawarra Estate.

In doing so, this will support additional infill development in a coordinated and logical pattern that responds to ongoing and sustained demand for housing within Temora.

The Master Plan will be used to support the future rezoning of the land from R5 Large Lot Residential to R1 General Residential.

Similarly, the Master Plan will facilitate a reduction in the current minimum subdivision lot size that applies to this land below the current 1ha minimum lot size.

Lastly, the Master Plan will identify current and future infrastructure and servicing capacity constraints and requirements, as well as funding mechanisms to ensure that this infrastructure is appropriately funded and provided.



OPPORTUNITIES & CONSTRAINTS



CAPACITY FOR INFRASTRUCTURE EXTENSION



NEW INFRASTRUCTURE REQUIREMENTS



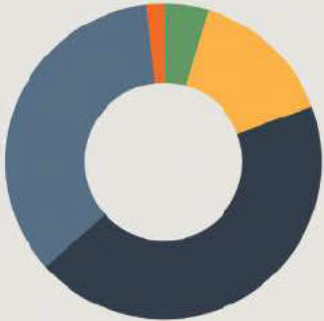
COST OF WORKS



PROJECT DELIVERY PRIORITIES

Figure 2 | Project Objectives

Temora Snapshot



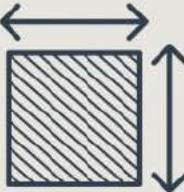
POPULATION



6,034

PEOPLE IN TEMORA

LAND AREA



2802

SQUARE KM

PRIVATE DWELLINGS



2,907

TOTAL NUMBER OF DWELLINGS

HOUSEHOLD SIZE



2.3

AVERAGE NUMBER OF PEOPLE PER HOUSE



35

HOUSING APPROVALS PER ANNUM



\$230

MEDIAN WEEKLY HOUSE RENT



\$254

MEDIAN WEEKLY MORTGAGE REPAYMENT

Figure 3 | Snapshot of Temora

Strategic Planning Context

The Bundawarra Estate was identified as an urban investigation area as part of the Temora Local Housing Strategy 2022-2042.

The Housing Strategy outlined the following in relation to the Study Area:

Rezoning from R5 to R1 zone would increase the development potential of this site, which is dependent on the extension of sewer services. Existing dwellings form a development constraint, however preparation of a masterplan would provide opportunities for efficient provision of servicing.

The purpose of the Master Plan is to respond to this recommendation, which will inform the future rezoning of the land for more conventional urban residential purposes.

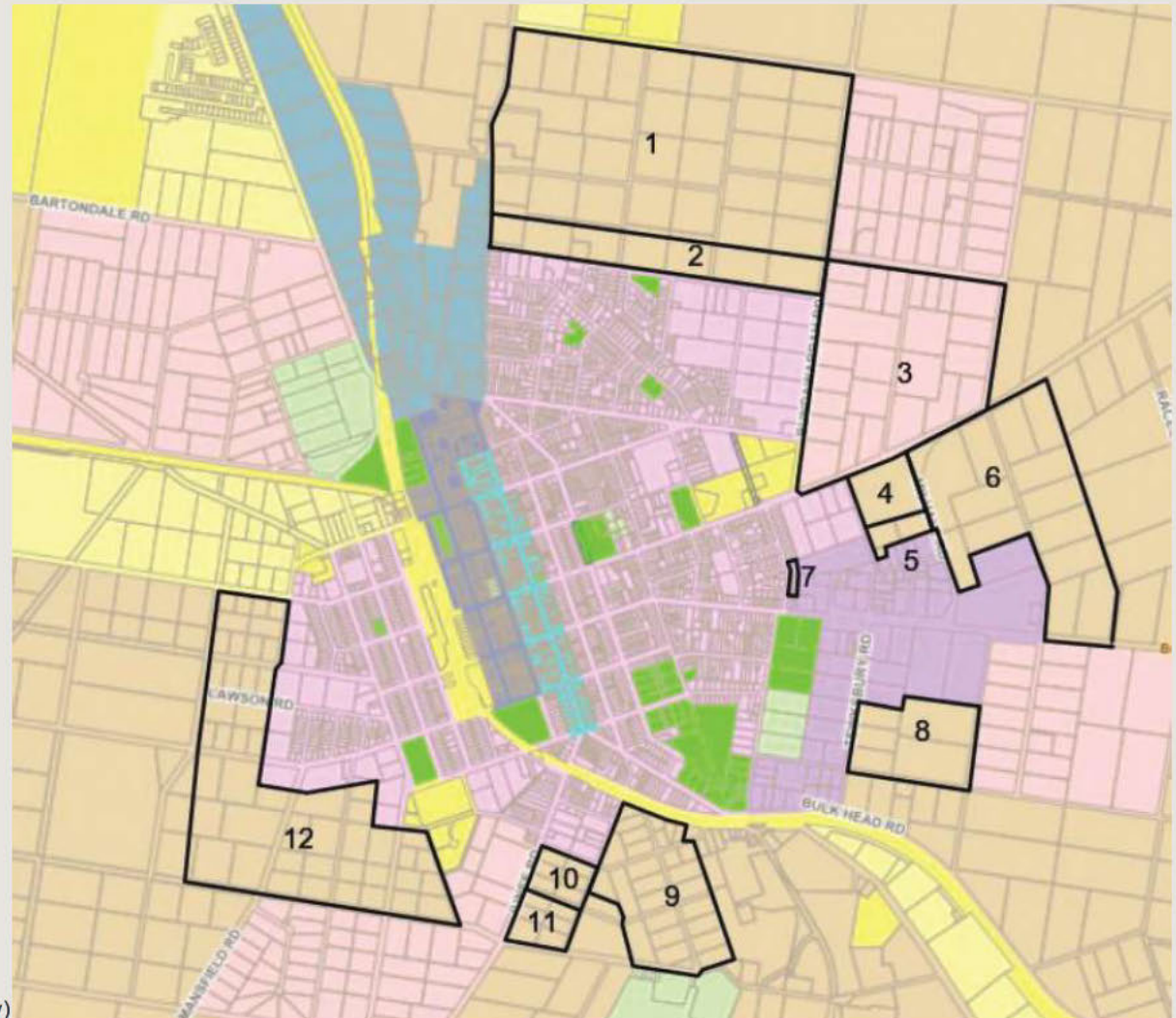


Figure 4 | Identified Urban Investigation Areas in Temora (Source: Temora Housing Strategy)

Context



Figure 5 | Locality Plan

Site Context

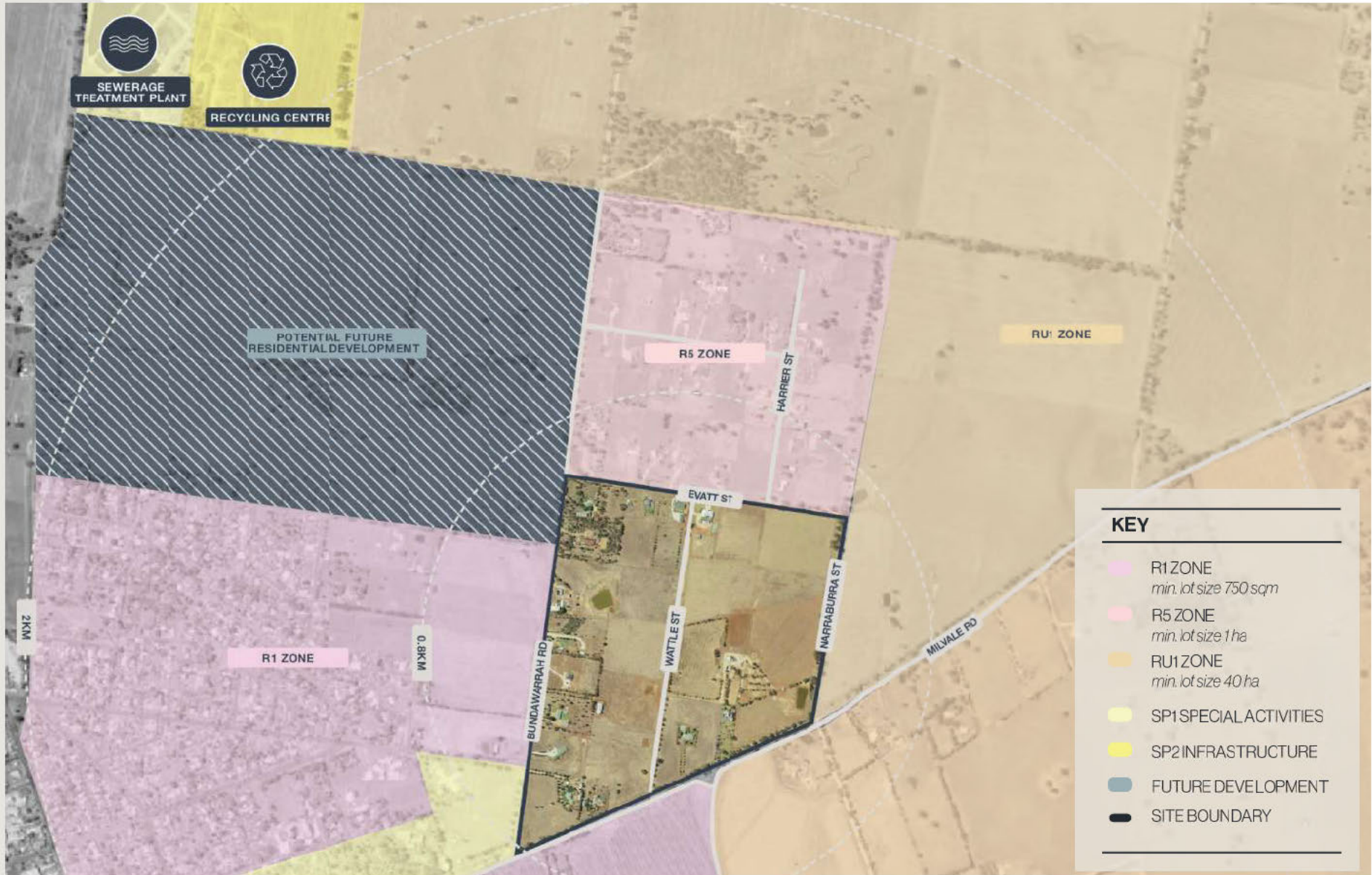


Figure 6 | Site Context Plan

Study Area



The Study Area is bordered by Evatt Street to the north, Narraburra Street to the east, Milvale Road/Loftus Street to the south and Bundawarra Road to the west.

The Area comprises 26 individual allotments ranging in size from 9,000m² up to 7 hectares, which have been developed for the purposes of a rural residential lifestyle estate consisting of detached dwellings, associated outbuildings and landscaping.

Wattle Street divides the precinct in half, whilst a large 66kV overhead transmission line bisects the estate in a general north-south direction. A secondary 11kV overhead transmission line also bisects the estate in a general north-east to south-west direction.

The Study Area has a total area of 64ha.

Figure 7 | Study Area

Site Photos



EVATT STREET AND HARRIER STREET INTERSECTION



EVATT STREET LOOKING WEST



VIEW FROM MILVALE ROAD LOOKING NORTH WEST



VIEW FROM MILVALE ROAD



VIEW FROM WATTLE STREET LOOKING NORTH



VIEW FROM WATTLE STREET NEAR LOFTUS STREET LOOKING NORTH WEST

Site Photos



WATTLE STREET LOOKING SOUTH



WATTLE STREET LOOKING SOUTH



WATTLE STREET LOOKING SOUTH EAST



WATTLE STREET LOOKING TOWARDS EVATT STREET INTERSECTION

Opportunities & Challenges

Existing and Surrounding Development



Figure 8 | Existing and Surrounding Development

Access

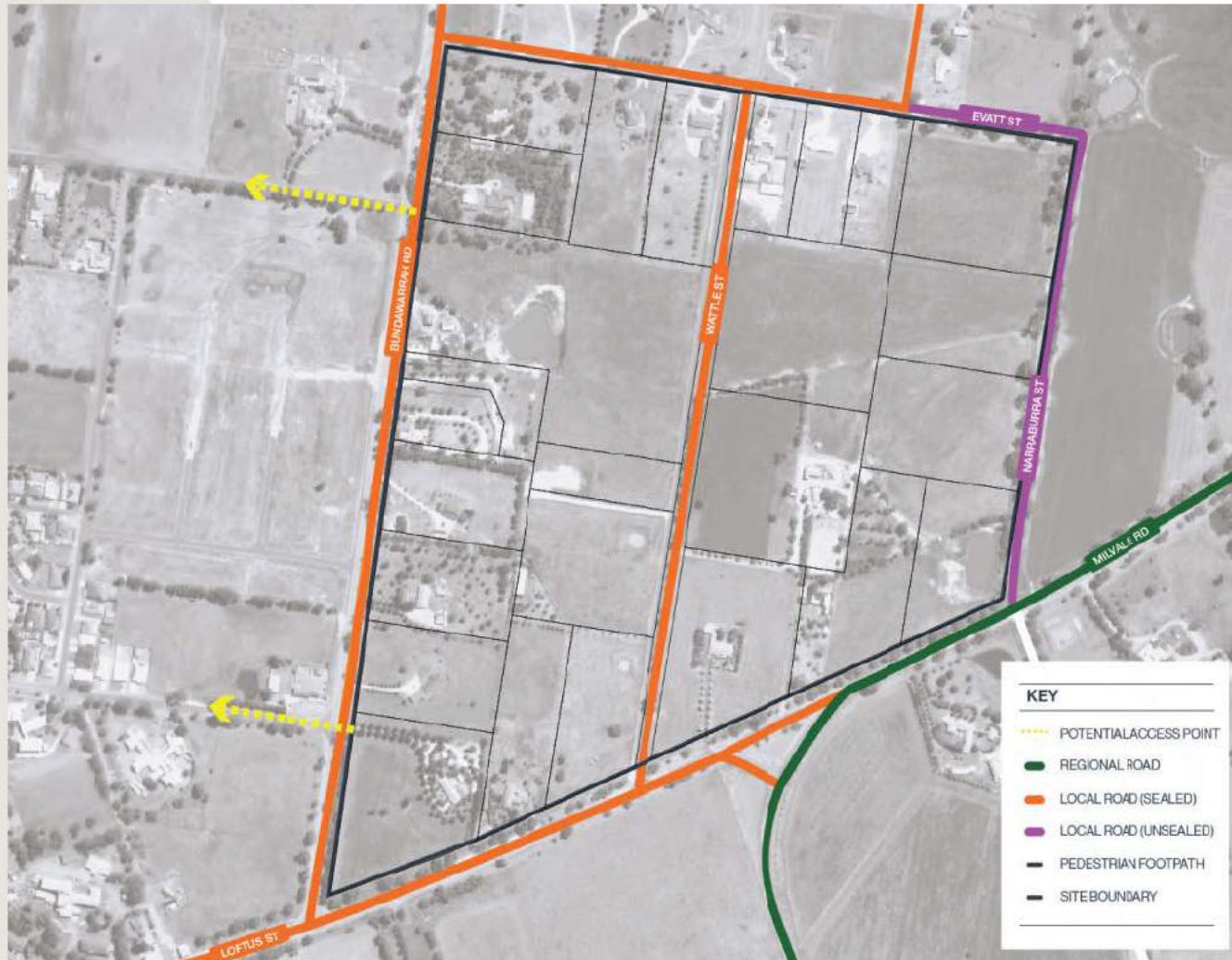


Figure 9 | Access Plan

The subject land is bounded by Evatt Street to the north, Narraburra Street to the east, Milvale Road/Loftus Street to the south and Bundawarra Road to the west.

These roads are a combination of local and regional, sealed and unsealed roads. Wattle Street divides the precinct in half in a north-south direction.

OPPORTUNITIES

- Loftus Street/Milvale Road is a key connector from the subject land to the Temora Town Centre.
- Readily available connection to the existing road and footpath network.
- Wattle Street provides an important north-south connection, allowing access to the central portions of the precinct.

CONSTRAINTS

- Limited direct access available to Loftus Street/Milvale Road as it is a Transport for NSW classified Regional Road.
- No east-west road connections are currently available within the Precinct, which limit access and walkability.
- The precinct lacks pedestrian walkways and connections.
- The future internal road layout will need to consider the location of existing houses.
- A number of roads surrounding the site are not constructed and require sealing.
-

Biodiversity



Figure 10 | Plant Community Type Map (DCCEEW-BCS)

The Precinct is characterised by pockets of both remnant and planted vegetation along roadsides and around dwellings, which adds to the semi rural residential feel of the precinct.

Native vegetation within the Precinct is limited with the exception of small patches of roadside vegetation alongside Narraburra Street and to a lesser extent, Bundawarra Street.

These consist of the following Plant Community Types (PCTs):

- PCT 76 - Western Grey Box tall grassy woodland.
- PCT 80 - Western Grey Box - White Cypress Pine tall woodland.
- PCT 276 - White Box - White Cypress Pine - Western Grey Box shrub/grass

OPPORTUNITIES

- Limited biodiversity values across the central portions of the Precinct
- Retain established trees on existing residential lots. Others to be retained where possible.
- Investigate options to realign Narraburra Street to protect existing significant roadside vegetation.

CONSTRAINTS

- Existing significant biodiversity to be retained.

Topography

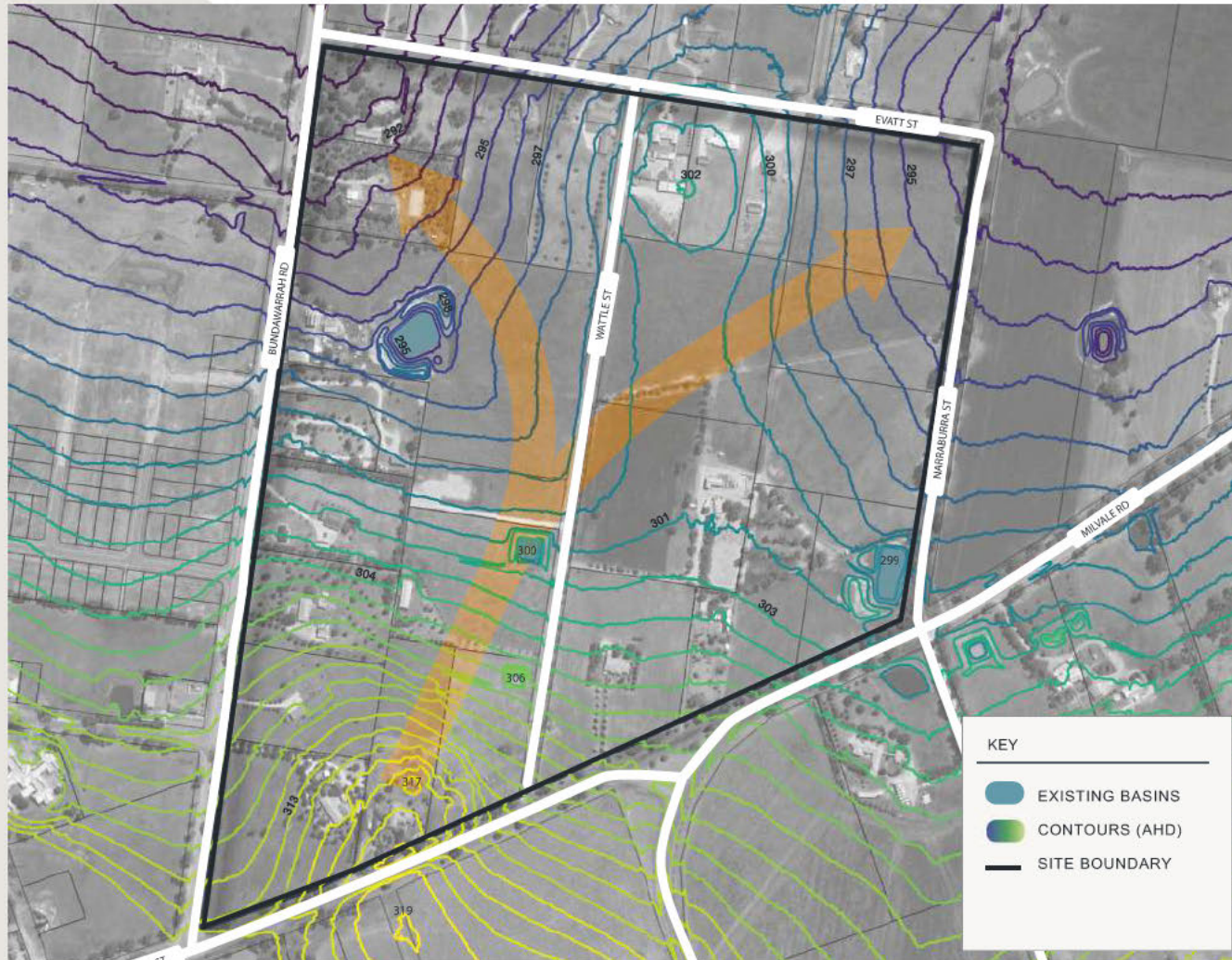


Figure 11 | Topographic Map

The Precinct is characterised by gentle slopes falling generally towards the north eastern and north western corners of the study area.

OPPORTUNITIES

- Locate future development to maximise view corridors.
- Collate overland drainage paths with roads and open space corridors.
- Design roads and lots with the topography of the land to minimise the need for extensive cut and fill and retaining walls.

CONSTRAINTS

- Land use planning within the lower areas to consider effects of climate change and the possibility of increasing flood events.
- Potential overland flooding constraints for the dwelling located in the north west corner of the Precinct.

Open Space

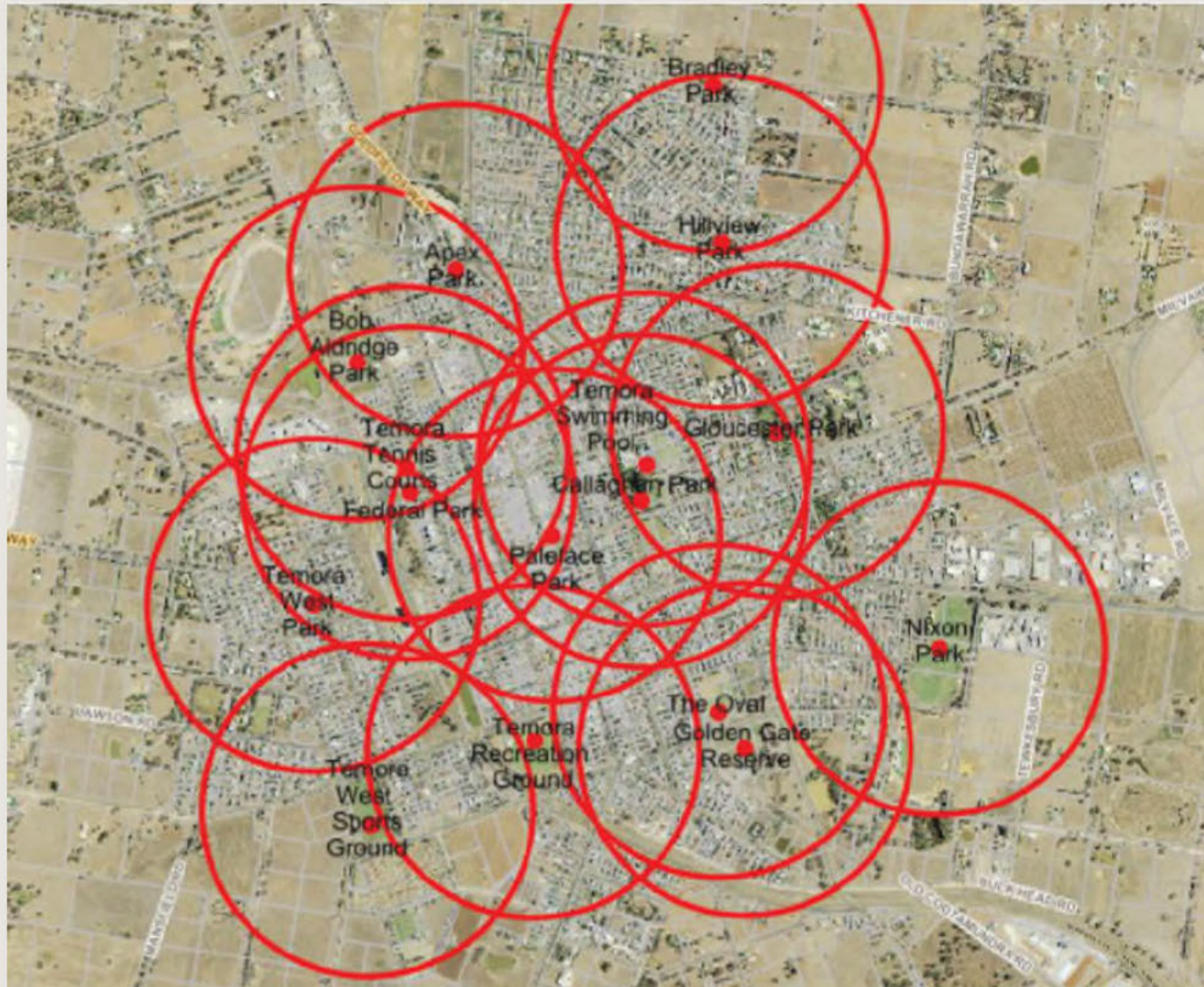


Figure 12 | Broader Open Space Map showing 500m distribution radius (Source: Temora Recreation & Open Space Strategy)

Bundawarra Estate is not serviced with any public open space areas due largely to the size of lots within this estate being greater than 1ha in size.

Temora Shire Council has prepared a Recreation & Open Space Strategy, which seeks to ensure that the liveability of residents is enhanced, as well as to guide future open space planning.

This Strategy concludes that Temora is currently well serviced, and in fact oversupplied, with traditional forms of public open space including playgrounds and sporting fields.

The Strategy recommends improving accessibility and connection between these open space facilities, whilst simultaneously considering ongoing management obligations and upfront costs of establishing such facilities.

OPPORTUNITIES

- Investigate alternative forms of public open space given the oversupply of traditional forms of open space elsewhere.
- Co-locate public open space areas with drainage lines and overhead powerline to provide linear corridors
- Provide improved footpath and cycle connections to nearby public open space.

CONSTRAINTS

- No public open space currently available within the Precinct with limited connections to nearby facilities.

Open Space

The NSW Draft Greener Places Guidelines seek to create a more healthier and liveable NSW.

Within this Guideline, there are six core criteria that drive the planning of open space, including:

1. Accessibility and connectivity.
2. Distribution.
3. Size and shape.
4. Quantity.
5. Quality.
6. Diversity.

One of the other key recommendations of the Guidelines is to create and improve the Urban Tree Canopy:

Key Strategies include:

1. Protect, maintain, and enhance the existing urban tree canopy.
2. Create an interconnected urban tree canopy across NSW.
3. Building knowledge and awareness of urban tree canopy across State and local government and the community



Local access



2-3 minutes walk 200m

High-density area (>60 dwellings/ha)
2-3 minutes walk / 200m walking distance to a local park (barrier free).

5 minutes walk 400m

Medium to low density areas (<60 dwellings/ ha)
5 minutes walk / 400m walking distance to a local park (barrier free).

District access



25 minutes walk 2km

25 minutes walk / 2km proximity to a district park.
District parks also provide local access.

Regional access



30 minutes travel

Up to 30 minutes travel time on public transport or by vehicle to regional open space.

Regional parks also provide local and district access.

Figure 13 | Open Space Design Principles

Natural Hazards

BUSHFIRE PRONE LAND

The Study Area is not identified as being bushfire prone on the Temora Bushfire Prone Land Map with the closest mapped hazard being to the south of the main township of Temora. Council is yet to update this map with Category 3 (Grasslands) hazards.

Notwithstanding, consideration should be given to the requirements of the NSW Rural Fire Service document titled: Planning for Bushfire Protection Guidelines, 2019.

This will include consideration of adjoining rural zoned land, which will likely represent a bushfire hazard.

LAND CONTAMINATION

The subject land is not identified on either Council's or the NSW EPA's Contaminated Land Register.

Nonetheless, given the historical use of the land for agriculture and residential hobby farming purposes, matters regarding land contamination should be addressed as part of any future rezoning application.



Figure 14 | Bushfire Prone Land Map

Natural Hazards

FLOODING

The Study Area is identified as being partly affected by flooding during the 1 in 100 Year Flood Event, which involves overland flow paths that would require management as part of any future development of the site.

Council is currently in the process of finalising the Temora Flood Study, which will further inform the future development of this estate.

Broadly, development within the Flood Planning Constraint Category 1 is prohibited, whereas existing flood risk within the Flood Planning Constraint Category 2 area warrants careful consideration and the application of flood related controls on future development.

Land with Categories 3 and 4 is generally not prohibited where it is undertaken in accordance with the recommendations of the Strategy.

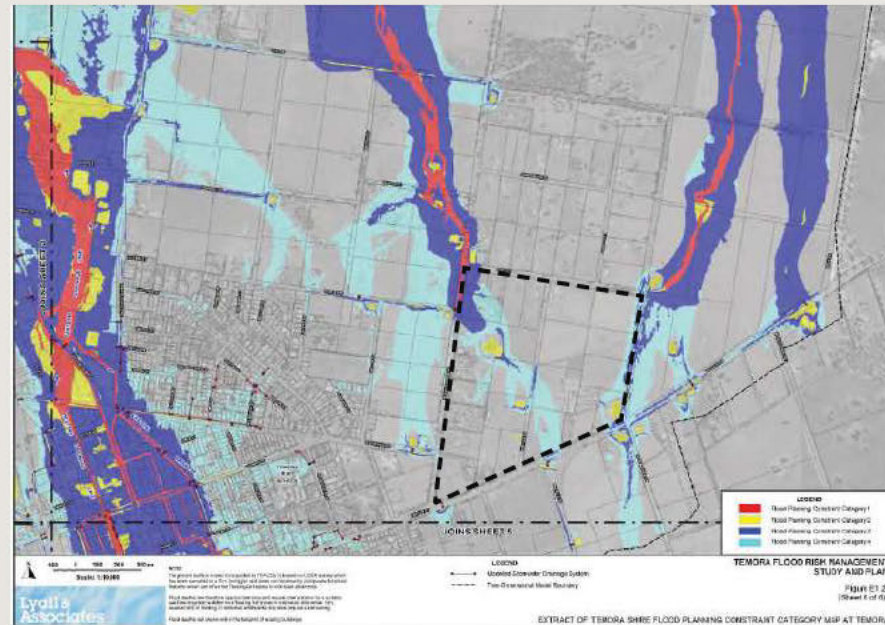


Figure 15 | Draft Flood Planning Constraints Category Map
(Source: Draft Temora Flood Risk Management Study and Plan)

STORMWATER DRAINAGE

Two stormwater drainage catchments bisect the Study Area including:

- Bundawarrah Road Catchment (western)
- Narraburra Street Catchment (eastern).

Due to the topography of the land, outfall from the Precinct occurs in the north east and north west corners of the Study Area.

Additional stormwater drainage infrastructure will need to be established as part of the further development of the Precinct to ensure that any development within this area maintains pre-development flows.

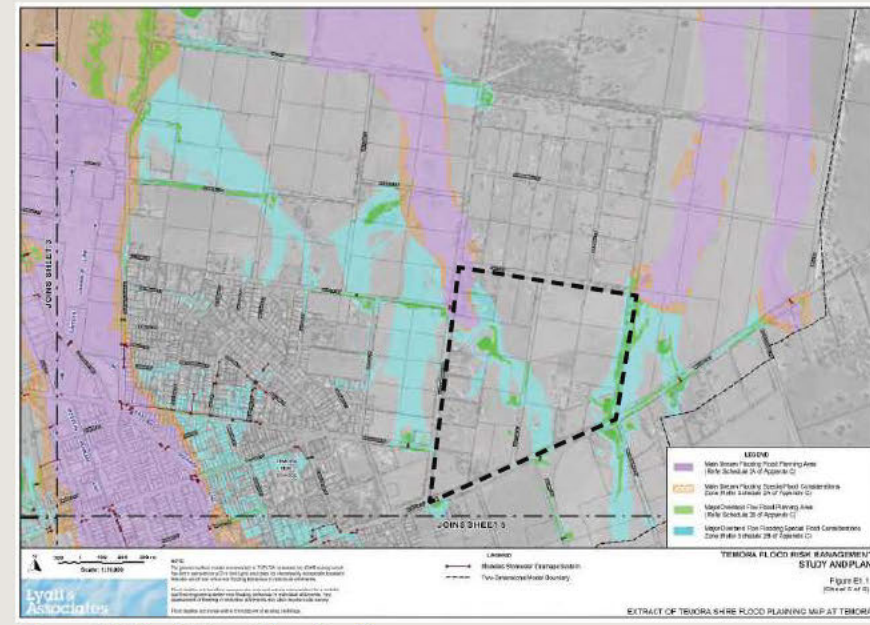


Figure 16 | Draft Flood Planning Map
(Source: Draft Temora Flood Risk Management Study and Plan)

Infrastructure and Services

WATER

Potable water for the Study Area and surrounds is supplied by Goldenfield Water's potable water network.

The water supply for this network originates from the Temora Reservoir, located approximately 200 meters southwest of the site. The network is currently serviced via an existing 100mm diameter water main located to the north, south and west of the Precinct.

Sewer

The site is currently not connected to Temora's wastewater network. All existing dwellings within the Bundawarra Estate rely on private septic systems for wastewater management. This is typical for rural and low-density residential areas, where connection to a central wastewater network is often unfeasible or unnecessary.

The closest reticulated (Council) sewer to the Study Area is located to the west. This network is currently being extended as part of the adjoining Dustin Rose Estate.

Any future development of this area for more conventional urban purposes will require the removal of existing on-site effluent disposal systems and connection to the reticulated network.



Figure 17 | Water Supply and Sewer Map

Infrastructure and Services

STORMWATER DRAINAGE

The Precinct contains two mapped drainage lines and three distinct natural drainage catchments, all generally conveying stormwater northward.

Currently, there is no formal drainage infrastructure within these catchments, which is typical for low-density, rural settings. Existing stormwater flows are managed through natural overland paths without formal stormwater infrastructure.

ELECTRICITY

The Precinct is connected to electrical power supply network. Of note, a large 66kV overhead transmission line bisects the area in a general north-south direction.

A secondary 11kV overhead transmission line also bisects the estate in a general north-east to south-west direction.

The cost of realigning the 66kV line would likely be unfeasible and it is recommended that it remain in situ.

GAS

The site is not connected to the natural gas network. Connection to this service in the future are considered unlikely due to the increasing trend toward electric-based energy solutions in residential developments.



Figure 17 | Electricity and Gas Network

Consultation

Landowners

A survey of landowners was undertaken to gather insights into possible future and subdivision infill opportunities for the area.

Eleven (11) responses were received, providing valuable feedback on land ownership, subdivision considerations, infrastructure priorities and desired features and services for future development.

LANDOWNER RESPONSES

The majority of respondents (9) owned developed residential properties, with the remaining two owning vacant or unused land.

Of these, 9 of the 11 respondents were open to subdividing their land.

Overall Support

When asked about their overall opinion of potential residential subdivision, five respondents were strongly supportive, four were supportive, one was neutral and one strongly unsupportive.

Key Issues raised during consultation are summarised herein.

Please note that the numbers contained in the brackets denotes the number of responses that raised this item.

INFRASTRUCTURE PRIORITIES

Landowners identified the need for key infrastructure improvements, including:

- Water supply and sewerage systems (10)
- Electrical grid upgrades (8)
- Roads and transport (6)

Desired Features and Amenities

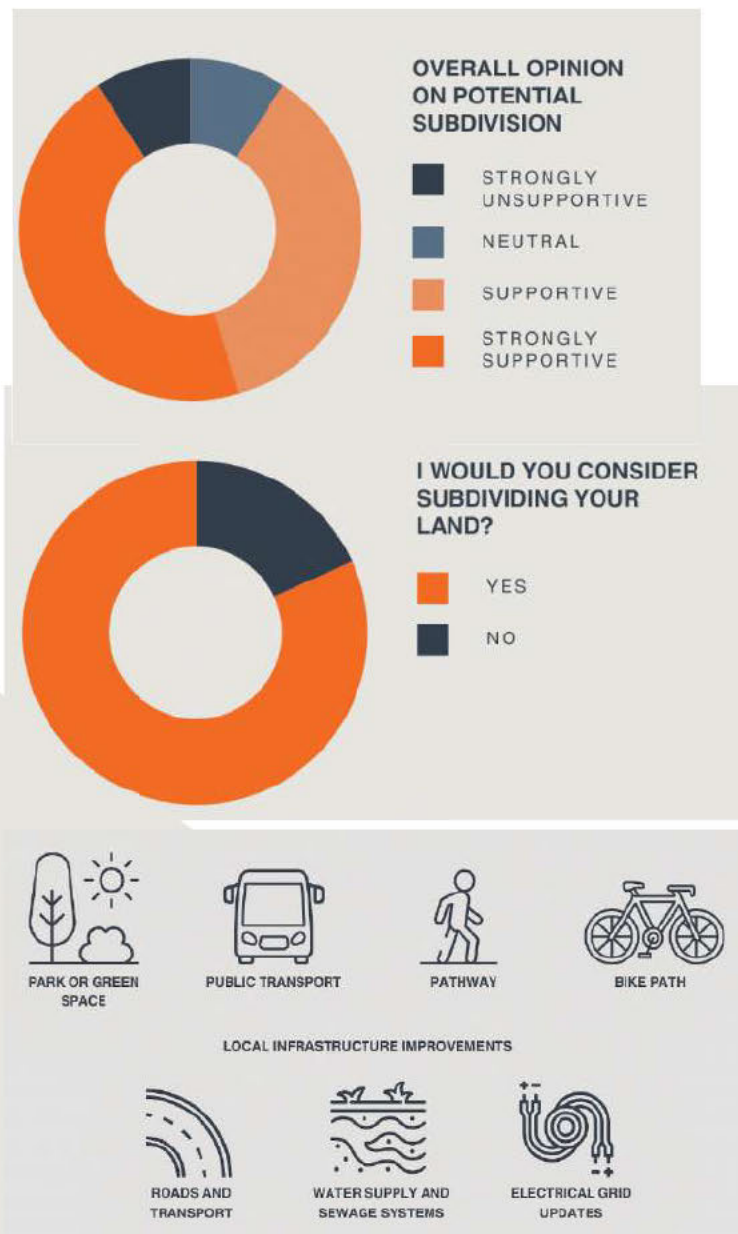
Respondents identified the need for key services and amenities, such as:

- Parks or open green space (11)
- Footpaths (8)
- Public transport access (2)
- Bike track (1)

Concerns About Subdivision

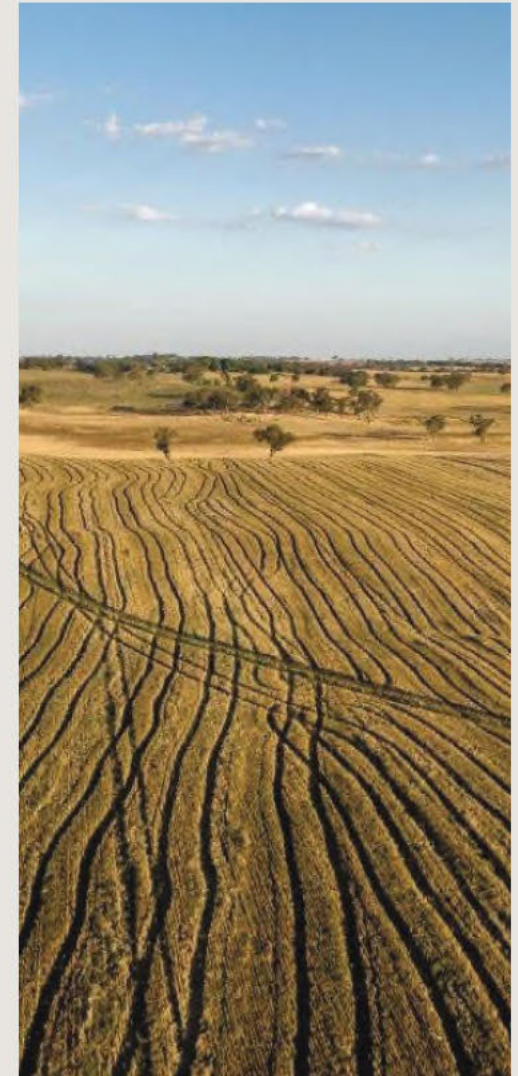
Key concerns regarding subdivision included:

- Loss of privacy (6)
- Legal and financial implications (5)
- Changes to neighbourhood character (5)
- Environmental impact (3)
- Increase in local traffic (2)



Government Agencies

GOVERNMENT AGENCY	RESPONSE
DEPARTMENT OF PRIMARY INDUSTRIES AND REGIONAL DEVELOPMENT	Minimise Land Use Conflicts between residential development and adjoining ongoing agriculture in the vicinity via the preparation of a Land Use Conflict Risk Assessment (LUCRA). Consideration should be given to the use of buffer areas to adjoining rural lands or other mitigation measures.
NSW RURAL FIRE SERVICE	<p>NSW RFS notes that the Bush Fire Prone Land Map for Temora has not been updated to incorporate grassland hazards. An updated map is likely to encompass the subject land and surrounding rural lands.</p> <p>Prepare a Strategic Bush Fire Study (SBFS) in accordance with Chapter 4 of Planning for Bush Fire Protection 2019. This should consider cumulative impacts of development on infrastructure and emergency services.</p>
TRANSPORT FOR NSW	<p>Consideration needs to be given to the cumulative impacts of additional dwellings on the safety and efficiency of the Classified Road Network. Wherever possible, new lots shall not directly access the Regional Road network, being Milvale Road. Investigate options to remove the Narraburra Street and Milvale Road intersection to avoid possible traffic safety concerns.</p> <p>Any future rezoning of the land shall be supported by a Traffic Impact Assessment that addresses predicted vehicle numbers and impacts on the local road network and key intersections.</p>
DEPARTMENT OF PLANNING, HOUSING AND INFRASTRUCTURE	<p>The proposed Master Plan is largely consistent with Council's 2022-2042 Housing Strategy. This Plan should provide an indicative lot layout to guide future development of this Estate.</p> <p>Consideration should be given to the location of existing dwellings, as well as natural hazards such as flooding. This may present an opportunity to use the identified overland flow path as a landscaped open space and riparian corridor.</p>



Government Agencies



GOVERNMENT AGENCY	RESPONSE
BIODIVERSITY, CONSERVATION AND SCIENCE GROUP	<p>Council is currently finalising the Temora Floodplain Risk Management Study and Plan which shows part of the site as being subject to significant flood risk. The Master Plan should appropriately consider matters regarding flooding and any future rezoning request will need to address NSW Local Planning Direction 4.1 - Flooding.</p> <p>BCS will not support the proposal without evidence of the potential impacts on biodiversity. A biodiversity assessment shall be undertaken which demonstrates how the proposal avoids and minimises impacts on biodiversity.</p>
GOLDENFIELDS WATER	<p>Goldenfields Water has confirmed the location of water infrastructure in proximity to the site. Further details regarding infrastructure and capacity requirements will be determined once the final Master Plan has been prepared.</p>
ESSENTIAL ENERGY	<p>Essential Energy have confirmed that the existing electrical network has sufficient capacity to service the proposed development. However, to support the increased demand and optimize the internal distribution of electricity, future pad-mount substations will be required as part of the development process.</p>
APA GAS	<p>The site is not currently connected to the APA natural gas network. However, medium-pressure gas mains are located to the south and west of the development.</p> <p>Initial advice from APA indicates that if gas supply is proposed as part of the development, capital contributions from the developer will be required to facilitate the connection.</p>

Vision

The Precinct

VISION

The proposed future development of this estate is envisioned as a peaceful and welcoming community that blends the relaxed charm of country living with modern convenience.

Close to the heart of Temora, the estate would offer a tranquil environment that encourages connection among residents and provides a safe and inviting place to call home.

The design prioritises a mix of larger and smaller residential lots, ensuring a balance between spaciousness and accessibility to meet diverse needs.

Linear green spaces and corridors are envisioned as a key feature, offering a natural hub for recreation, relaxation, and fostering a strong community feel.

This vision captures the essence of a serene and private neighbourhood, where the values of nature, community, and liveability are at the forefront, creating a harmonious and enduring space for generations to enjoy.

OBJECTIVES

- Ensure that the future development of the Precinct occurs in a logical and coordinated manner.
- Ensure that infill development respects the existing and future character of the area.
- Identify and protect areas of environmental sensitivity or constraints.
- Provide a high standard of amenity for future residents in terms of services and facilities such as road access, footpaths and open space.
- Ensure that the future development of the area can be appropriately serviced with utilities and infrastructure.



Design Principles



1. Character & Built Form

Ensure the development integrates with the existing lot pattern and built form (dwellings) contained within the Precinct and the surrounding environment including adjoining rural and residential lifestyle properties.

The design shall respond to the site's natural features, and creates a cohesive, connected community.



2. Gateway Entrances & Interface Treatments

Maintain an open and inviting Gateway Entrance into the main township of Temora by ensuring a high visual appearance of the estate by requiring that future dwellings do not back onto main roads such as Milvale Road.

This will avoid the monotony of a continuous line of Colorbond fences along this key entrance to Temora, which will maintain the semi-rural character and environmental values of the Precinct.



3. Dwellings & Streetscape

Housing design should encourage an active and engaging streetscape, with frontages that promote passive surveillance and a sense of community.

Architectural design should reflect high-quality built forms, particularly on corner sites and those fronting key roads such as Milvale Road.



4. Sustainable Design

The development should prioritise environmental sustainability, incorporating water-sensitive urban design and energy-efficient building practices.

The road layout shall provide for passive solar design and where necessary, the design shall provide buffers to environmental hazards.

Design Principles



5. Biodiversity & Natural Hazards

The natural features of the site shall be maintained and protected ongoing. In particular, existing roadside vegetation alongside Narraburra Street shall be retained from both a biodiversity and amenity perspective

The future development of the land shall also avoid areas subject to inundation during a flood event or bushfire. Where possible, these areas shall be included within public lands and excluded from development.



6. Recreation & Open Space

Integrate linear open space as a key design element, enhancing the natural character and environmental sustainability of the Precinct.

These linear corridors shall be strategically located alongside the existing electrical easement, drainage lines and Narraburra Street, creating a cohesive green network that promotes biodiversity and recreational opportunities.



7. Connectivity

Prioritise connectivity through a well-planned network of roads, pathways, and green corridors, linking the Precinct to neighbouring estates and the town centre.

By integrating the subdivision with existing infrastructure, the design supports a cohesive urban framework that enhances community interaction and provides convenient access to local amenities and services.



8. Infrastructure & Services

Supporting infrastructure such as water, sewerage, drainage, roads, electricity and open space shall be provided as part of the further development of the land in accordance with service provider requirements.

The design shall incorporate key infrastructure and services, mainly the existing overhead transmission lines and stormwater drainage basins.

Where necessary, infrastructure shall be staged and appropriately planned for and funded.

Concept Master Plans

Concept 1

This concept proposes a traditional grid pattern with Wattle Street as the key north-south connector. A new east-west collector road is also proposed to extend from Narraburra Street through to Chifley Street to provide access through the site.

The proposed layout has been designed around the location of existing dwellings, overhead powerlines, as well as areas of biodiversity values. New linear open space corridors are proposed throughout to provide for amenity and pedestrian connectivity.

The layout has been designed to accommodate a variety of lot sizes ranging from 750m² up to 2,000m² depending on market demand.

LAND BUDGET

Site	Metre ² Area %
Total Area	648,148
Road Reserve	122,648 19%
Existing Dwellings	39,517 6%
Open Space	16,747 3%
NDA	463,365 71%
Drainage	5,871 1%

Lot Yield @ 750m²/lot = 400 (approx.)
 Lot Yield @ 1,500m²/lot = 200 (approx.)
 Lot Yield @ 2,000m²/lot = 175 (approx.)

Note: Figures are indicative only and subject to final survey and design.



Figure 22 | Concept 1

Concept 2

This concept is similar Concept 1 in that it also offers a traditional grid layout, however the lots have been arranged in a more north-south orientation with shorter block lengths.

This option also offers additional road connections into and out of the site to the north and west, which will allow for greater permeability and walkability.

Similarly, this Concept has also been designed around the existing dwellings within the Precinct, as well as infrastructure and biodiversity values.

This Concept has also been designed to accommodate a variety of lot sizes ranging from 750m² up to 2,000m² depending on market demand and will achieve a similar lot yield to Concept 1.

LAND BUDGET

Site	Metre ² Area %
Total Area	648,148
Road Reserve	126,309 19%
Existing Dwelling	39,966 6%
Open Space	16,747 3%
NDA	457,904 71%
Drainage	7,222 1%

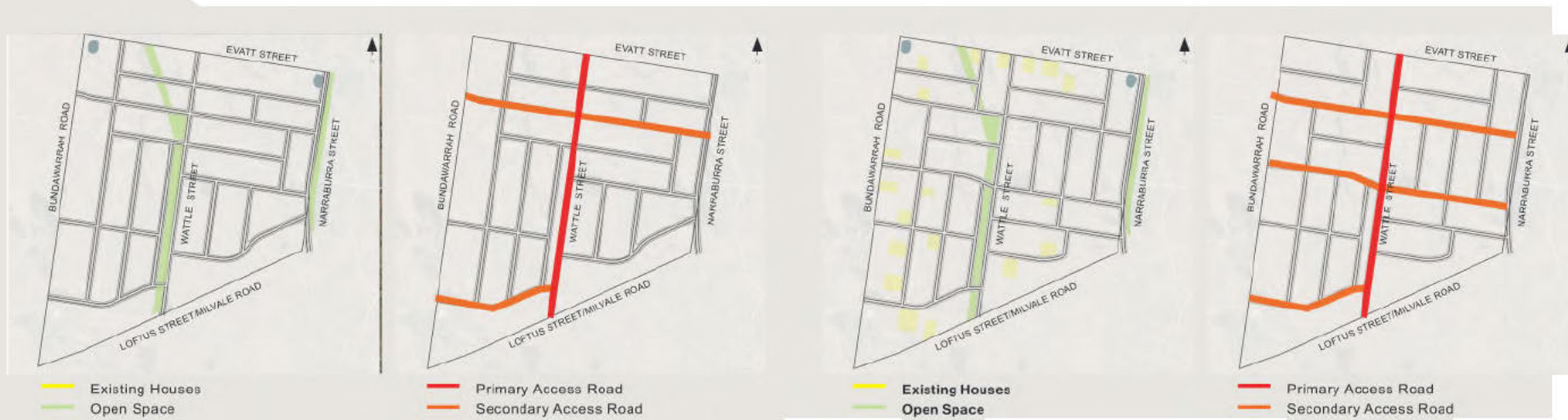
Lot Yield @ 750m²/lot = 400 (approx.)
 Lot Yield @ 1,500m²/lot = 200 (approx.)
 Lot Yield @ 2,000m²/lot = 175 (approx.)

Note: Figures are indicative only and subject to final survey and design.



Figure 23 | Concept 2

Concept Comparison



CONCEPT 1

Concept 1 is designed to align with the natural features and constraints of the precinct including existing road reserves, overhead powerlines and the location of dwellings.

This concept is centred around a traditional grid network that provides both north-south connection via Wattle Street and an east-west connection via an extension of Chirley Street, which provides direct access into town.

PROS

- Considers existing trees and integrates natural area along Narraburra Street into the design, enhancing the environment.
- Offers diversity of lot sizes from 750m² to over 2,000m².
- Enhanced road connectivity improves east-to-west access and north-to-south links to key destinations.

CONS

- A select number of larger lots will be triangular in design to fit within the angles of the site.
- Limited number of direct road connections with Bundawarra Street to the west.
- The main east-west road connection is located further north and is less accessible to future residents living in the southern half of the Precinct.

CONCEPT 2

Concept 2 is similar to Concept 1, but provides an additional east-west road connection to Dustin Rose estate to the west. This option also proposes linear open space corridors and retains existing infrastructure and dwellings.

The total lot yield remains similar however the design is characterised by shorter grid blocks.

PROS

- Considers existing trees and integrates natural area along Narraburra Street into the design, enhancing the environment.
- Easier to plan and implement due to the simplicity of the grid layout.
- Provides additional road connections to Bundawarra Street to the west.
- Provides a more central east-west road connection, which will be more accessible to future residents.

CONS

- Potential amenity and traffic impacts on Bundawarra Street from the establishment of multiple new road connections.
- May result in a less dynamic and visually interesting streetscape.
- Additional road and intersection construction costs.
- New road connections to Evatt Street to the north are closely spaced together.

Preferred Master Plan

Master Plan Principles

The Preferred Master Plan has been prepared following the completion of two Concept Master Plans for the Precinct. The design largely aligns with Concept 1, but also incorporates additional elements from Concept 2 resulting in a hybrid design.

The Master Plan has been informed by landowner and government agency feedback, as well as a review of the site conditions and constraints that affect the Precinct.

Importantly, the Design Principles of this document have informed the overall Master Plan design and layout as discussed below.

1. CHARACTER AND BUILT FORM

One of the key considerations of the Master Plan was to retain and integrate the existing dwellings into the design. For the most part, this has largely determined where the internal road network has been located.

In addition, the development proposes larger lot sizes (1,500-2,000m²) around the perimeter of the site to ensure that the semi-rural character of the area is maintained.

2. GATEWAY ENTRANCES & INTERFACE TREATMENTS

Bundawarra Estate is located along one of the main Gateway Entrances into town. Therefore, the design proposes lots that front onto Milvale Road, which will avoid the establishment of long expanses of solid Colorbond fencing, which would otherwise result in a poor visual appearance and no connectivity or passive surveillance.

In response to the biodiversity values of roadside vegetation alongside Narraburra Street, as well as to reduce potential land use conflicts with adjoining rural lands, the design proposes to close and relocate Narraburra Street to the west.

3. DWELLINGS AND STREETSCAPES

Consistent with Design Principle 1, the design retains and integrates the existing dwellings within the Precinct and proposes larger lot sizes on the perimeter of the Precinct to retain the existing character of the area.

Furthermore, the development incorporates perimeter roads and orientates lots towards key roadways and linear open space corridors to ensure an active and inviting streetscape.

4. SUSTAINABLE DESIGN

The Master Plan has been designed with a general grid layout, which will allow for lots with good northern solar orientation.

Furthermore, the design incorporates water sensitive urban design principles (swale drains) and retains environmental features.

5. BIODIVERSITY & NATURAL HAZARDS

As outlined in response to Design Principle 2, the Master Plan retains areas of environmental sensitivity, namely along Narraburra Street.

In addition, the design also avoids areas of natural hazards such as flooding and bushfire to ensure future development is resilient to climate change.

6. RECREATION & OPEN SPACE

In recognition of a current oversupply of formal open space areas and their general proximity to the site, the Master Plan seeks to provide an alternative form of recreational facilities via the inclusion of linear open space corridors via 'greenways' and 'blueways'.

These open space areas align with existing stormwater drainage or overhead powerlines and provide an opportunity for connections to the broader open space network, without the significant upfront and ongoing maintenance costs associated with other forms of traditional open space.

7. CONNECTIVITY

The proposed Master Plan has been designed to provide both new road and pedestrian access points at regular intervals throughout the Precinct. This will ensure that residents living within this estate are connected to the existing urban area and will have access to new pedestrian footpaths and cycle paths.

8. INFRASTRUCTURE & SERVICES

A number of high voltage overhead powerlines and overland flow paths traverse the Precinct. Due to the prohibitive cost or practicalities to relocate this infrastructure, the Master Plan incorporates these into the overall design. Similarly, the layout has been designed in a general grid layout to ensure the efficient rollout of services in a staged and sequential manner.

Master Plan

The preferred Master Plan largely aligns with Concept 1, but has incorporated additional elements from Concept 2 including additional east-west road connections to Bundawarra Street to the west and the provision of a shorter grid network.

This option provides improved connectivity and permeability with roads generally spaced 200-400 metres apart to allow for walking and cycling.

The development incorporates existing dwellings and key infrastructure within the Precinct, as well as providing linear open space corridors throughout.

Consistent with Concept 1, the Master Plan has been designed to accommodate a variety of lot sizes ranging from 750m² up to 2,000m² depending on market demand.

LAND BUDGET

Site	Metre ²	Area %
Total Area	648,148	
Road Reserve	108,986	17%
Existing Dwelling	39,517	6%
Open Space	30,409	5%
NDA	463,365	71%
Drainage	5,871	1%

Lot Yield @ 750m²/lot = 400 (approx.)
 Lot Yield @ 1,500m²/lot = 200 (approx.)
 Lot Yield @ 2,000m²/lot = 175 (approx.)

Note: Figures are indicative only and subject to final survey and design.



Figure 24 | Preferred Master Plan

Access

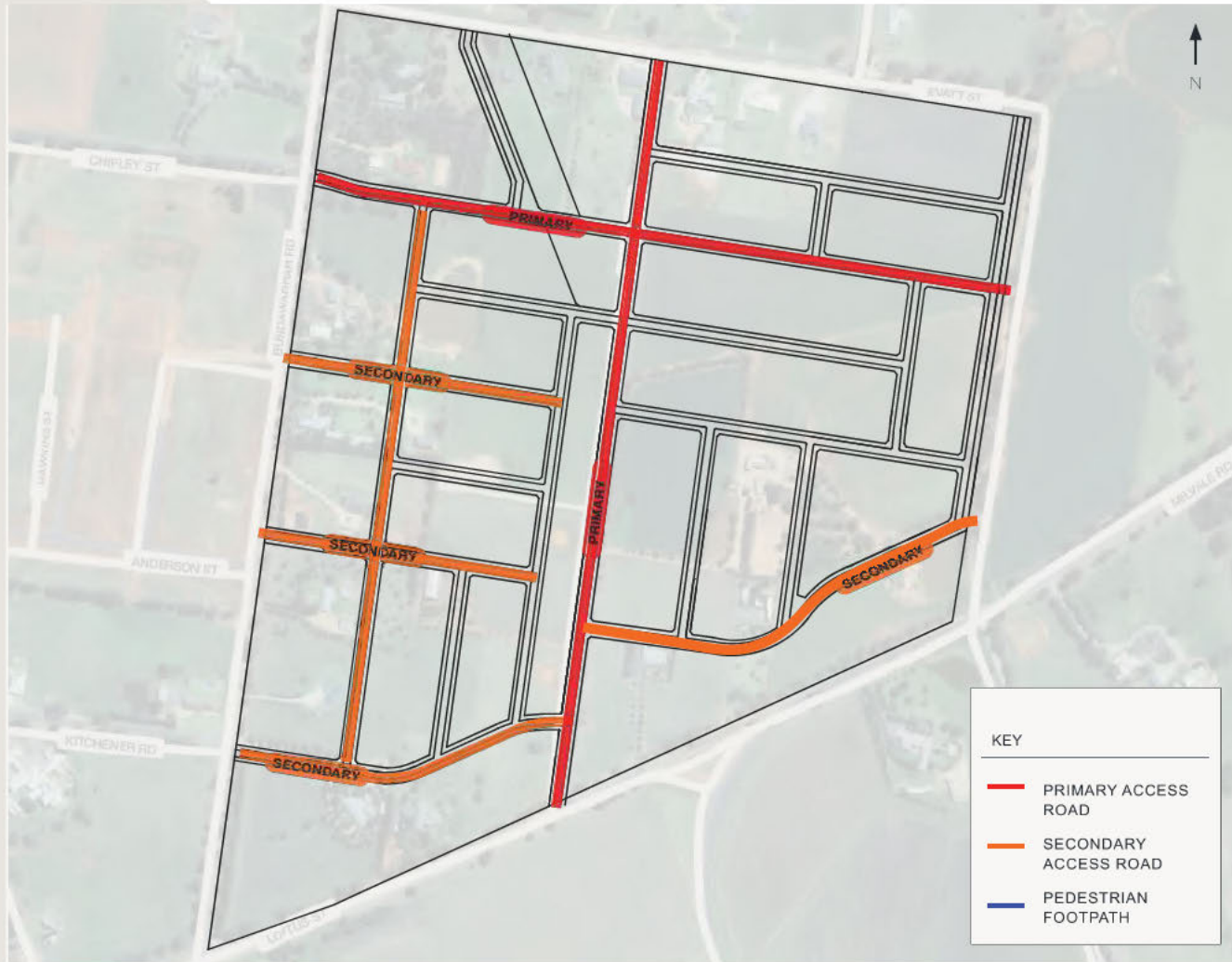


Figure 25 | Proposed Access Plan

The proposed design adopts a traditional grid style pattern, which will allow for easy access and connection within and through the Precinct.

Wattle Street will remain the main north south connector, however two new east west connector roads are proposed, which will connect to Chifley Street and Dustin Rose to the west.

Based on feedback received from TfNSW and in recognition of the biodiversity values of roadside vegetation, Narraburra Street is proposed to be closed and realigned to the west. Furthermore, its intersection with Milvale Road is also proposed to be removed.

Existing property access points to Loftus Street/ Milvale Road will remain, however any new lots fronting these roads will need to be via the internal road network, or where not feasible, share existing crossovers.

New pedestrian pathways 'greenways' and 'blueways' are proposed throughout along key routes to enhance safety and amenity, as well as to provide landscaping features that define entry points and strengthen the overall character of the development.

These pathways will provide a network of linear open space corridors that will connect to the broader footpath and open space network allowing for recreational opportunities in the form of exercise loops/circuits.

Open Space



Figure 26 | Proposed Open Space Plan

The Master Plan includes a thoughtfully designed open space network to enhance community well-being and connectivity.

Two new north-south and one east-west linear open space corridor runs through the site, providing green corridors that link key areas and offer opportunities for recreation and biodiversity. This area will be embellished with walking paths, bench seating, gym equipment, public art and shade trees to improve community use.

A central 0.5ha park is proposed at the intersection of the main north-south and east-west connector roads, which will become a gathering point with the estate.

In total, the Master Plan provides 3ha or 5% of the total land area to open space.



Swale Drains



Exercise Equipment



Park Benches



Shared Pathways

Open Space - Regional Context



Figure 27 | Proposed Regional Open Space Plan

Temora is currently well supplied with traditional forms of playgrounds and sports ovals.

In recognition of the current oversupply and their general proximity to the site, the Master Plan recommends as an alternative to provide linear open space corridors that will extend through and beyond the Precinct.

New pedestrian corridors and shared ways will be established, which will connect to the broader open space network, primarily Bradley Park and Hillview Park to the west and Gloucester Park to the south west.

These parks are generally located within 1km or 12 minutes walking distance of the site consistent with the NSW Draft Greener Places Guidelines.

This will encourage walking and other forms of active transport and will support healthy lifestyles.

These open space areas will still provide for the recreational needs of residents living within this estate, but will provide a diversity of open space offerings, as well as avoiding the significant upfront and ongoing maintenance costs associated with other forms of traditional open space.

Infrastructure and Services



Figure 28 | Proposed Water and Sewer Plan

The following infrastructure will be required as part of the future development of the Precinct.

WATER:

Future residential lots will need to be connected to Goldenfield Water's potable water supply network. New infrastructure will be provided via the internal road network via lead-in mains and servicing extensions.

SEWER:

A new sewer pump station will be required to connect the site to the existing wastewater network. Council has confirmed that the wastewater treatment plant has sufficient capacity to accommodate future growth in the area. Easements through private land may be required to optimize the gravity network design if two separate pump stations are not feasible.

ROADS:

Primary site access will be via Loftus Street/ Millvale Road. While the existing road network can accommodate the proposed development, augmentations and upgrades, including intersection improvements at Wattle Street and Millvale Road, will be required. A future traffic impact assessment is recommended to confirm road capacity and upgrade requirements.

Infrastructure and Services

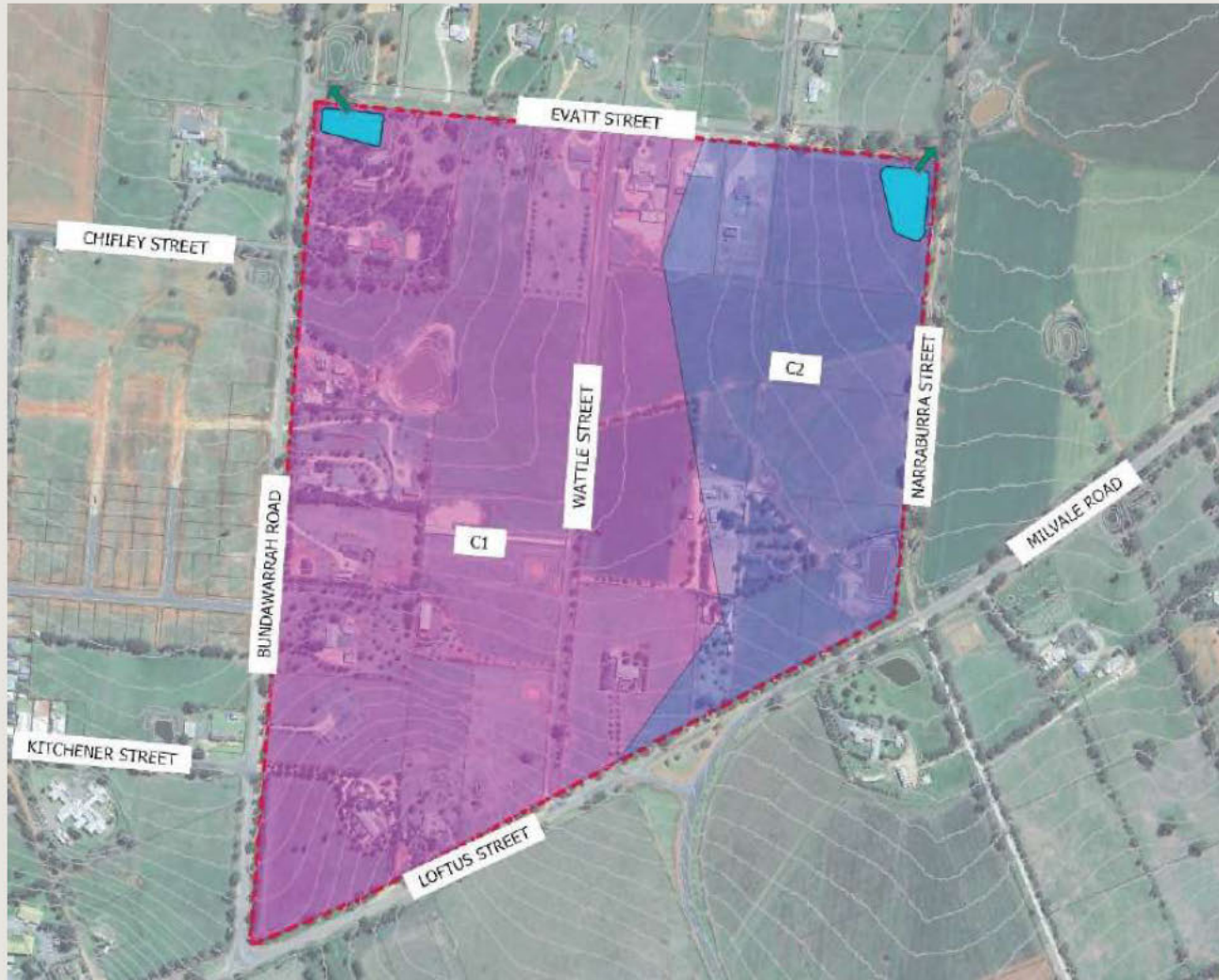


Figure 29 | Proposed Stormwater Plan

STORMWATER:

Onsite detention will be required to attenuate stormwater flows to pre-development levels. The Master Plan includes new stormwater basins in the north western and north eastern corners of the Precinct.

ELECTRICITY:

The existing network has sufficient capacity to service the proposed development. The existing 66kV overhead powerline is proposed to be retained in situ, whilst an 11kV is proposed to be relocated.

Future padmount substations will be required throughout the development to supply each lot.

GAS:

It is unlikely that gas servicing will be provided due to high upfront costs. However, APA has confirmed sufficient capacity within the existing network to support the development, with all connection and servicing costs to be borne by future landowners or developers if gas is required.

TELECOMMUNICATIONS:

The area is partially serviced by NBN Co's fixed-line technology, with additional network construction underway in the nearby Highfields Estate. Telecommunications infrastructure is expected to be delivered in shared trenches alongside low-voltage electricity cabling

Staging

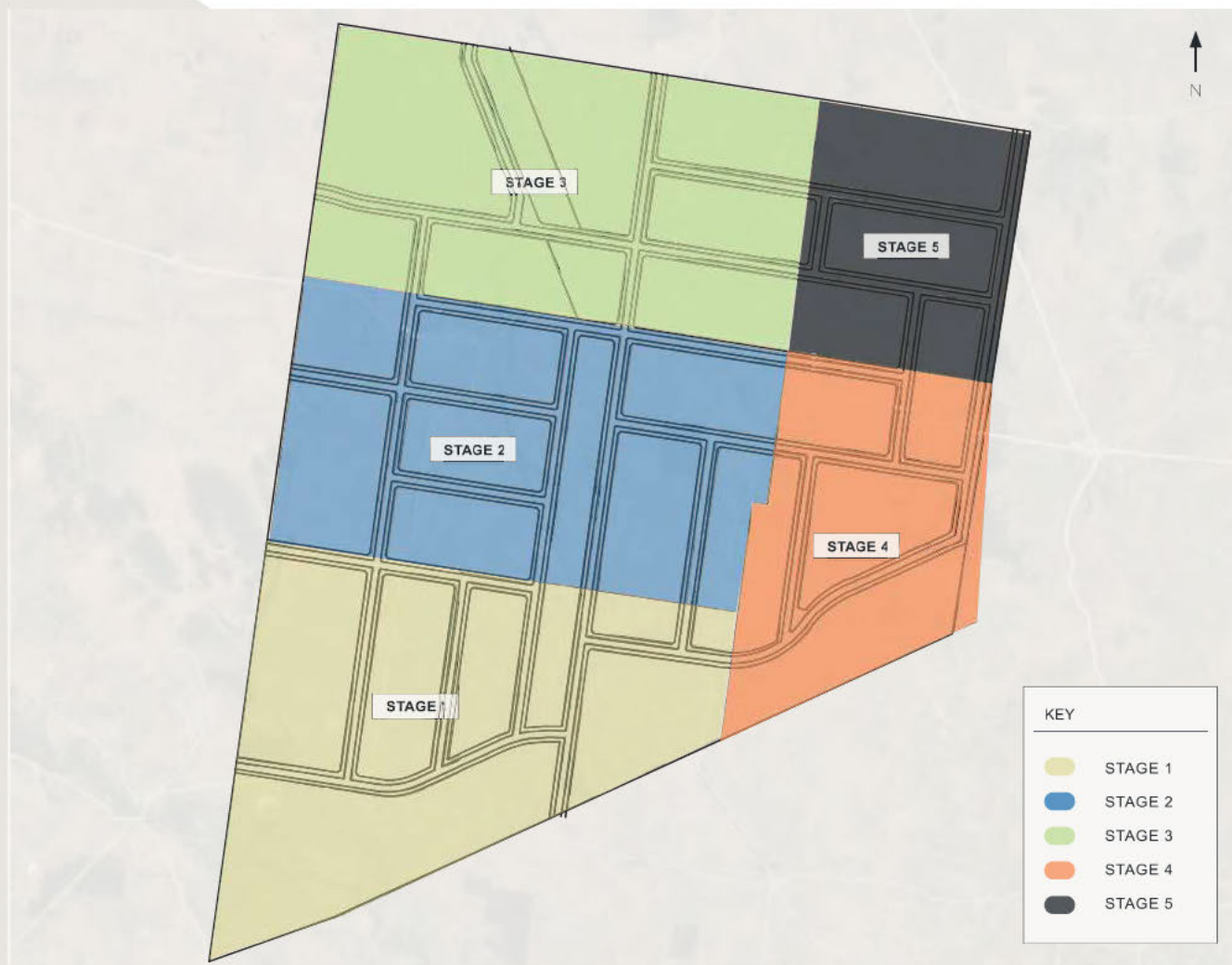


Figure 30 | Proposed Staging Plan

The Staging Plan is designed to ensure a logical, connected, and community-focused rollout of the development.

The Master Plan proposes 5 stages of development, however depending on lot sizes and lot yield, these stages may be further broken down again into sub-stages to ensure a manageable and efficient rollout of infrastructure and services, aligning with the community's evolving needs and maintaining a cohesive approach to development.

The staging plan for the site begins with Stage 1, focused on the south western corner of the Precinct as it adjoins existing urban development and has readily available access to infrastructure and services.

Subsequent stages will progress in a northerly and westerly direction due primarily to the availability and logical extension of infrastructure.

Opportunities do exist for development to occur out of sequencing, however this will be predicated on the availability and cost of extending infrastructure, which typically seeks to minimise 'leap-frog' development.

The preparation of a Developer Contributions Plan will ensure that infrastructure is appropriately serviced and funded in a timely manner.

Implementation

Future Actions

In order to achieve the outcomes of the Precinct Master Plan, the following actions are recommended:

PLANNING ACTION	DESCRIPTION
LEP Amendment	<p>Amend the Temora Local Environmental Plan 2010 as follows:</p> <ul style="list-style-type: none"> • Rezone the land from R5 Large Lot Residential to R1 General Residential. • Reduce the Minimum Lot Size of the land from 1ha down to 1,500m2 (to be confirmed).
DCP Amendment	<p>Amend the Temora Development Control Plan 2012 to incorporate the recommendations of the Bundawarra Estate Precinct Master Plan.</p>
Developer Contributions Plan	<p>Council to prepare a Developer/Infrastructure Contributions Plan to fund the provision of infrastructure across the Precinct, which will be levied on a per lot basis.</p>



MASTERPLAN:

BUNDAWARRAH ESTATE TEMORA

LAND BUDGET

Site	Metre ² Area %
Total Area	648,148
Road Reserve	122,648 19%
Existing Dwelling	29,517 6%
Open Space	16,747 3%
NDA	463,365 71%
Drainage	5,871 1%

Lot Yield @ 750m²/lot = 400 (approx.)
 Lot Yield @ 1,500m²/lot = 200 (approx.)
 Lot Yield @ 2,000m²/lot = 175 (approx.)

Note: Figures are indicative only and subject to final survey and design.

KEY

-  CARRIAGEWAY
-  ROAD RESERVE
-  OPEN SPACE
-  SITE BOUNDARY
-  DRAINAGE BASIN



