



Thornton North Master Plan

Volume 1 Master Plan



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Foreward

David Evans
General Manager
Maitland City Council



The planning of a future community is a complex matter, involving many issues and stakeholders. It is not easy to balance the environmental, social and economic needs of the City as a whole, whilst considering the impacts on individual landowners and residents.

I am therefore pleased to advise that Council has successfully completed the preparation of a Master Plan for a future community of around 9,500 people in the Thornton North area, which will provide opportunities for quality new urban development, retention of environmental areas and minimal disruption to existing land uses.

The Master Plan, which forms the remainder of this document, has been well received by Council and by the community as a whole. Council adopted the Master Plan at its meeting on 9 December 2003, as shown in the extract of the minutes of that meeting on the following page.

The Thornton North Master Plan is one of the key strategic planning initiatives in the Lower Hunter and should be read in the context of the Maitland Urban Settlement Strategy and regional planning strategies. It has been prepared by Parsons Brinckerhoff at the initiative of Council, in consultation with the community and other stakeholders. As a result, the Master Plan draws on a wide range of expertise and opinion.

The Master Plan is a conceptual planning strategy and does not contain all information, which will be required for future decisions by Council. Distances should therefore not be scaled directly from the Master Plan. However, the Master Plan provides an important starting point for future investigations, which will be undertaken by Council in consultation with the community.

Council will aim to apply the Master Plan consistently. Nevertheless, there may be instances where some variation is required to the Master Plan and Council will consider the need to review the Master Plan on an on-going basis. For these reasons, the Master Plan alone should not be used by anyone as a sole basis for decisions regarding land purchases, investment or other decisions regarding future land use.

I would like to thank all persons who have contributed to the preparation of the Master Plan and would encourage your continued input as Council works towards the implementation of the Master Plan.

I commend the Master Plan to you and would invite interested persons to contact Council's City Strategy Division on (02) 49349834 with enquiries regarding the Master Plan.

Council Resolution

Council Meeting, 9 December 2003 Thornton North Master Plan – Item 10.3.3

THAT:

1. That the Thornton North Master Plan as amended, be adopted
2. Council seek formal endorsement of the Master Plan from the Department of Infrastructure Planning and Natural Resources.
3. Council advise the RTA that issues relating to the standard of state road infrastructure and the level of contributions deemed appropriate by the development within the Master Plan area will be determined as a component of a Developer Contributions Plan for the Thornton North area.
4. The Maitland Urban Settlement Strategy continue to show land to the north and west of Timberlane Estate and land to the north of Somerset Park (east of Government Rd) as Category 1 investigation areas.
5. To facilitate commencement of development in the locality, Council accept rezoning applications in the Category 1 areas, noting that such rezoning applications will be finalised concurrently with the adoption of a Developer Contributions Plan for the Thornton North study area.
6. A further report be submitted to Council by March 2004 which provides a review of the status of properties to the west of Government Road as potential Category 1 investigation areas on the basis that there has been resolution of the future of clay extraction on Lot 20 DP 10419, Raymond Terrace Road. If the future of clay extraction on Lot 20 is resolved in the interim, the status of the properties will be the subject of a separate report to Council.
7. Those persons and authorities who made submissions be formally acknowledged for their contribution and advised of the Council's decision.
8. The large lot buffer on the northern and western boundaries of Timberlane be amended to increase the size of lots immediately adjoining Timberlane to a minimum of 1500 m². The remainder of the buffer is to be set aside for medium lots and all lots are to be subject to appropriate design controls in a DCP, in consultation with the community, to limit the visual impact of new development.

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Introduction

The Thornton North area represents a unique opportunity for a new community in the Lower Hunter. It is one of few remaining urban release areas with urban development potential in the east of Maitland Council's area.

Maitland City Council engaged Parsons Brinckerhoff (PB) to prepare a Master Plan for Thornton North that optimises this scarce land resource, whilst ensuring protection of the natural environment and lifestyle of local residents.

The Master Plan provides a broad framework for potential development in the Thornton North area which will act as a guide for future investigations and decisions by Council and the community. Maitland Council is committed to creating a new community that is well planned from the outset.

The primary focus of the Master Plan is the relationship between existing and future land uses. Its objective is to ensure that any growth takes place in a co-ordinated and sustainable

manner in consultation with the local community.

This document forms Volume 1 of three volumes. Volume 2 provides greater detail and background information on the planning framework, natural environment, consultation activities, urban design issues and heritage. Volume 3 provides a detailed traffic impact assessment.



A future Thornton North; a new community

Thornton North

The Thornton North study area comprises farming land (mostly cattle grazing and poultry sheds), clay mining, bushland and rural-residential land uses. Almost one third of the site is flood-prone. The study area and its context is shown below.

About two-thirds of the site is clear of vegetation, with cleared areas mostly to the west and south-east. The remainder is mostly sparsely vegetated, with a corridor of more heavily vegetated land running approximately north-south through the centre of the site.

Included on the site are two clay quarries that will remain for some time. Timberlane Estate, consisting of some 70 rural-residential properties, is located near the centre of the site off Raymond Terrace Road. The southern part of Thornton North links directly to Somerset Park and Thornton residential areas.



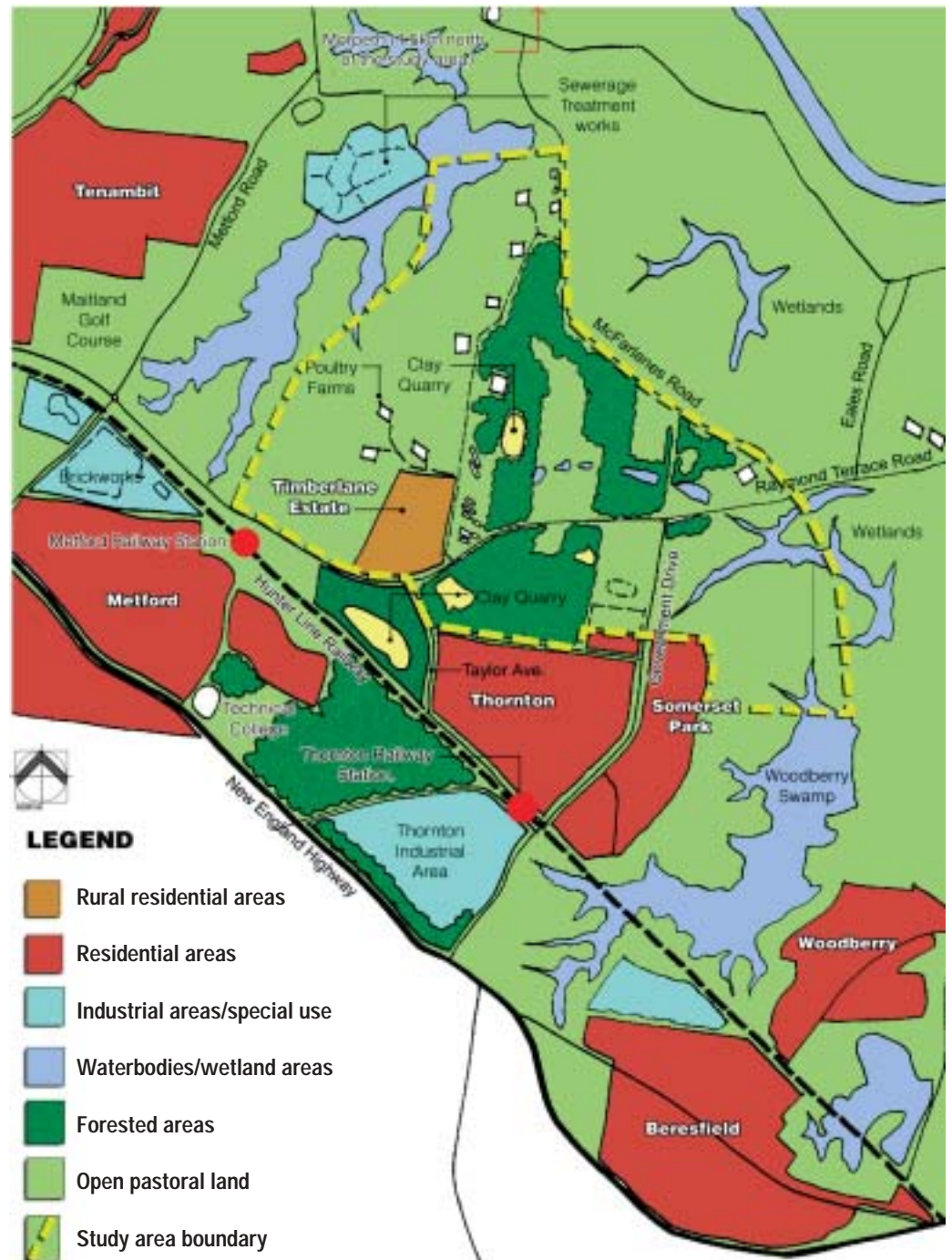
An aerial view over the Thornton North study area



Rural setting



Surrounding agricultural heritage



Study Area Context



The Master Plan includes many parks and pedestrian networks

Why a Master Plan?

A Master Plan is one of the best strategic planning measures to ensure that a new community is well-planned. It provides a logical framework for development and allows the attributes of the natural environment to determine the best location for future development. It is also a much more proactive approach which will allow Council to control future development by providing clear guidance to landowners.

In choosing this approach, Maitland City Council is demonstrating its commitment to establishing a local community that creates a real opportunity for a new place with its own identity. The Master Plan will also encourage forward planning and implementation of infrastructure such as roads, services and community facilities which is properly coordinated with new residents moving into Thornton North.

Master Plan Development

Development of the Thornton North Master Plan has involved the following key steps:

- **Opportunities and Constraints Analysis** – identification and

resolution of major issues raised through investigations such as the future of the clay conservation area and quarries, the retention of important vegetation areas and appropriate visual/environmental buffers for the quarry site and Timberlane Estate, stormwater and flooding issues; infrastructure and community needs; and cultural heritage protection.

- **Vision** – development of a “Vision” for Thornton North to form a basis for the Master Plan, which reflects input from the community and key stakeholders.

- **Guiding Principles** – identification of a set of principles to guide future development.

- **Development of a Master Plan** – based on consideration of site issues, testing of development

scenarios, community feedback, the vision for Thornton North and the guiding principles.

- **Final Master Plan** – following exhibition period and consideration of submissions.

Community Involvement

Consultation has occurred throughout the preparation of the Master Plan. Activities have included:

- a community information evening (at the start of the project, attended by approximately 200 people);
- meetings and a workshop with government agencies;
- a community workshop (to discuss a community “vision” for Thornton North, attended by some 60 people);
- one to one interviews with local landowners and other stakeholders; and
- public exhibition of Master Plan (including staffed displays and consideration of submissions).

Why Thornton North?

Regional Context

Thornton North sits within the Lower Hunter, to the east of Maitland, and in close proximity to the high growth areas of Newcastle and Lake Macquarie. The site is part of the Thornton–Killingworth Sub-regional Conservation and Development Strategy being prepared by the Department of Infrastructure, Planning and Natural Resources.

Thornton North is a key land resource within the region, being the largest remaining site that has relatively few development constraints.

Other areas within this sub-region are running out of land suitable for development. The land assets at Thornton North need to be viewed in this regional context to understand how very limited future

land supply is and the need to optimise development to a high design standard.

Local Context

Several large tracts of land within the study area have previously been identified in Maitland's Urban Settlement Strategy (2001) as potentially suitable for urban development. Subsequent to this, Council identified a larger area that incorporated these parcels plus some surrounding mostly rural land for investigation in this Master Plan due to the continued demand for new urban release areas.

The 2001 Census data for Maitland indicates a permanent resident population of almost 54,000, which has increased by 4,000 since 1996. Future growth is predicted to be approximately

1.4% per year. At current levels of development, existing zoned and vacant residential land within Maitland's Eastern District, in which Thornton North is located, is likely to be fully used by 2004.

In order to provide future opportunities to live in Maitland and its surrounding areas, new residential land needs to be provided in areas such as Thornton North.

The following issues have been identified as key considerations for future development at Thornton North. All issues have influenced the development of the d. More detailed information on key site issues and opportunities and constraints is contained in Volume 2 – Background Report. A combined Opportunities and Constraints Map is provided overpage.



Aerial view of the adjacent residential areas of Somerset Park



Natural setting



Rich ecology

Key Opportunities and Constraints

Existing Clay Conservation and Quarries

There are two existing quarries within the study area. Council's Development Control Plan (DCP) 4 – *Conservation of Clay Resources* aims to ensure that these valuable resources are protected and restricts development with the potential to sterilise clay. A portion of the study area has been identified for clay conservation under this DCP.

The inherent value of the existing clay conservation area (CCA) is based on the proximity of the resource to the existing brickmaking plant at Metford. Given the longevity of resources within the existing quarry sites, the Department of Mineral Resources has indicated that the continuing preservation of the CCA beyond the existing operations is not warranted.

The Master Planning process has explored opportunities for other land uses within the clay conservation area outside the existing quarry sites, taking into account necessary buffer zones of approximately 500 metres. Future land uses for these sites, once extraction is completed, have also been identified including conservation of existing native vegetation and future residential development.



View of O'Brien's Quarry

Master Plan Implications

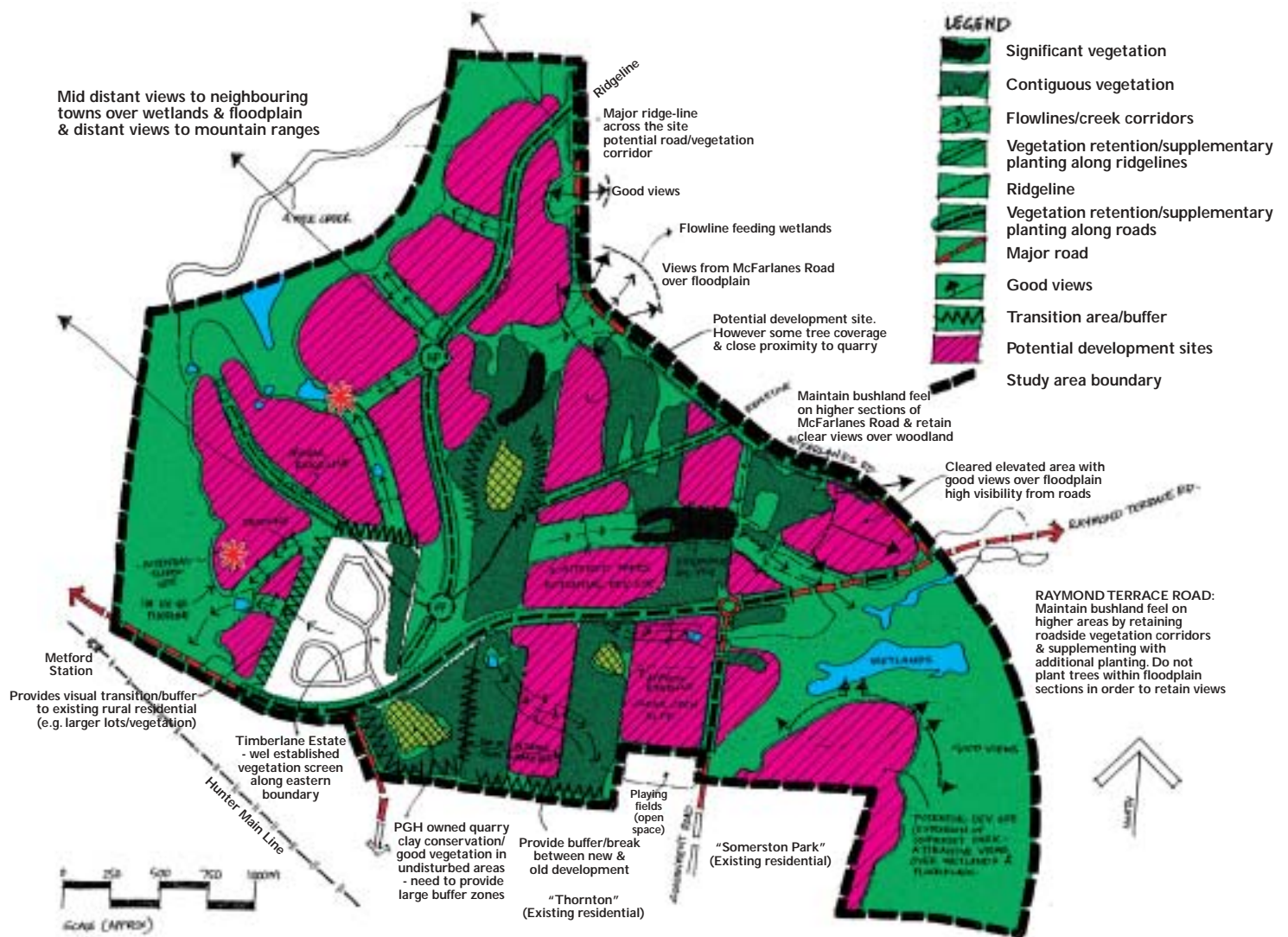
- recommendation to reduce clay conservation area (and associated LEP/DCP amendments);
- existing quarries to remain until Metford Brickworks ceases operations;
- buffer zone designed into layout, while quarries continue; and
- future re-use of quarries for conservation and some residential development.

Ecological Considerations

A broad vegetation assessment was undertaken by Eastcoast Flora Surveys, as well as a habitat assessment (refer Volume 2). Detailed investigations will need to be undertaken before any re-zonings occur.

About two-thirds of the site is clear of vegetation, with these areas mostly to the west and south-east. The remainder is sparsely vegetated, with a corridor of more heavily vegetated land located approximately north-south through the centre of the site.

The vast majority of vegetation remaining on the site is either Lower Hunter Spotted Gum – Ironbark Forest or Seaham Spotted Gum – Ironbark Forest. The Thornton area is a transition zone between the two communities and therefore elements of floristic drift are apparent. Regardless of which community is actually present, both potentially qualify as vulnerable ecological communities under State and Federal legislation.



Opportunities and Constraints

Small portions of the study area also support vegetation that can be considered part of the Hunter Lowlands Redgum Forest, an Endangered Ecological Community under the NSW Threatened Species Conservation Act 1995. Some of these areas are highly modified and would be difficult to rehabilitate to natural conditions.

The condition of the vegetation remaining is moderate due primarily to past and present agricultural activities that have partially or fully cleared large areas of land and have disturbed or modified understorey vegetation. However, portions around the clay quarries appear to support good examples of vegetation, which have not been affected by logging or grazing. Such examples are very rare in Maitland and consequently these areas are significant. There

are larger and better examples in the Hunter region, however these various communities tend to be poorly represented in Maitland.

Open forest and good condition wetlands provide the best habitat for threatened fauna species within the study area. Preliminary investigations have indicated that

fifteen threatened fauna species are likely to occur in the study area, including three nationally significant threatened species. Further investigations would need to be undertaken for any rezonings which may affect vegetation or habitat.



Site vegetation showing Spotted Gums

Bushfire Hazard

Preliminary mapping indicates that a large proportion of land in the centre of the study area would be designated as high bushfire hazard under the new State government bushfire provisions. These high hazard areas follow the most vegetated sections of the study area and are predominately contained within the clay conservation areas. Some new residential development, adjacent to vegetation, would need to be designed in accordance with the regulations.

Master Plan Implications

- important natural areas are protected within the planned park system including all areas identified as having “very high” conservation values
- a range of landscape types will be conserved, including local vegetation corridors
- bushfire legislation requirements need to be considered at detailed planning stage.

Flooding and Drainage

Parts of the study area are inundated during a one percent (1 in 100 years) flood event. A small amount of additional land would be inundated in the unlikely event of a Probable Maximum Flood (PMF). The extent of these areas has been quantified using flood modelling data. Potentially inundated areas in a 1 in 100 year flood are limited to land around the edge of the study area with a total affected area of approximately 243 hectares or almost one third of the total study area. Such areas cannot be used for residential purposes and the 1 in 100 year level has set this limit.

Provisions for adequate flood warning and emergency evacuation have also been investigated, and would be possible for any new



Aerial view of Four Mile Creek and Morpeth Wastewater Treatment Works on northern boundary

residential development at Thornton North.

Stormwater

The study area drains via a number of watercourses to the Hunter River. Local stormwater flooding issues were raised by a number of landholders during the consultation phase, particularly those in the Duckenfield and Millers Forest areas.

Stormwater management for any proposed development within the study area will incorporate appropriate management practices to mitigate water quality and hydrological impacts of the development. Where possible, these will include a water sensitive urban design (WSUD) approach. It is envisaged that a range of management practices will be used such as water quality control ponds, retention basins, grass-lined swales, roof water tanks, and gross pollutant traps. This would mitigate the drainage impacts of development within the study area and could address some existing stormwater management issues. A recommendation is that the feasibility of water tanks be considered for any new development.

An indicative stormwater management strategy has been prepared as part of the Master Plan, indicating widths of proposed floodway and riparian corridors, as well as locations for control structures. Following adoption of a final Master Plan, a more detailed stormwater management plan will be prepared to ensure that local stormwater problems are not worsened by the reduction in permeable area.

Master Plan Implications

- use of the 1 in 100 year flood event as the limit for residential areas on the floodplain
- water sensitive urban design measures to be implemented (natural drainage lines, on-site detention)
- detailed stormwater management plan to be prepared following Master Plan
- update flood warning and evacuation plans with reference to development at Thornton North
- downstream stormwater to be intercepted and managed.

Traffic and Transport

Traffic

An important part of the Master Planning process has been a detailed traffic assessment of the existing local and regional traffic conditions, and the potential impact of developing Thornton North (this assessment is the subject of a separate report). A detailed traffic and transport model was prepared in association with the RTA. Five options were tested to assess their impact on traffic conditions in 2016 in accordance with the Master Plan.

The current capacity of the key interchanges surrounding Thornton North is a limiting factor for future development. The Commonwealth Government announced in the May 2003 budget that funding has been approved for continued investigations into a full interchange at Weakleys Drive and the New England Highway, with construction to start within the next three years. Once constructed, this will effectively resolve the major issue limiting development at Thornton North.

The current railway bridge at Thornton Station also constrains the potential for development at Thornton North. The bridge needs to be duplicated, either adjacent to the existing bridge or by providing a new crossing to Haussman Drive. Either option would provide adequate railway crossing capacity and the decision regarding the preferred option will be made following adoption of the Master Plan.

When allowance is made for all potential developments in the study area that use the surrounding arterial and local road system, it is evident that significant road network improvements will also be required.

In the short term, with the opening of Anderson Drive and the expected prohibition of a right turn

from Weakleys Drive, a maximum of 200 dwellings could be developed in the Thornton North area, provided the intersection of Thornton Road/New England Highway is upgraded to a reasonable level. The intersection upgrade should consist of one additional westbound right turn bay on the New England Highway into Thornton Road. This upgrade work is essential prior to approving any development in 2005 in Thornton North.

Public Transport

There are two railway stations relatively close to Thornton North: Thornton and Metford. These stations are located on the Hunter Line, which provides a service between Scone and Newcastle via

Master Plan Implications

- traffic growth has been considered and management methods outlined
- the Master Plan has been designed to encourage walking, cycling and public transport use
- Council and CityRail investigate opportunities to improve vehicle and pedestrian/cyclist access to Metford Station.

Visual Environment

The visual character of the rural/floodplain landscape of the study area and its surroundings is important in terms of the overall landscape quality of the Maitland area. The absence of urban development on the floodplain and



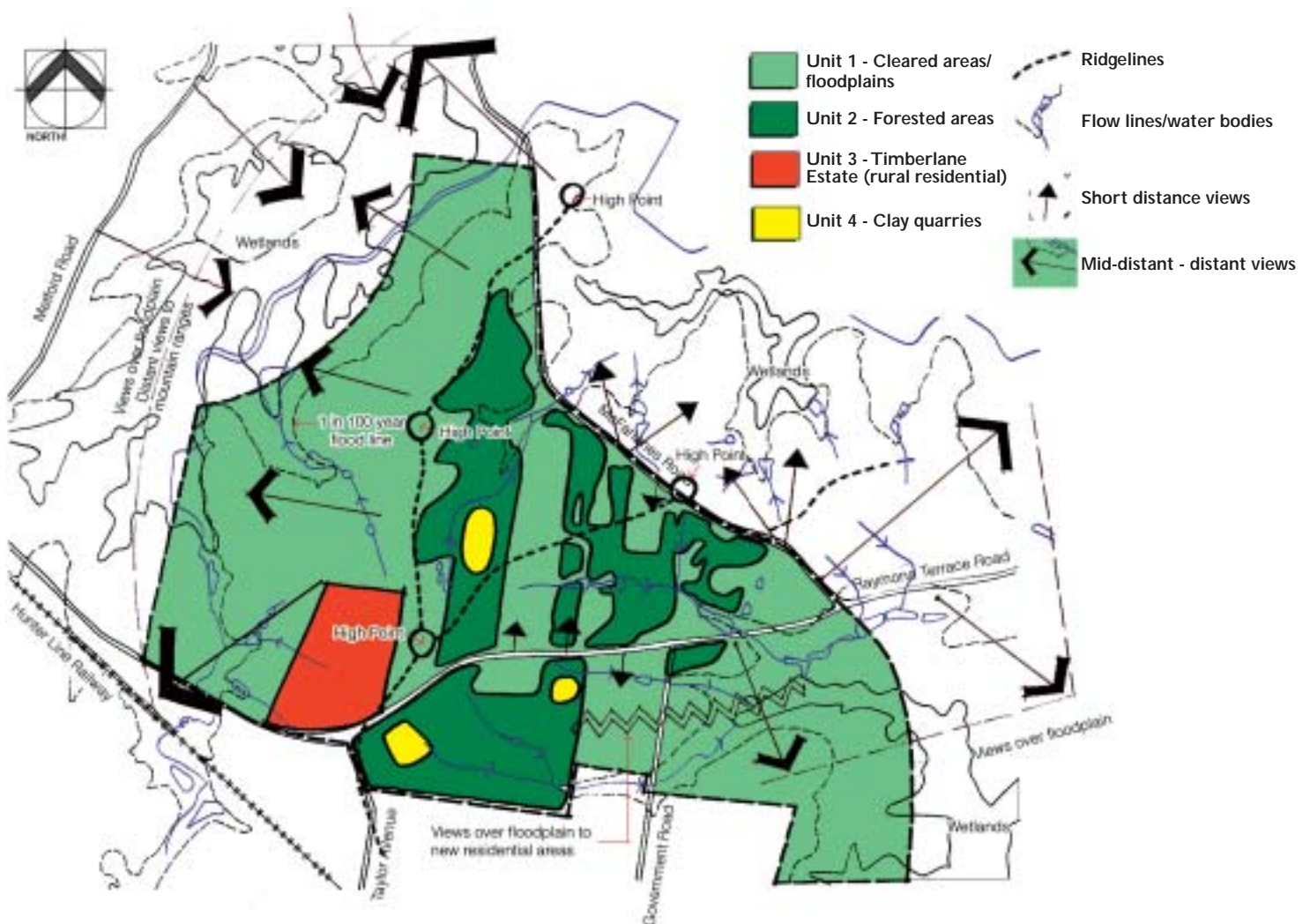
View on north side of Timberlane Estate

the main centres of Muswellbrook, Singleton and Maitland. Both stations are under-utilised, but their proximity represents a good opportunity to encourage better use of public transport resulting from new development in the area.

Blue Ribbon Bus Company provides the only regular service through Thornton. Indications are that the current demand for bus services through Thornton is low.

its expansive pastoral nature inherently contribute to the special qualities of Maitland and its outlying villages such as historic Morpeth. During consultation, the local community stressed how they value the rural character of the site and its surrounds. Many expressed concerns about 'urban sprawl' and associated loss of identity.

An analysis of the existing visual and landscape environment has identified a number of sites sensitive to future development.



Visual and Landscape Analysis

These include: wetlands/creeklines; existing vegetation; ridgelines and rural views. Management options for these sensitive environments have been considered as part of the Master Plan.

Master Plan Implications

Thornton North has been designed with an integrated open space system that protects natural drainage lines and important vegetation, with ridgelines left free of housing and vegetated areas used to differentiate areas of urban development. Landscape buffers (screening, appropriate adjacent land uses) are proposed around areas such as the existing quarries and existing development.

Services and Infrastructure

The potential to supply adequate services in terms of water supply, wastewater disposal, electricity, telecommunications and gas were investigated as part of the planning process. There are no obvious infrastructure constraints to any future new urban development at Thornton North. However, the need to provide services in an incremental and cost effective way may effect staging of development.

Master Plan Implications

Once the Master Plan is adopted, all service (infrastructure and community services) authorities will be notified so that adequate

planning can begin. A Section 94 contributions plan will be developed to identify future work associations with new development so that Council costs can be recovered.

Heritage

An assessment of Aboriginal heritage was undertaken for the study area by an archaeologist. Thornton North is a sensitive archaeological area based on results from a site register search and previous work at Thornton and around Hexham Swamp.

As part of the Master pPlan investigations, consultation was undertaken with the National Parks and Wildlife Service and Mindaribba Local Aboriginal Land Council. Outcomes have included retention of a continuous corridor of cultural landscape types within the planned open space network. These include bushland, creeks, knolls, and wetlands. More detailed investigations will be needed as part of any future rezonings and detailed design.

Two corridors have been identified that linked ridge lines to wetlands (refer open space plan) as well as a knoll (identified as likely to have significance) on the western edge.

There are no known sites or potential areas in the study area of Thornton North that have value in terms of non-indigenous or European heritage. The visual impact of further development at Thornton North on historic Morpeth and its approaches has been addressed in the Master Plan. The

role and function of the Metford Brickworks which has been in operation for more than 100 years has also been considered.

Master Plan Implications

- a range of Aboriginal cultural landscapes have been protected within the planned open space system in consultation with the NPWS and Mindaribba LALC
- ongoing consultation is recommended with these groups throughout future development
- visual impacts to Morpeth will be minimised by trees kept along approach roads and green corridors to break-up urban views.

Community Services

In developing a Master Plan for the study area, consideration has been given to the impact of increased population to determine the need for additional community services. The range of facilities which

residential development at Thornton North might need would include open space (passive and active), primary school, professional consulting rooms, aged/disability centre, community centre/ hall, childcare centre/preschool, library, fire brigade, police, ambulance, community health centre and a small group of shops.

Master Plan Implications

A local centre that includes shops and a primary school has been indicated on the Master Plan. This has been centrally located along the main entrance avenue to encourage viability, vitality and close proximity to the majority of residents. A potential site for a second independent school has also been shown, due to a possible need for this type of facility being identified.

Developing a Vision for Thornton North

Sustainable Development

The Master Plan has been designed using principles of sustainable development. There is a focus on walking, cycling and public transport opportunities such as increasing patronage of Metford Station and considering local bus routes. A range of housing and land sizes will also encourage population diversity and greater affordability.

A sustainable community can be defined as one that:

- meets residents and visitors social needs; and

- ensures that the environment can support these needs both now and in future.

To achieve sustainable development, new urban areas should be located near existing or planned urban centres and near services like shops, railway lines, water and sewerage services. Several local scale benefits of sustainable development can be achieved through appropriate planning such as the new Master Plan.

These include:

- residents saving time and money;
- a sustainable community instead of urban sprawl;
- cheaper government services;
- a better sense of community;
- less need to use cars and more opportunities to walk and cycle;
- protection of land with environmental assets (habitat and water catchment areas); and
- land preserved for economic purposes (extractive industries, prime agricultural, tourist sites).



Emphasis on walking and cycling, integrated with green corridors

Urban Form

The Master Plan focuses on a vision that responds to the needs of the existing and future community, based on current views on the most beneficial urban form.

The types of questions that have been asked during refinement of a vision for Thornton North include:

- Should Thornton North be an extension of the surrounding urban areas or a new community with its own identity? Should it be called Thornton North?
- Should Thornton North provide employment opportunities or be mostly a dormitory area?
- What is an appropriate scale for any future commercial centre?
- What urban form should it take (density, building heights, street structure)?
- Is the concept of environmental sustainability an important one to this area, Council and the local community?
- What type of public areas should there be?

The final urban form and the type of community it will generate, is primarily a reflection of the layout and design of the development. In recent years there has been a substantial change in what is recognised as best practice residential design. There is now far greater emphasis placed on design



An integrated open space system with walking and cycle paths

that responds to the natural attributes of a site (topography, natural drainage lines, views, native vegetation) and seeks to develop an attractive, safe and sustainable living environment. It is also generally recognised that many environmental objectives in urban areas are more likely to be satisfied by increasing residential densities.

A Vision

Thornton North is envisaged as a local community in harmony with its rural surrounds; a place with its own identity that is attractive to be in, and from surrounding areas.

Maitland's rural landscape will remain on three sides, contributing to Thornton North's distinct character. To the south, new

residential areas will sit alongside the existing areas of Thornton, opening new opportunities for these residents with linkages and better connections to recreational facilities and other services.

There will also be a focus on protecting the natural environment, with important vegetation conserved within the park system, local water catchments protected and stormwater managed by using natural drainage lines, minimising runoff and on-site detention.

At the core will be a new local centre with local shops, a primary school and perhaps a community centre. Linking the site to this centre will be a wide avenue lined with trees, forming a memorable feature and allowing extensive views to the rural surrounds.

From all locations new residents will be able to walk or cycle to the local centre, with many links in the area via an open space network and a generous park system. Public transport will be well-catered for, with both a regular bus service and access to nearby Metford and Thornton Stations.

Residents will also benefit from a range of housing choices, providing for a diverse community from younger to older members, enhancing the community resources, equity for all residents, general lifestyle and public safety.



Residences with rural views

Master Plan

Development of Master Plan

Guiding Principles

Guiding principles have been developed to ensure future development at Thornton North satisfies key requirements. These are based on an overall objective of sustainable development; identified site issues; community feedback; and the vision for Thornton North. The Master Plan reflects these guiding principles.

General

- integrate sustainable development principles into all planning and development;
- locate new residential areas near existing centres and where existing infrastructure is available;
- encourage a range of lot sizes and housing styles to provide choice, affordability and cater to a range of population needs;
- plan for a village-sized settlement with a centre that residents can access by cycling, walking and public transport;

- encourage local treatment and recycling of waste products, such as sewage;
- plan for future land use change.

Natural Environment

- protect significant habitat areas and fauna corridors;
- create and enhance habitat areas and integrate them into the future urban area;
- protect flood-prone land from development including filling;



Existing dams can become a feature of the open space system (with appropriate safety measures)

- conserve and protect significant flora and fauna areas and visually prominent land;
- protect water catchment areas, wetlands and existing groundwater reserves.

Rural Character and Visual Issues

- protect and enhance the visual character of the surrounding rural environment and residential areas, around any new development and along major roadways;
- ensure that new development is sympathetic in scale and character to its surrounding area, and mitigate potential visual impacts on surrounding residents;
- restrict urban development on ridgelines and increase tree cover in these areas.

Open Space Network

- plan for cyclist and pedestrian linkages between major recreation reserves, residential areas and any community facilities (schools, shops, employment areas) via an integrated open space system;
- integrate areas of natural vegetation as part of a park system.

Circulation

- design a street system that allows easy access and is easily comprehensible. It should highlight important view corridors to create a "sense of place";
- create an entrance road as a feature of the development.

Master Plan Options

A number of Master Plan options were developed as part of the planning process. These were used to discuss issues with government authorities and within the project team. The Master Plan has been a result of a process which has tested scenarios, re-assessed site opportunities and constraints and considered the implications of key



Large central park

issues such as the clay conservation area, future of the quarries, traffic impacts, vegetation and conservation, visual issues and the vision of the local community.

A detailed traffic assessment was undertaken on the impact of proposed intersections as part of the Master Plan option assessment and testing.

Open Space Network

The open space network is shown overpage. It has the following key features:

- **Conservation** - protects the most important vegetation, a range of cultural sites and natural watercourses.

- **Large Conservation Park** – a large park is proposed around the northern section of the central quarry. This would protect important vegetation and cultural sites, as well as becoming a community focus and asset for Thornton North, and allow regional views across to Morpeth. The open space network links to this site.

- **Active Recreation Parkland** – provided at a site on the floodplain edge that also takes advantage of regional views.

- **Pedestrian and Cycle Path Network** – integrated within the open space to provide easy access to the village centre, railway stations, schools and the existing Thornton area.



An entrance avenue of trees



Open space: Management of vegetation, drainage, topography and cultural

Circulation Network

The circulation plan shown over page illustrates the main features in terms of main roads (note that local roads are not shown) and pedestrian and cycle paths.

The road network has been designed to provide a simple and legible system. It will allow easy movement across the new residential areas and link to existing roads where possible. The number of road access points proposed will also allow the area to easily develop in stages.

Local Road Edges

It is recommended that a rural edge be maintained along Raymond Terrace Road and McFarlanes Road. Houses should

address these roads by being orientated towards them, rather than backyards being seen. To prevent multiple driveways accessing these roads, a service road or an internal road should be located between the house fronts

and the main roads. The separating median can then be planted with trees, or existing trees maintained if possible. Figure A shows how this may look.

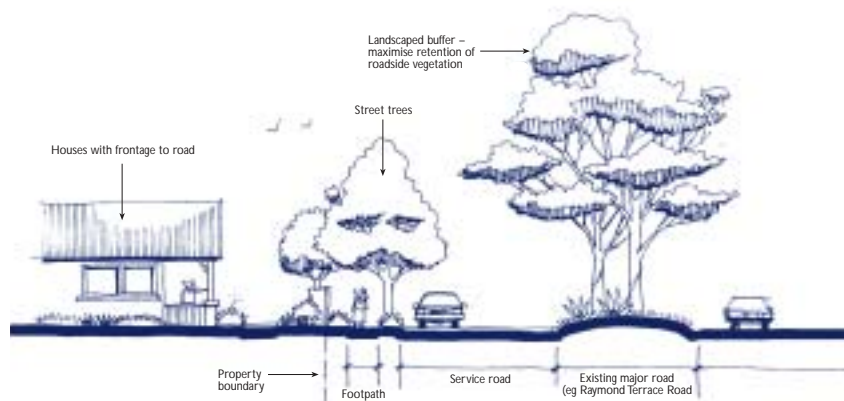
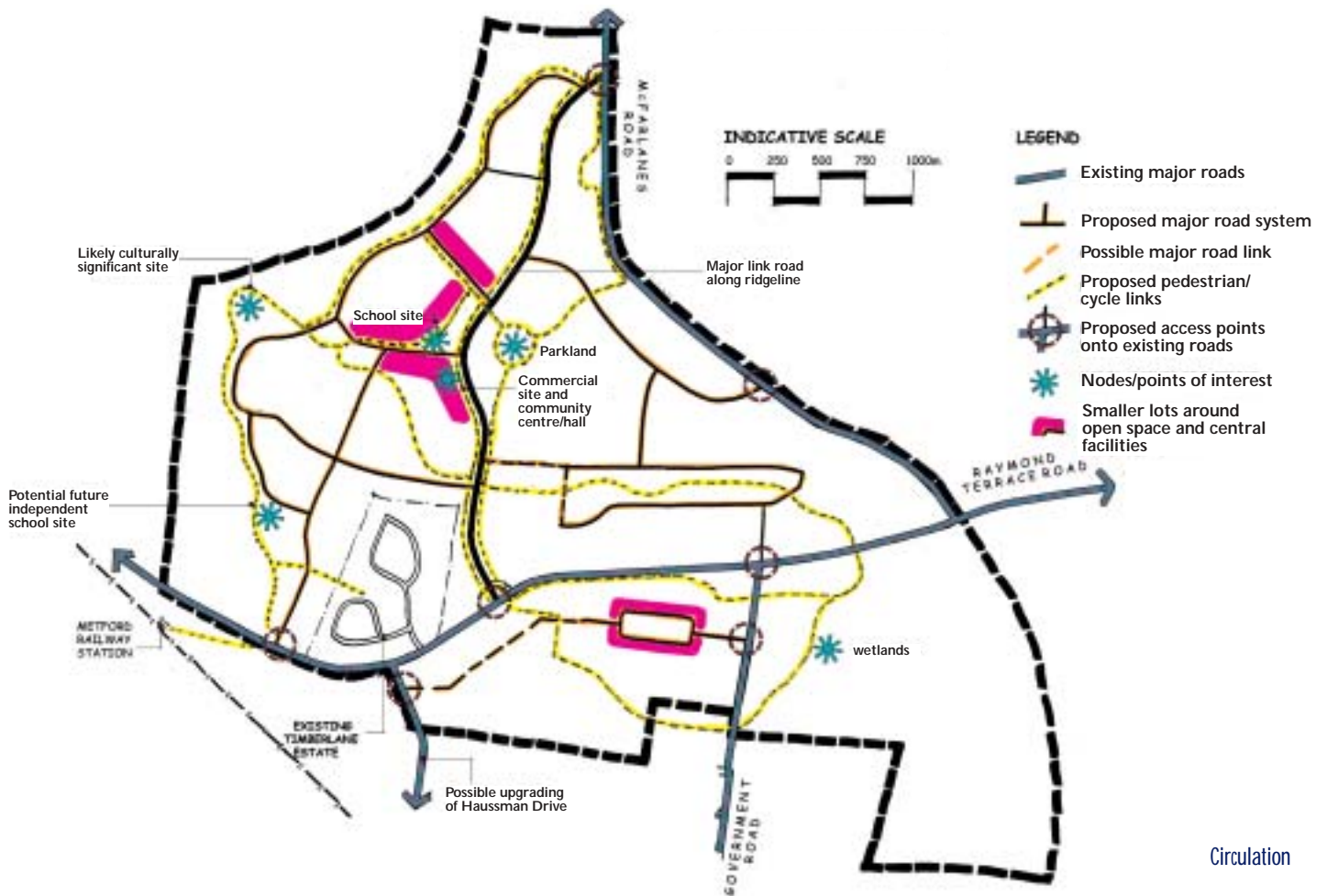


Figure A. Proposed development fronting major roads



Circulation

If noised attenuation measures are necessary, mounding should be used in preference to wall structures.

Central Entrance Avenue

A central, main roadway has been designed to provide prominent trees on the central ridge of the

site. This will provide an attractive entrance avenue with trees in the central median and along the verges at this highpoint. An example of such an avenue is shown in Figure B.

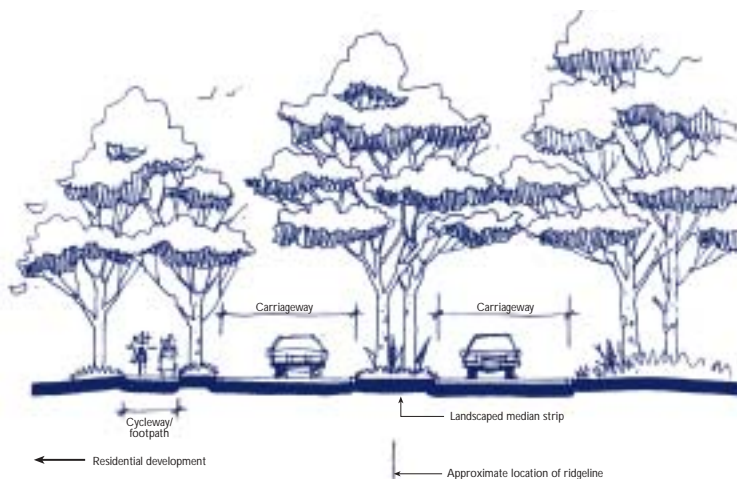


Figure B. Central avenue located on ridgeline

Key Features

Other features of the Master Plan are:

- **Central Village** – consisting of a small group of local shops and possibly a community centre with a pre-school / child care centre.
- **Primary School** – located as part of the central village; will allow for most children to walk/cycle to school.
- **Rural Character** – will be achieved by retaining views to the surrounding floodplain and trees along major roadways, and separating residential areas with green corridors.
- **Small to Medium Lots** – concentrated around the village centre to maximise the number of people who can walk/cycle to shops. Another area concentrated around a park south of Raymond Terrace Road will have direct access to open space.

- **Independent School Site** – a second site has been identified for a possible independent school at the western end of Raymond Terrace Road. This would maximise the public transport opportunities for Metford Station.
- **Future Conversion of Quarry Sites** – The two existing quarry sites, and surrounding buffer areas have been identified for part conversion to residential and part to open space once quarrying operations cease.
- **Timberlane Area** – a large lot buffer (minimum areas 1,500m²) is to be located adjacent to the northern and western boundaries of Timberlane Estate, to provide a transition zone between the new and existing residential development. This will maintain a less dominant residential fringe to the existing residents of Timberlane Estate. A representation of how this might work is shown in Figure C. Other proposed control measures include zero lot boundaries with a seven metres setback (on east and north side) and houses limited to single storey.

Traffic Improvements

The following roads and intersections require upgrading. These will occur incrementally as need arises and funding becomes available (including developer contributions):

- Weakleys Drive Interchange and associated works
- Widening of existing Thornton Road bridge to four lanes
- Potential road upgrading to four lanes:
 - Raymond Terrace Road between Government Road and Haussman Drive
 - Haussman Drive between Raymond Terrace Road and Railway Avenue
 - Thornton Road between Glenroy Street and Glenwood Drive
 - Thornton Link Road between Thornton Road and Connection Road

- Upgrade of regional intersections:
 - Raymond Terrace Road with Government Road
 - Raymond Terrace Road with Haussman Drive.
- Upgrade of local area intersections:
 - Railway Avenue with Glenroy Street
 - Haussman Drive with Taylor Avenue
 - Haussman Drive with Government Road/Glenroy Street
 - Thornton Road with Glenwood Drive/Thornton Link Road
 - Thornton Link Road with Connection Road (between interchange and Thornton Link Road).
- Internal road system serving proposed development– likely to be two lanes.
- Five proposed access points on Raymond Terrace Road and McFarlanes Road.
- Possible future road extension through quarry and two access points with Government Road and Haussman Drive.

This package of road and intersection upgrade works described above would deliver sufficient capacity to the arterial and local network to accommodate the full Thornton North development.

Staging

Due to the predicted high demand for new residential land in the east of the Maitland Local Government Area, it is envisaged that the staging of development in the Thornton North area could proceed on at least two fronts. Based on infrastructure requirements, it is preferable that one such area start on the western side and proceed to the east.

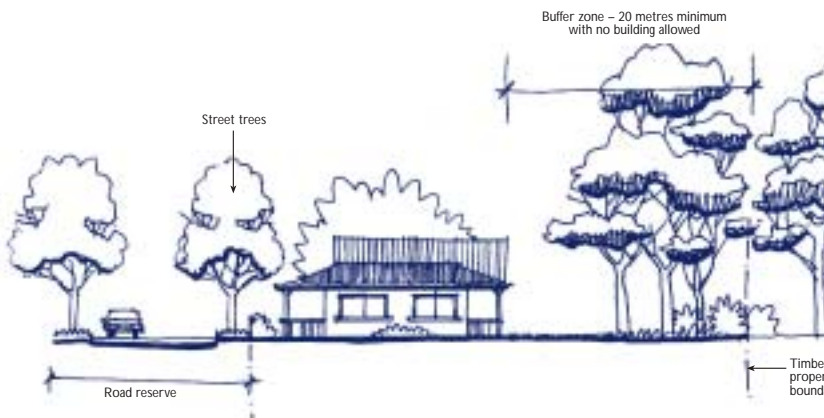


Figure C. Single storey houses; zero lot boundaries with 7m setbacks on east or north side

A Development Control Plan (DCP) is to be prepared in consultation with the community, to outline appropriate design controls for this area.

- Connection Road between Weakleys Drive interchange and Link Road (assumed four lanes as part of the Weakleys Drive interchange).

Development would also proceed logically to the north of Somerset Park, subject to the availability of necessary infrastructure.

The Master Plan will not directly lead to the rezoning of land. The onus will be on individual landholders to justify any proposed rezonings in relation to the adopted Master Plan. In this respect, it would be preferable to see rezoning applications for larger land parcels and for joint ownership proposals to provide opportunities for improved design and economies of scale.

Development Composition

The table below presents information of the development and site composition of the Master Plan:

Strategy Outcomes

A range of actions will be required by a large number of stakeholders to implement the Master Plan. Some of the steps needed to encourage a successful outcome include:

- Presentation to City Rail and encouragement to upgrade Metford Station and provide access from the northern side.
- Further investigation of the upgrading options for Haussman Drive and the railway bridge at Thornton.
- Incremental road upgrading works as listed.
- Maintenance of the rural character of the land on the eastern side of McFarlanes Road due to its scenic value, to create a defined urban edge.
- Ongoing and integrated consultation with the local Aboriginal Land Council in regard to the conserving of proposed cultural heritage sites within the planned open space system and input to planning applications.
- Preparation of a Section 94 Contributions Plan (that will formalise the arrangements for developer contributions for infrastructure and community facilities)
- Preparation of a detailed stormwater management plan, prior to any development proceeding (likely to be Section 94 funded).

Thornton North Study Area	900 hectares
Area to be developed	280 hectares
Range of lot sizes assumed	small – medium 400-500m ² medium 650-750m ² large minimum 1200m ²
Likely population	9,500

