
PART B: STRUCTURE PLAN

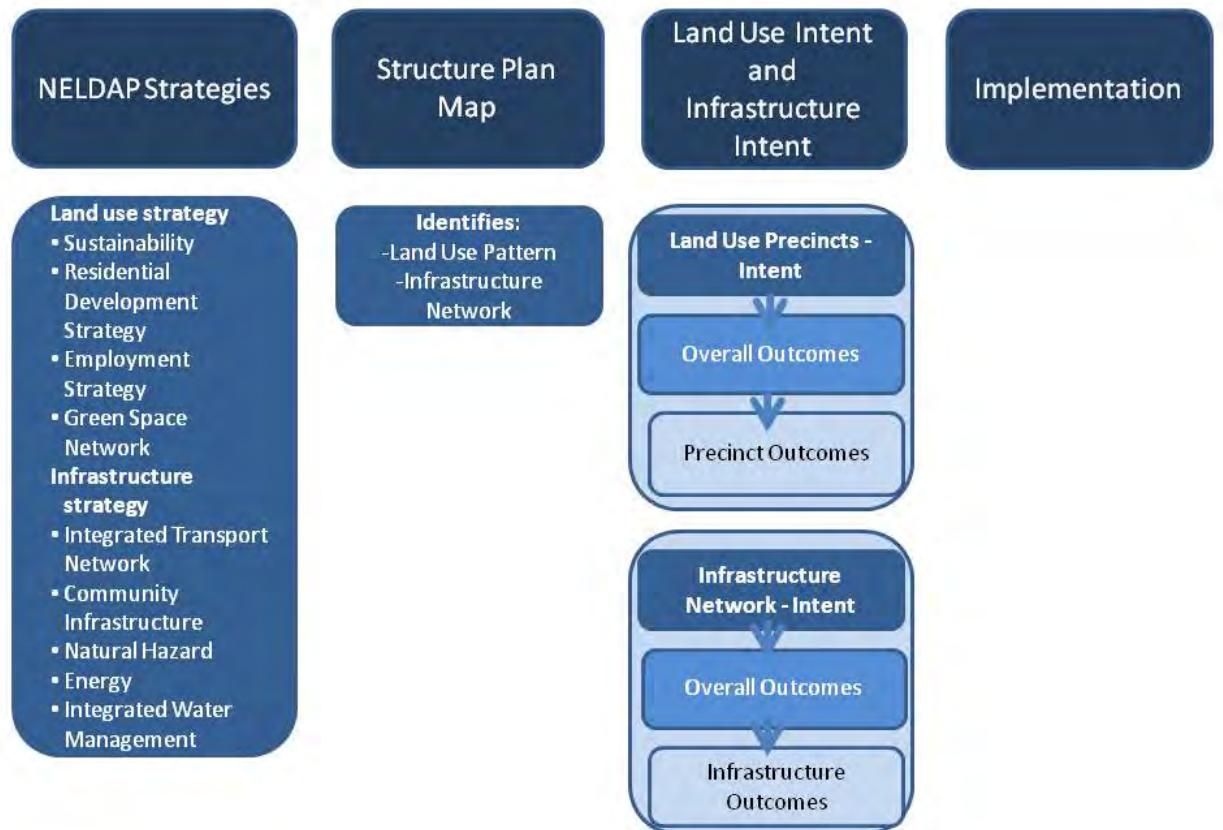
Presents the Narangba East Local Development Area Plan.

- Describes the:
 - Strategies;
 - Structure plan map;
 - Land use intents;
 - Infrastructure intents; and
 - Implementation plan.

2. Components of the NELDAP

The NELDAP seeks to deliver an integrated plan, defined by the structure plan map, strategies, land use intent, infrastructure intent, and an implementation plan to manage future development within NELDA. Components of the NELDAP are shown in Figure 3.

Figure 3: Components of NELDAP



3. NELDAP land use and infrastructure strategies

3.1 Background

The work undertaken in developing the NELDAP has given consideration to a broad range of issues. This section presents the NELDAP strategies which synthesise a broad range of values and features, to form strategies which apply to the designation of appropriate land uses, and infrastructure to service the proposed NELDAP community. Strategies are either:

- Land use strategies; or
- Infrastructure strategies.

3.2 Land use strategies

The NELDAP represents a balanced approach to future development, protecting ecological and other natural values while also providing opportunity for a variety of dwelling types and community, commercial and retail facilities.

3.2.1 Sustainability

Moreton Bay Regional Council is committed to environmentally sustainable development. The NELDAP will therefore capitalise on existing infrastructure and services to build a truly green community that is supported by public and active transport links, local employment opportunities, a green heart and social infrastructure.

The NELDAP builds on existing Council initiatives to address issues of sustainability including the emerging challenges of climate change and peak oil by planning for the provision of equitable and accessible transport networks, enhancing social services, improving passive and active recreation spaces, and creating local jobs that match the skills of local people.

NELDAP supports greenhouse strategy initiatives of the SEORP 2031 and Climate Change Management Plan that support the reduction in air pollution by encouraging an urban form that:

- Minimises car use by reducing total travel distances;
- Encourages alternative modes of travel such as walking, cycling and public transport; and
- Encourages decreased residential energy use through incorporating sub-tropical design principles.

It is important to acknowledge that significant reductions in energy use can be achieved at building design and construction stages. Urban intensification and the location of new residential development on trunk transport routes will encourage the use of public transport that supports a more viable and rapid public transport system. This will also help to facilitate other modes of sustainable transport that will reduce greenhouse gas emissions and resource use.

3.2.2 Residential development strategy

Figure 4 shows the residential development strategy. Residential intensification in selected areas accommodates the predicted demand for a wider range of housing types in locations close to transport, employment, services and green space. The provision of diverse housing options recognises the community's values and provides for the future population's needs. It ensures that there is an adequate housing supply to meet a diversity of demands and that, most importantly, housing is affordable, accessible and appropriately located.

New residential development and housing at increased densities signals a change in focus away from the historical single dwelling house to a focus on medium density residential development, delivering a diversity of dwelling types in a number of locations across the NELDA.

The residential development strategy avoids identifying new neighbourhoods in areas located away from transit services. This delivers a compact and efficient form of development.

The NELDAP is organised to provide an appropriate transition between the higher density uses within the Narangba District Centre and the lower density uses in surrounding communities. The higher density and mixed use development will be located around the Narangba Rail Station. The medium density development will be located along the edges of the Narangba District Centre adjacent to the high density mixed use development, so as to provide an appropriate transition between these buildings and the residential neighbourhoods within the NELDA.

Residential development will be required to reflect the unique character of the NELDA by providing an innovative urban form that allows the area to mature into a cohesive community. This will be achieved by ensuring that all neighbourhoods in the NELDAP have:

- Meeting places;
- Access to the urban green space network;
- A range of housing choices;
- Support for social networks;
- A sense of personal safety;
- Quality of life; and
- A sense of belonging.

Various residential types and densities proposed for NELDAP's land use precincts are outlined below. The anticipated yield of dwellings is also provided, expressed as net residential density. Further detailed investigation will be required to confirm the respective areas of land that can be developed. It is expected that NELDAP will be home to a population of approximately 14,000 people.

Park Residential: approximately 142 hectares within the NELDAP is designated park residential. This includes recently developed areas, generally of high quality housing that does not demonstrate any further subdivision potential and that will not be subject to residential intensification.

Low density residential: approximately 81 hectares of developable land with a dwelling yield of approximately 1,200 dwellings to be accommodated as low density development. Low density development will range in lot sizes, typically reflecting 450m² - 600m² lots with traditional detached housing of up to two storeys at an average of 15 dwellings per hectare. Development of these areas will help to contain growth whilst also embracing its natural settings to create a pleasant urban form that minimises its impact on areas of high conservation value. Development will be in proximity to public transport which will contribute to overall levels of accessibility to facilities and services that reduce vehicle dependency.

Low medium density residential: approximately 22 hectares of developable land with a dwelling yield of approximately 550 dwellings to be accommodated as low to medium density development with densities of 25 dwellings per hectare. The low to medium density development will be within a 400 metre catchment of the local centre located on Callaghan Road with average lot sizes of 250m² and building heights of up to three storeys. This type of development will typically reflect townhouse style development at a density that can support uses within the local centre.

Medium density residential: approximately 58 hectares of developable land with dwelling yield of approximately 2,320 dwellings to be accommodated as medium density development with residential densities of 40 dwellings per hectare. The medium density development will surround the Narangba District Centre's higher density development within the 800 metre catchment of the Narangba Rail Station. The medium density development may also contain mixed uses with opportunities for small retail and commercial uses to create active street frontages.

High density residential: approximately 31 hectares of developable land, with a dwelling yield of approximately 2,480 dwellings to be accommodated in mixed-use development of up to six storeys in height and at densities ranging from at 70 to 80 dwellings per hectare. The high density mixed use development will typically feature within the 400 metre catchment of the Narangba Rail Station and will include commercial and retail uses at ground level that activate the street level. High density mixed use development within proximity of the rail station is based on Transit Oriented Development principles, providing ease of access between

home and places of work, education, community services and cultural facilities. Development in the centre will reinforce the ease of movement by encouraging people to use public transport and active transport options.

Narangba District Centre/High density mixed use: approximately 6 hectares of developable land, capable of delivering a dwelling yield of approximately 480 dwellings within the Narangba District Centre. The Narangba District Centre will be the pre-eminent centre for a mix of shopping, business, local employment, leisure, community services, urban residential living and public transport. The Narangba District Centre will establish higher density Transit Oriented Development (TOD) that includes multi-storey buildings, six storeys in height, with residential living on upper floors, and retail and commercial at ground level. Densities will be up to 80 dwellings per hectare. Transit Oriented Development is provided close to the district centre to take advantage of the rail and bus interchange.

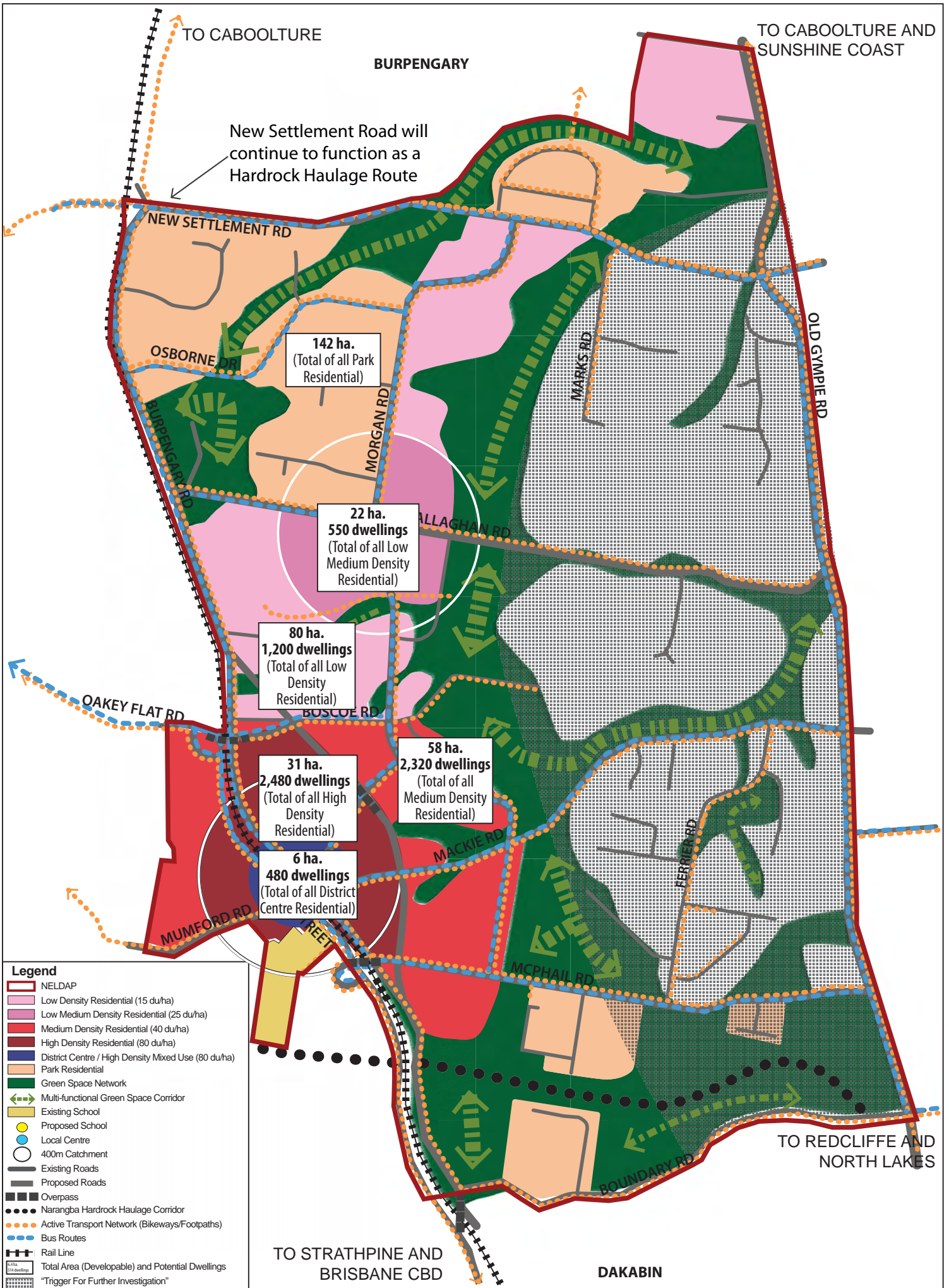
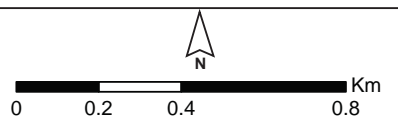


Figure 4
NELDAP
Residential Development
Strategy



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3.2.3 Centre and employment strategy

Gross Floor Area (GFA) forecasts were established to indicate total floor space requirements to meet needs of a fully developed NELDA. Projections of retail GFA derived from population growth confirm a need for retail GFA, up to 10,000m² and a need for commercial GFA, up to 8,000m² (Including the existing GFA). While not prescriptive, they are prepared as a guide in relation to the size and function the two proposed centres.

It is anticipated that the local centre at the intersection of Callaghan and Morgan Roads will be comprised of approximately 1,000m² mixed commercial and retail, leaving a total of 17,000m² for the Narangba District Centre. The planned 17,000m² floor space is considered to be a relatively equal split between retail (8,500m²) and commercial uses (8,500m²). Currently NELDA has approximately 3,000m² GFA of mixed retail and commercial space established in the Main Street existing local centre, located west of the Narangba Rail Station (within the locality of the proposed Narangba District Centre). This existing floor space is considered an equal split of 1,500m² GFA each for retail and commercial uses. This existing GFA will therefore contribute to the overall retail and commercial floor space requirements projected. As such, in recognition of the need to maintain and enhance the present hierarchy of retail centres throughout the Moreton Bay Region, the NELDAP is only required to provide additional floor space to meet employment needs of a fully developed NELDA as follows:

- 7,000m² additional GFA for retail activity; and
- 7,000m² additional GFA for commercial activity.

The Narangba District Centre will be the pre-eminent location for the NELDA community with a mix of shopping, business, local employment, leisure, community services and urban residential living. The Narangba District Centre will encourage self containment within NELDA by improving and increasing public and active transit to ensure that residents and workers can travel to the centre without relying on private vehicles.

The Narangba District Centre will be a vibrant and attractive place to work with attractive streetscapes, a town centre parkland, civic facilities and architecturally designed development. These features will provide a vital improvement in the vibrancy of the centre as a place of social, cultural and business activities.

The NELDAP encourages residential intensification within the centre with six storeys mixed use development that provides residential living above retail and commercial uses on the ground floor. Mixed use development within the Narangba District Centre increases the housing choice for people wishing to live close to places of work, education, community service and cultural facilities.

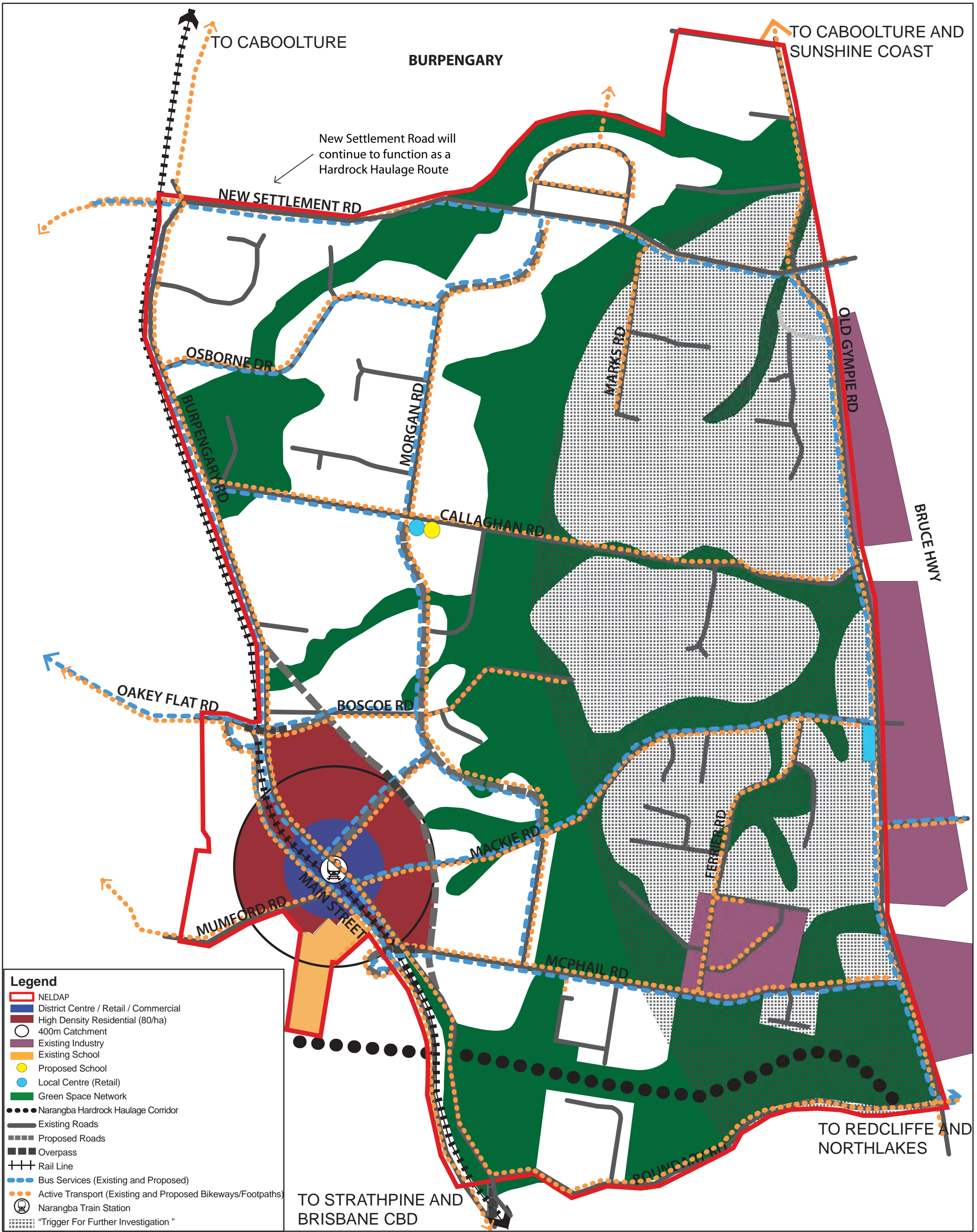
The NELDAP proposes to centrally locate the local centre at the intersection of Callaghan and Morgan Roads. The local centre has been located to adjoin the junction of a trunk collector and collector road and to further allow for access via the active transport network ensuring a high level of accessibility to residents of the NELDA. This centre location is to be supported by increased low to medium density development (townhouse style and small lot housing development), within the immediate 400m walkable catchment in addition to being adjacent to the proposed new school. The increased density and co-location of a school seeks to ensure that the NELDAP provides the critical mass required to support a vibrant local centre. The local centre will typically reflect the functions of a typical neighbourhood centre providing a mix of convenience services, small businesses and potentially community services for the local residential community. The exact siting of the local centre will be resolved through more detailed planning.

Home based employment will continue to be an employment generator of the NELDAP, forming an increasingly high contribution to NELDAP economic and employment growth, while minimising journey to work for NELDAP residents. Home businesses are generally supported throughout NELDAP, mainly in detached dwellings on or in close proximity to transit.

Significant land uses that provide opportunities for future economic growth of the region will be protected. This includes the Narangba Industrial Estate located to the east of NELDA. In order to protect the estate as a

significant employment asset for the region, its operations needs to be unconstrained by the potential limiting effects of residential development where noise and odour and chemicals would impact on residents. An area for further investigation is identified by the *State Planning Policy 5/10: Air, Noise and Hazardous Materials 2010*. In accordance with the SPP any future planning is effectively placed “on hold”. Council recognises the need for further planning investigations that may include (but not limited to), a hazard and risk assessment, air, noise and odour assessments and a community impact survey. A number of these planning investigations and consequential planning scheme amendments will confirm whether such areas are suitable for future development. This area is designated “Trigger for Further Investigation” in NELDAP.

Elements of the NELDAP centre and employment strategy are shown in Figure 5.



3.2.4 Green space network strategy

Figure 6 shows the preferred green space network which seeks to create a cohesive and permeable green space network whilst ensuring key nature conservation areas and wildlife corridors are protected within the network. In addition the green space network incorporates a protected and connected network of natural areas and accessible green spaces in private and public ownership comprised of parklands, stormwater management, wetlands, bushland habitats and landscape values that help to define the footprint of urban development in the NELDAP.

The proposed inclusion of these values within the green space network will ensure the long term conservation and enhancement of areas of significant biodiversity, remnant vegetation, scenic amenity, waterways and floodplains. The green space network:

- Responds to areas with significant environmental values including habitat corridors, significant flora and fauna, significant regional ecosystems, koala habitat, natural waterways and flood prone land;
- Strategically includes some publically owned properties which are intended to be rehabilitated to enhance their ecological value;
- Is linear in nature, linking residential communities within NELDA to sport and recreation parks, centres and community facilities through the extension of off-road cycle and pedestrian pathways. Developing such a network of off-road pathways will greatly enhance opportunity for outdoor recreation and active transportation through NELDA;
- Provides buffers between incompatible land uses and important urban breaks which will help to characterise new neighbourhoods and increase visual amenity whilst also creating a greater sense of place;
- Protects waterways, creeks and flood affected land, ensuring a sustainable and integrated approach to urban water management;
- Provides for both public and private ownership. Land in private ownership will be comprised of larger lot rural residential areas which maintains significant areas of habitat; and
- Enhances links to environmental values outside NELDA including Moreton Bay and Hays Inlet.

The NELDAP aims to maximise opportunities for safe passage of koalas throughout the area, particularly within the green space network. It aims to seek innovative solutions which allow fauna to safely negotiate barriers or hazards where ecological corridors intersect with roads and urban development. Potential measures are exclusion fencing or Koala-specific underpasses installed at regular intervals. Potential locations for such measures include areas such as Callaghan Road, Mackie Road, Boundary Road, and McPhail Road which will allow connections to the north-south ecological corridor

The NELDAP green space network presents an opportunity for the location of parks. Proposed parks in the NELDAP will be identifiable as community activity nodes with formal and informal recreation and sporting areas. Parks will incorporate facilities that match their intended function, hierarchy and setting. Land for parks will be acquired and managed by Council who will also design, equip and maintain these valuable community assets to a high standard.

The NELDAP green space network also presents an opportunity to create linked green space networks and walking/ cycling trails. These networks should be designed to promote walking and cycling as an attractive mode of transport, link facilities and services within NELDA and beyond, and should meet the actual and perceived safety requirements of all users. In this way, such a network can provide a multitude of benefits including integration of the NELDA with surrounding suburbs, improved physical and mental health and increased interaction with the NELDA population.

3.2.4.1 Proposed Green Space Network Policy

The proposed green space network represents a major initiative of the Narangba East Local Development Area Plan. It achieves the objectives of various state plans and policies including the South East Queensland Regional Plan 2031 and the State Planning Policy 2/10: Koala Conservations in South East Queensland.

Further it integrates local initiatives in particular the location and sizing of stormwater management infrastructure, the location of sport and recreational parks and the inclusion of walking / cycling trails.

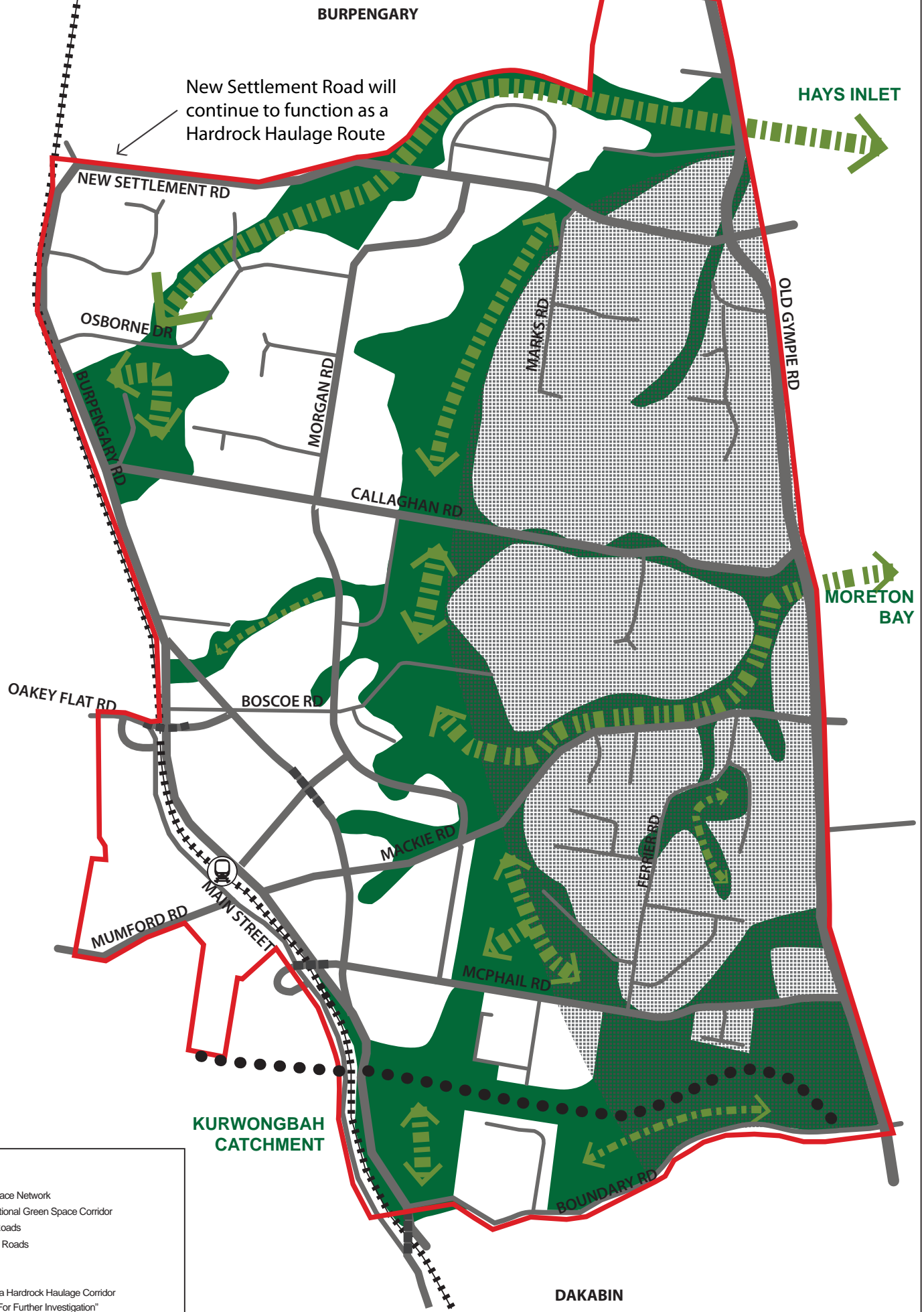
The green space network is being implemented across a large number of parcels of land the majority of which are in private ownership. Further it draws on and integrates a number of statutory plans and Councils and State government programs and as such relates to properties in a specific and often unique way. The implementation mechanisms include:

- Conditions of future development approvals;
- Purchase of land for infrastructure (Parks, Storm water) through the Priority Infrastructure Plan;
- Purchase of land for conservation by Council;
- Purchase of land as part of Koala habitat Acquisition Program by the State Government; and
- Voluntary Conservation Agreement program/s.

A green space network policy is required to address the complex nature of implementation in that it implements multiple policy objectives and is delivered through multiple but integrated plans and programs. The Policy should specifically address:

- Policy objectives;
- A cadastral based map of the green space network;
- Identification of statutory processes and government programs and how they relate to each property identified in the green space network; and
- Specific programs to integrate and coordinate between the multiple implementation mechanisms.

To support the development of the green space network policy, more detailed planning and investigation as part of individual implementation plans (eg Priority Infrastructure Plan) is required. In addition, Council will work closely with DERM in the development and implementation of the proposed policy.



New Settlement Road will continue to function as a Hardrock Haulage Route

BURPENGARY

HAYS INLET

NEW SETTLEMENT RD

OSBORNE DR

BURPENGARY RD

MORGAN RD

MARKS RD

OLD GYMPIE RD

CALLAGHAN RD

MORETON BAY

OAKEY FLAT RD

BOSCOE RD

MACKIE RD

FERNER RD

MUMFORD RD

MAIN STREET

MCPHAIL RD

KURWONGBAH CATCHMENT

DAKABIN

3.3 Infrastructure strategies

The NELDAP aims to provide the essential transport, water, sewerage and stormwater services required to support NELDAP's future development through a timely and cost effective delivery framework.

3.3.1 Integrated transport network strategy

The NELDAP provides an integrated network of roads, public transport, and pedestrian and cycle pathways that facilitates the safe and efficient movement of private vehicles, buses, cyclists and pedestrians through NELDA. A key focus of the transport network is the existing passenger rail which provides the new community with regular and affordable transport to major centres both north and south of NELDA.

The integrated transport network provides for:

- An integrated bus and rail public transport system that will lessen the demand for private vehicle usage;
- A legible, connected and permeable road network for all street users, that ensures appropriate levels of safety, security and protection from the impact of traffic;
- Local bus services which utilise the proposed road network to provide frequent services to the Narangba rail/bus interchange and key attractors throughout NELDA; and
- An integrated and safe cycle and pedestrian network that maximises connectivity and permeability within the green space network, and alongside collector and arterial routes providing access to the district and local centres and access to the railway station.

3.3.1.1 Road network strategy

Figure 7 presents the road network developed for the NELDAP preferred option. This road network has been designed to support the additional population of up to 14,000 residents forecast by the plan.

The basis of the road network is a hierarchical grid pattern of interconnected arterial roads, collector roads, and local streets. This will require the upgrading of the existing road network within NELDA whilst also providing additional road links to improve circulation.

Due to the increasing congestion and safety concerns, the NELDAP proposes the closing of the Mackie Road rail crossing. Options being investigated by Council include the provision of overpasses at Oakey Flat Road and McPhail Roads, and a new bridge to replace the existing timber structure at Boundary Road.

It is proposed that a north-south route redirect traffic from Main Street to the east of the enlarged Narangba District Centre. The preferred route for the road has not yet been selected, but a route immediately to the east of the centre has been identified as having major advantages. The removal of high speed, high volume through traffic from Main Street and the section of Burpengary Road within the enlarged Narangba District Centre will allow these roads to become more people friendly and safe. Accessibility to the district centre and the eastern side of the railway will be enhanced by a new road linking Wheaten Street to an extension of Morgan Road South via a grade separated crossing of the bypass road.

A transport planning challenge is to effectively manage the land use/transport interface and to provide separation where possible of freight and general traffic. A dedicated hard rock haulage route is identified through the south of NELDAP (north of Boundary Road). This route has been identified by State government to be reserved for the future haulage of quarry materials, and when constructed, will remove quarry trucks from the town centre.

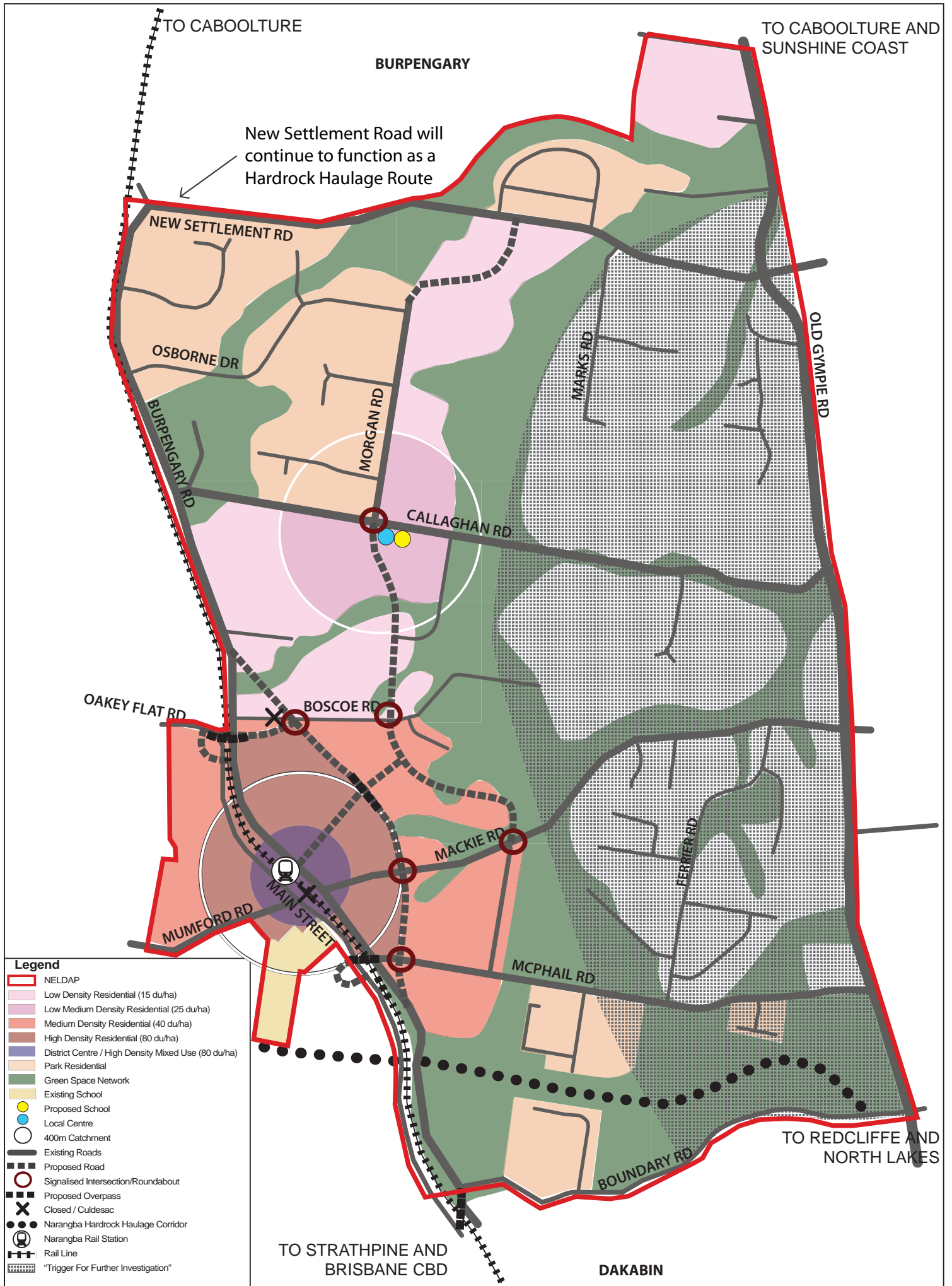


Figure 7
NELDAP
Road Network
Strategy

3.3.1.2 Public transport strategy

Figure 8 presents the public transport network proposed by NELDAP. A consolidated public transport network will provide for frequent local bus services that link the Narangba Rail Station, centres, community facilities and schools with residential areas. Frequent local bus services will be provided delivering commuters to the Narangba Rail Station reducing the need for car parking at the station.

Narangba offers good opportunities for public transport with the railway passing directly through the suburb providing it with one of its biggest assets and opportunities it is however is poorly served by local bus services. To address this shortfall, the NELDAP recommends a localised network of buses throughout the newly developed areas. These buses will travel to the station to provide greater encouragement for residents to use the mass transit system to get to destinations outside the NELDAP, rather than using private vehicles.

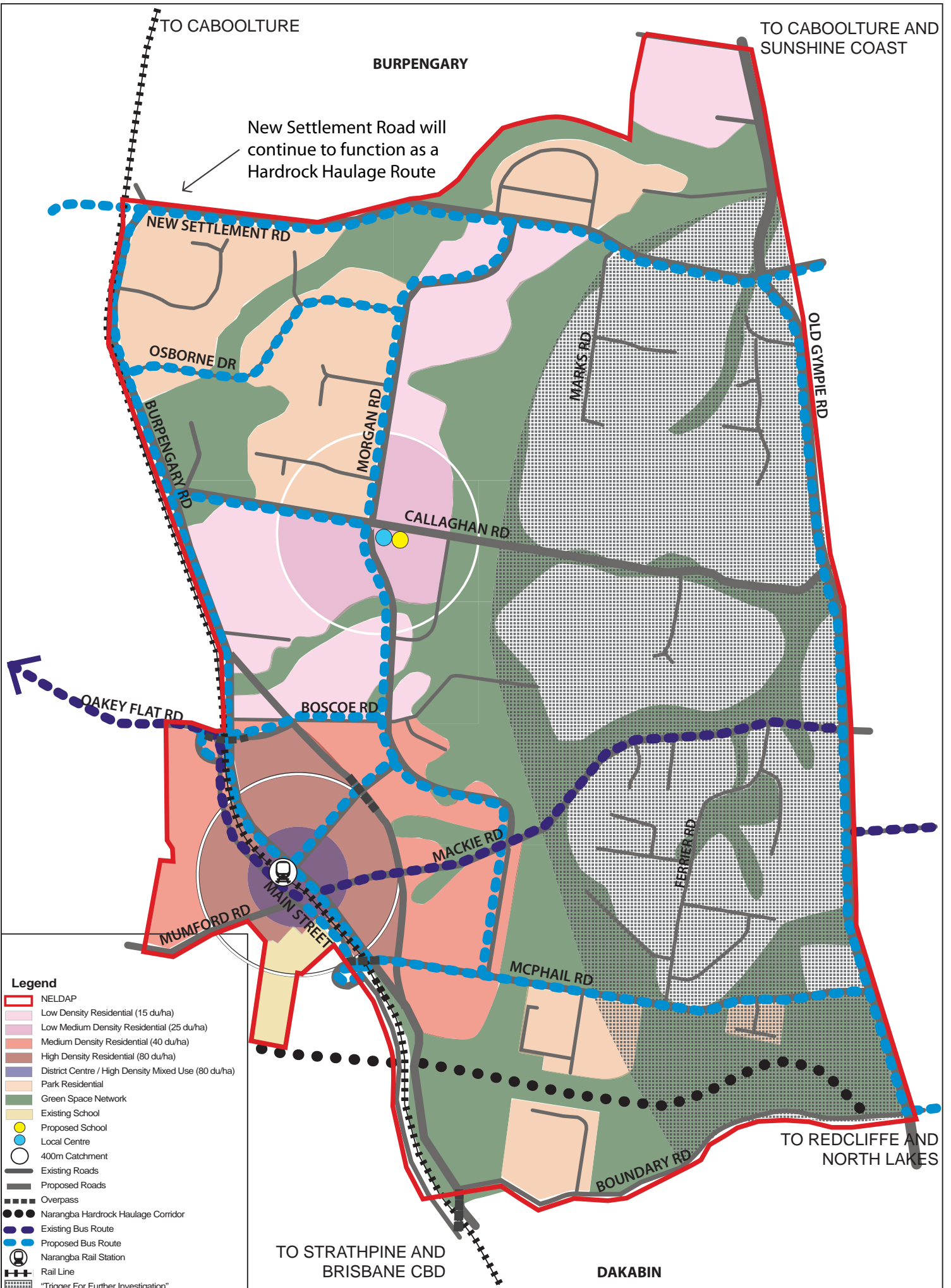
The NELDAP will provide opportunity for TransLink to plan new bus routes through the NELDA using the existing road network. Such bus routes would capture a high percentage of all future residential development within a 400m walking catchment providing the critical mass necessary to support frequent services.

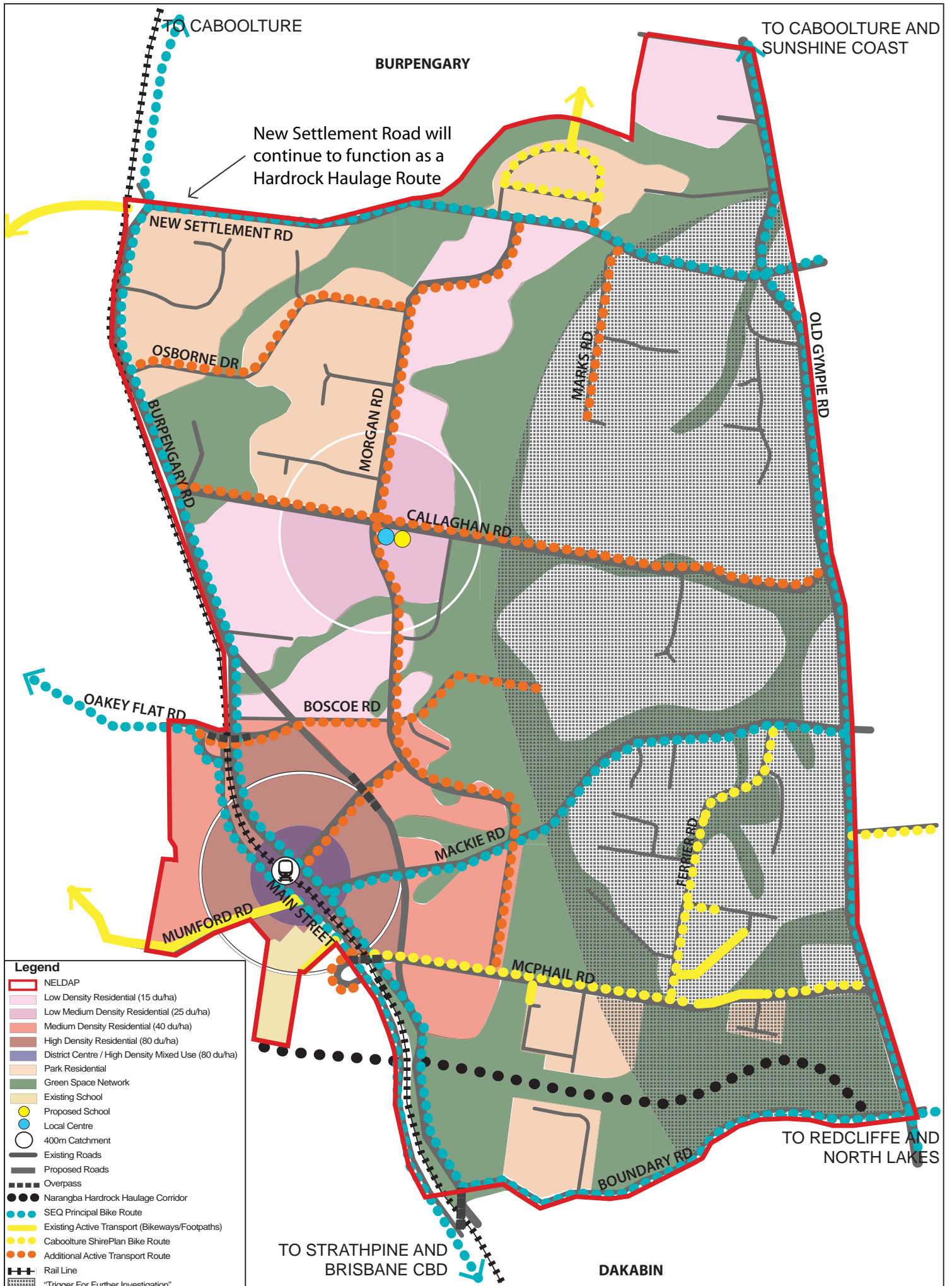
3.3.1.3 Active transport strategy

Figure 9 presents the pedestrian and cycle network proposed by NELDAP. Designated on-road and off road paths will provide access for cyclists and pedestrians, and will be linked to existing and proposed external cycle network links and off road trails through the linear green space network.

The pedestrian and cycle pathways will generally be shared and connect to the Narangba District Centre and other key attractors including schools and sporting facilities. Off-road pathways will be provided within the green space network supporting outdoor sport and recreation whilst enhancing connectivity between residential areas, parks, centres and community facilities.

Cycle use will be encouraged along all streets in the NELDAP by design strategies to reduce levels of traffic activity and result in increased safety for users. The enhancement of these interregional and local networks will contribute to a substantial increase in active transport across NELDAP. The pedestrian and cycle networks within NELDAP will join external networks to enable interregional connectivity.





3.3.1.4 Travel demand management strategy

Travel demand management is accommodated to the greatest extent possible by encouraging behavioural changes in travellers who rely on private car travel to make better use of the existing and proposed transport system. Travel demand management measures are achieved through environmentally friendly travel alternatives, so that transit and active transport trips increase throughout NELDA and become the preferred mode of transport. Improvements to regional and local cycling and walking facilities support the greater use of these modes and help make active transport safer whilst fostering a healthier lifestyle.

A range of demand management measures will contribute to a substantial shift from private vehicle trips that will achieve a high usage of sustainable transport modes. These include:

- The provision of frequent local bus services connecting the new community to the Narangba Rail Station;
- The provision of off-road and on-road cycle facilities throughout NELDAP;
- The provision of additional employment within NELDA; and
- The location of a significant population within walking distance to the Narangba Rail Station.

3.3.1.5 Transit Oriented Development principles

Development of the Narangba District Centre incorporates Transit Oriented Development principles, to foster a high level of pedestrian movements by residents and employees of centre businesses.

3.3.1.6 Environmental

The NELDAP aims to maximise opportunities for safe passage of koalas throughout the area, particularly within the green space network. It aims to seek innovative solutions which allow fauna to safely negotiate barriers or hazards where ecological corridors intersect with roads and urban development. Potential measures are exclusion fencing or Koala-specific underpasses installed at regular intervals. Potential locations for such measures include areas such as Callaghan Road, Mackie Road, Boundary Road, and McPhail Road which will allow connections to the north-south ecological corridor.

3.3.1.7 Noise attenuation

A potential route for a bypass road is immediately east of the Narangba District Centre, passing through medium and high density residential areas. Given the potential for adjoining land uses to be impacted by noise from the adjoining roads, careful consideration needs to be given to the road's development and design. Further planning of the road will need to demonstrate how it will deal with issues of noise, visual impact and integration with adjoining uses.

3.3.1.8 Separation of through traffic

A key feature of NELDAP is to reduce the impact of "through" traffic on the future NELDA community. Care has been taken to divert through traffic away from the existing district centre in Main Street and on to the deviation of Burpengary Road. This new access restricted road will be 4 lanes and provide an efficient bypass of local activity, leaving local streets far safer and more pedestrian friendly.

3.3.2 Community infrastructure

The NELDAP planning process has included an assessment of the emerging community's servicing requirements and the capacity of existing facilities to meet this demand. This assessment sought to align the provision of community facilities with the needs of future residents in a timely manner.

Based on the Desired Standards of Service (DSS) provisions, community consultation and the SEQRP 2031, NELDAP will require:

- A large flexible multi-purpose precinct (of district scale) for a variety of community activities. A district level facility should provide a minimum of 1,000m² and provide for a range of activities, groups and programs;

- A district level 'Indoor Recreation and Sporting Facility' requiring approximately 5,000m²;
- Meeting/recreation/activity spaces and facilities for youth that are accessible and provide after school opportunities and activities e.g. a PCYC;
- Two to three facilities that provide further opportunities for aged care services/assistance programs or social networks. These facilities could accommodate programs including Meals on Wheels or a respite centre;
- Educational facilities including a local State Primary School (DETA standards provide an approximate provision of one primary school per 3,000 households). A State high school may be required over time;
- Provision of a further 2 to 4 child care centres each with a minimum space of approximately 1,500 to 2,000m²;
- Multi-functional space/meeting areas that can provide further opportunity for community providers and not-for profit organisations; and
- Places of worship according to local community's demand.

The designation of community facilities will ensure:

- They are located in or near centres, on higher order roads and close to public transport;
- They will contribute to a sense of place, as local residents use and identify with these important facilities; and
- There is ongoing liaison with private and government service providers that provide child care, primary and secondary education facilities.

The NELDAP proposes the establishment of a multi-purpose precinct to service the local community. This multi-purpose precinct could support uses including childcare, youth activities, community meeting spaces, neighbourhood centre and a variety of other general community purposes. The NELDAP proposes that this land for community purposes be located within or adjacent to the Narangba District Centre, Narangba Rail Station, and parklands, contributing to the formation of a hub of community interaction and social activity. This location ensures that community facilities are easily accessible by car, public transport and walking via the active transport network.

3.3.3 Natural hazard

The NELDAP also seeks to address the risk of natural hazards which may include bushfires, floods and severe storms. This includes:

- Careful planning and management to ensure vegetation in the green space network and other important vegetation does not act as unacceptable fire risk. Mitigation measures will be built into the design of all new development areas. Detailed analysis will be required in the planning of new development areas to ensure hazard mitigation measures are located outside of environmentally significant areas. This analysis is required to ensure that ecological corridors are not cleared as part of fire mitigation measures;
- Urban development is designed to be protected from the impacts of flood events up to Q100. This protection is provided by the allocation of land above Q100, reservation of land in the green space network and the construction of drainage systems including floodways, piped drainage systems, detention basins, lakes and ponds and the retention of vegetation; and
- Appropriate uses adjacent to the Narangba industrial Estate.

3.3.4 Energy

NELDAP is well served by existing electricity transmission and distribution lines and associated infrastructure. ENERGEX has identified that the proposed growth across NELDA can generally be accommodated by the existing high voltage transmission network. Significant investment will need to be made into the distribution network and new substation sites will need to be identified within NELDA.

It is important that the potential for energy conservation is maximised in new development within NELDA. Measures will include reducing energy use through the design and orientation of buildings and high quality

insulation. Whilst this has a cost burden at the time of development, it will result in savings in running costs which will be attractive to property buyers. However, it is also important to ensure that requirements on the development are not to the extent that its viability or affordability is undermined.

3.3.5 Total water cycle management strategies

NELDAP incorporates an array of water management strategies that respond to three key components of the water cycle including potable water, wastewater and stormwater.

Council has adopted a Total Water Cycle Management (TWCM) Strategy under state government's Environmental Protection (Water) Policy, 2009. The strategy, completed in December 2010, identifies specific issues and total water cycle solutions for each catchment so it can act as a blueprint for the future sustainable management of the region's waterways. By identifying the relationships between water catchment areas and water networks and considering factors such as climate change, population growth and urban development, the plan provides a framework for balancing development with the water and waste needs of residents and maintaining the health of the local environment. Further recommendations of NELDAP regarding total water cycle management are outlined below.

3.3.5.1 Water supply

Regarding the SEQ Water Grid, there are no planned upgrades of the Oakey Flat Reservoirs or bulk supply mains to Narangba. However, the Petrie to Narangba trunk main has recently received a major upgrade. Consequently, the current system is considered to have sufficient capacity at Narangba to service the proposed development in the short to medium term. There currently are plans for upgrading the Boundary Road reservoir and the connection to the bulk water main. These upgrades will provide additional trunk main capacity and bulk storage capacity at Boundary Road. The opportunity exists to utilise the Boundary Road reservoirs to service all or part of the NELDA.

Regarding the capacity of the trunk network, the current upgrades are only sized to accommodate existing development levels as set out in the current Caboolture ShirePlan. This includes a small Residential A zone (under the current Caboolture ShirePlan Zoning) to the east of the Narangba Rail Station. The proposed augmentations are not adequate to service the proposed development of up to 14,000 new residents. However, as these proposed augmentations have not yet been constructed, the opportunity exists to redesign the Narangba trunk network and Boundary Road reservoir augmentations to accommodate the initial stages of the proposed development.

It is intended that the potable water network will be incorporated into future amendments of the Priority Infrastructure Plan (PIP) and that Council will levy charges in accordance with the PIP and Infrastructure Charges Schedule (ICS). To support regional water consumption targets, all development will be required to include measures that reduce overall water use, utilise alternative water sources to potable water for some applications, minimise wastewater and incorporate water reuse infrastructure to maximise recycling opportunity.

Moreton Bay Regional Council's PIP includes the majority of NELDA within its Priority Infrastructure Area (PIA). However, the trunk potable water supply network has not been completely defined within the PIP and ICS. It is intended that future amendments to the PIP will incorporate the complete potable water infrastructure items proposed by NELDAP. These amendments should consider the augmentation in Figure 10.

3.3.5.2 Sewerage

The development of NELDAP will require the construction of gravity and rising mains as shown in Figure 11. In the short and medium term the intention is to continue serving this area through existing infrastructure.

Stage 1A

In the short to medium term, the intention is for this area to be served by existing infrastructure. Existing Pump Station NB03 and its associated pressure main will be upgraded by Unitywater when development loads in Catchment 1A exceed the existing capacity. The incoming Gravity Sewer NB 03 Pump Station will also be

augmented by Unitywater when existing infrastructure need exceeds capacity. Ultimately with the development of Stage 3, this station will be diverted eastwards to a Gravity Network draining to the proposed Mackie Road Pump Station.

Stage 1B

This stage will be serviced by two Pump Stations. These stations will initially discharge westwards via a two (2) kilometre 150mm Sewage Pressure Main. Ultimately once development occurs in Stage 3 these stations will be diverted southwards to the gravity network drainage to the proposed Mackie Road Pump Station. Development in this stage will be conditioned to provide these two stations and their associated gravity sewers and the interim 150mm rising main.

Stage 2A

The southern area of this catchment will be serviced by a gravity sewer and pump station (NELDA 2) and pressure main that drain to NELDA 1 Sewage Pump Station. For Stage 2A it will be necessary that Stage 1B infrastructure is in place.

The northern extent of the catchment will be serviced by a Gravity Sewer Main and the upgrading of existing Sewer Pump Station BG 08 and its Rising Main across the Bruce Highway. Development in Stage 2A will be conditioned to provide the pump station/ upgrades, associated gravity sewers and the rising mains.

Stage 2B

This stage will be served by infrastructure in place for Stage 2A.

Stage 3

This stage will require the construction of a large Pump Station on Mackie Road and a Pressure Main that will be diverted eastwards. Given the length and size of this main and likely detention times the construction of this Pump Station will only occur after Stage 1A, 1B and the southern extent of 2A have been developed and substantial flows can be diverted across.

It is intended that Unitywater will be responsible for the construction of the Mackie Road Pump Station and its associated pressure mains. The gravity and pressure network serving Stage 3 will be provided by the developer.

Note the provision of sewerage infrastructure will continue to undergo further investigation and analysis. Unitywater therefore reserves the right to amend the provision and timing of sewerage infrastructure to this area as required.

Unitywater will be able to utilise the NELDAP in undertaking planning for future augmentation of the water supply and sewerage system to service the new population.

The careful and focussed management of new growth fronts and the timely augmentation and expansion of the network to facilitate different growth fronts will be required.

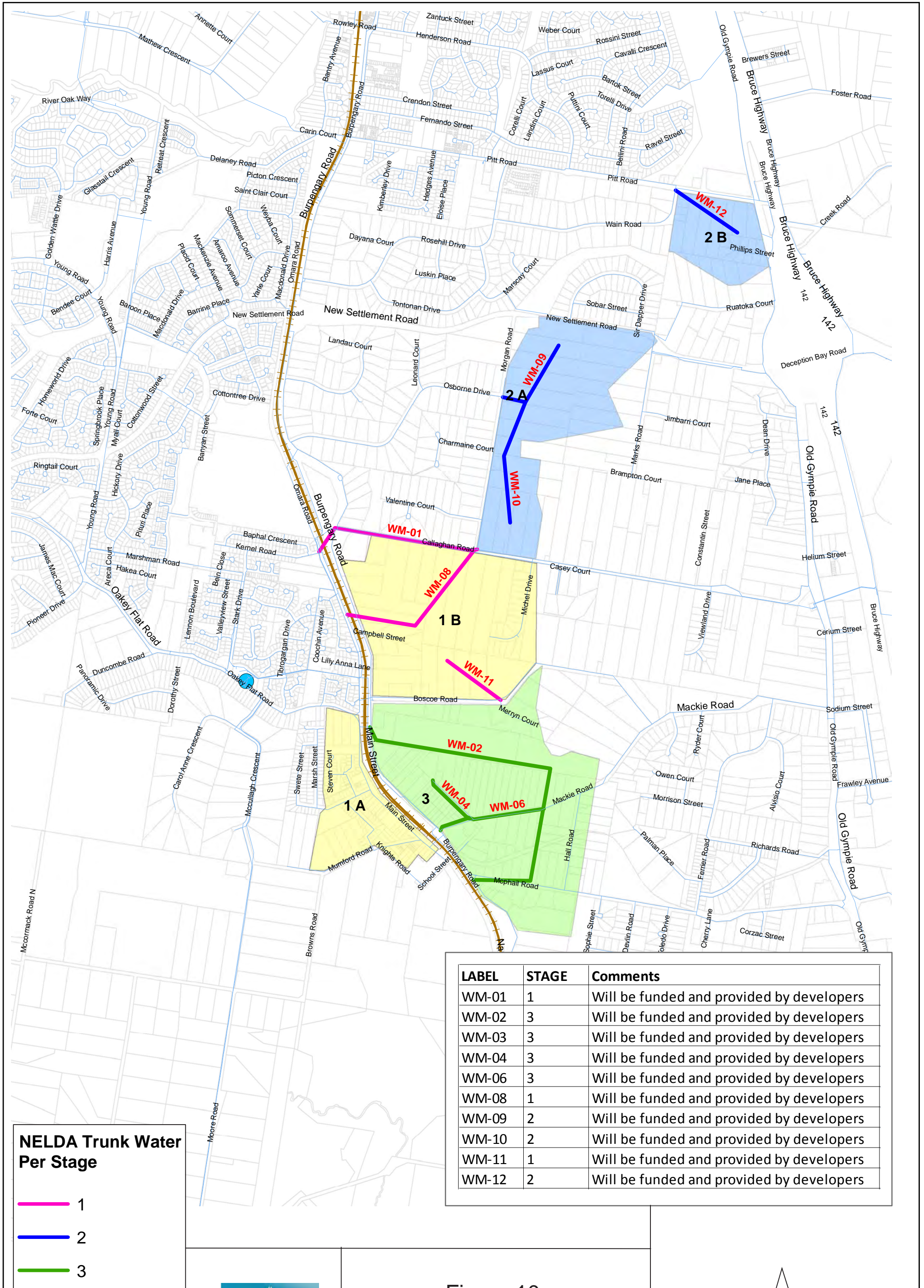
To implement the TWCM Strategy Moreton Bay Regional Council is currently preparing a TWCM Detail Plan, where the solutions identified in the strategy are being assessed in detail through modelling, for their practicability and feasibility. As a part of the TWCM Detail Plan, the water quality of the Caboolture River and Moreton Bay Water will be assessed. This study will determine the amount of total nutrients that can safely and responsibly be discharged to Caboolture River and Moreton Bay in accordance with DERM licensing. Consequently, the findings of this study will provide Unitywater the upper EP that can be serviced by Burpengary East Sewerage Treatment Plant. The detail plan will also identify stormwater treatment opportunities such as water sensitive urban design and stormwater harvesting.

3.3.5.3 Stormwater

The NELDAP stormwater management strategy adopts a design philosophy that considers all stages of the stormwater cycle. The NELDAP proposes the use of a range of stormwater management infrastructures including domestic rainwater tanks, swales, bio-retention systems, wetlands, sediment ponds, gross pollutant traps and infiltration mechanisms such as rain gardens and porous paving. Road design and street layout also contributes to the stormwater management strategy by incorporating initial stormwater infrastructure items and aligning with natural drainage lines.

The integral elements of the stormwater management strategy have been considered and incorporated into NELDAP. This includes retention of waterways in a natural state, and the sizing of the green space network to accommodate Q100 flood inundation. Many of the other actions within the strategy will be determined in scheme amendments, and trunk infrastructure included in the Priority Infrastructure Plan.

Furthermore, total water cycle solutions for relevant catchments of Burpengary, Sideling Creek and Hays inlet are provided in Table 5.9, 5.15 and 5.14 respectively, of Council's Total Water Cycle Management Strategy.



LABEL	STAGE	Comments
WM-01	1	Will be funded and provided by developers
WM-02	3	Will be funded and provided by developers
WM-03	3	Will be funded and provided by developers
WM-04	3	Will be funded and provided by developers
WM-06	3	Will be funded and provided by developers
WM-08	1	Will be funded and provided by developers
WM-09	2	Will be funded and provided by developers
WM-10	2	Will be funded and provided by developers
WM-11	1	Will be funded and provided by developers
WM-12	2	Will be funded and provided by developers

NELDA Trunk Water Per Stage

- 1
- 2
- 3

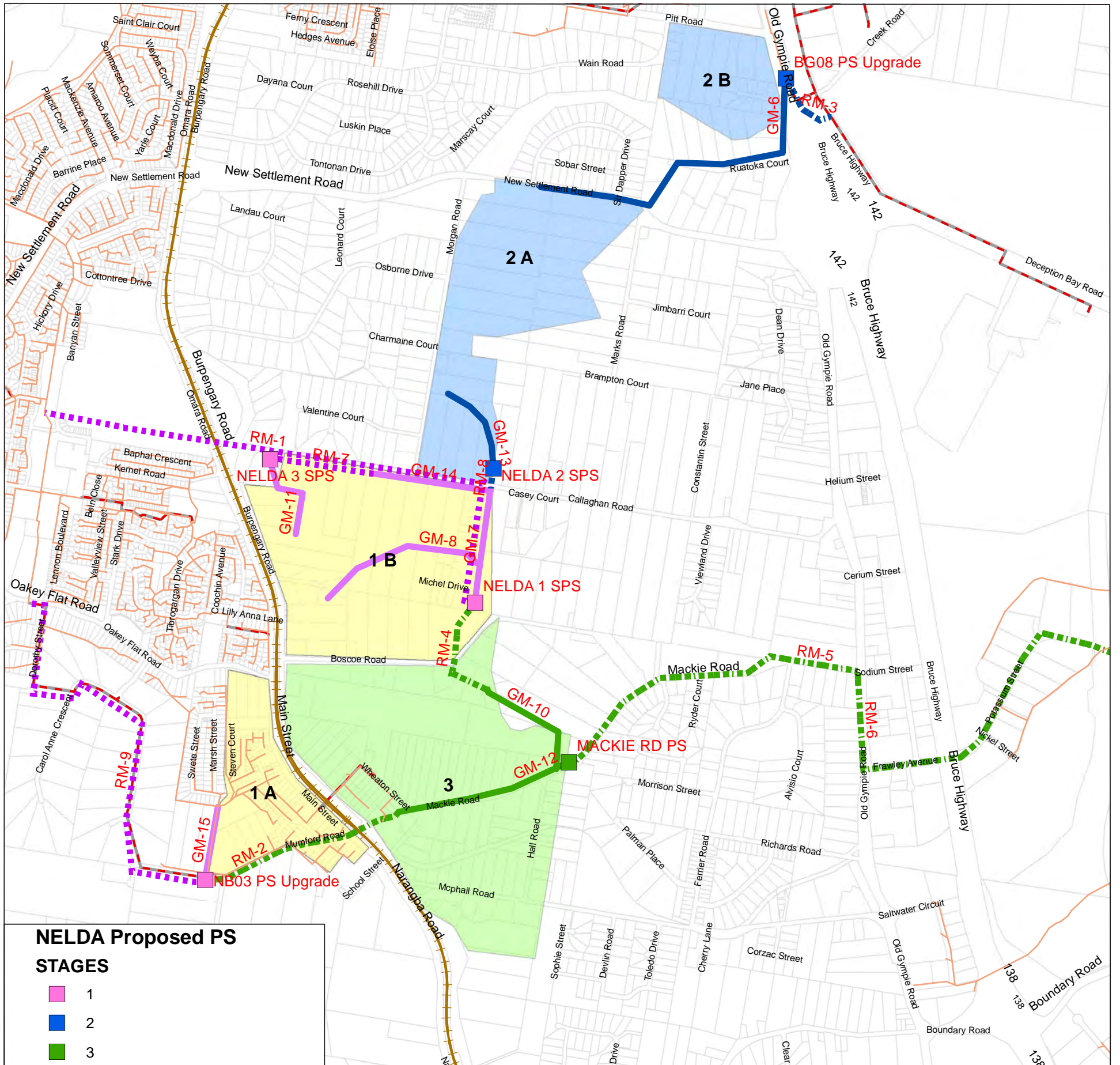


**Figure 10
NELDAP
Water Supply Strategy**



Scale 1:20,000

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NELDA Proposed PS

STAGES

- 1
- 2
- 3

— Export_Output

NELDA Proposed RM

STAGES

- 1
- 2
- 3

NELDA Proposed GM

STAGES

- 1
- 2
- 3

NELDA Stages

- 1 A
- 1 B
- 2 A
- 2 B
- 3

Item	Type	Description	STAGE	Constructed by	Comments
GM-11	Gravity Main	Incoming gravity sewer for NELDA 3 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-14	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-15	Gravity Main	Incoming gravity sewer for NB 03 SPS	1A	Unitywater	Will be constructed by Unitywater
GM-7	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-8	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
NB03 PS Upgrade	Sewer Pump Station	NB 03 PS Upgrade	1A	Unitywater	Will be constructed by Unitywater
NELDA 1 SPS	Sewer Pump Station	NELDA 1 PS (new)	1B	Developer	Will be funded & provided by potential developers.
NELDA 3 SPS	Sewer Pump Station	NELDA 3 PS (new)	1B	Developer	Will be funded & provided by potential developers.
RM-1	Sewer Rising Main	Temporary Rising Main for PS NELDA 1	1B	Developer	Will be funded & provided by potential developers.
RM-7	Sewer Rising Main	New RM for NELDA 3 PS	1B	Developer	Will be funded & provided by potential developers.
RM-9	Sewer Rising Main	Temporary Rising Main for PS NB 03	1A	Unitywater	Will be constructed by Unitywater
BG08 PS Upgrade	Sewer Pump Station	BG 08 PS Upgrade	2B	Developer	Will be funded & provided by potential developers.
GM-13	Gravity Main	Incoming gravity sewer for NELDA 2 SPS	2A	Developer	Will be funded & provided by potential developers.
GM-6	Gravity Main	Incoming gravity sewer for BG 08 SPS	2B	Developer	Will be funded & provided by potential developers.
NELDA 2 SPS	Sewer Pump Station	NELDA 2 PS (new)	2A	Developer	Will be funded & provided by potential developers.
RM-3	Sewer Rising Main	New RM under the highway for PS BG 08	2B	Developer	Will be funded & provided by potential developers.
RM-8	Sewer Rising Main	New RM for NELDA 2 PS	2A	Developer	Will be funded & provided by potential developers.
GM-10	Gravity Main	Incoming gravity sewer for Mackie Road SPS	3	Developer	Will be funded & provided by potential developers.
GM-12	Gravity Main	Incoming gravity sewer for Mackie Road SPS	3	Developer	Will be funded & provided by potential developers.
MACKIE RD PS	Sewer Pump Station	Mackie Road PS (new)	3	Unitywater	Will be constructed by Unitywater
DB 06 PS Upgrade	Sewer Pump Station	DB 06 PS Upgrade	3	Unitywater	Will be constructed by Unitywater
RM-2	Sewer Rising Main	New RM for NB 03 to divert flows towards east	3	Developer	Will be funded & provided by potential developers.
RM-4	Sewer Rising Main	New RM for Nelda 1 PS - Final configuration	3	Developer	Will be funded & provided by potential developers.
RM-5	Sewer Rising Main	New RM for Mackie Road PS (First segment)	3	Unitywater	Will be constructed by Unitywater
RM-6	Sewer Rising Main	New RM for Mackie Road PS (Second segment)	3	Unitywater	Will be constructed by Unitywater

Figure 11
NELDAP
Sewerage Strategy

Scale 1:20,000

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4. NELDAP land use and infrastructure intent

4.1 Background

The NELDAP (Figure 12) provides a variety of land use precincts and infrastructure networks. This section examines each of these elements in detail by:

- Setting out the land use precincts;
- Explaining the overall development intent which apply to more than one precinct;
- Explaining the development intent for various individual land use precincts;
- Setting out the infrastructure networks; and
- Explaining the development intent for various infrastructure networks.

4.2 Land use precincts

The NELDAP Structure Plan allocates all land within NELDAP into a number of land use precincts. The land use precincts are described in Table 1, while details on dwellings and population yield are provided in Table 2.

It should be noted that:

- "Precincts" are not intended to be land use zones, but will inform appropriate zonings as part of subsequent planning processes;
- Developable land is defined as land for which major constraints have been removed;
- Park Residential is an exception in the tables as these areas do not demonstrate any further subdivision potential and will not be subject to residential intensification; and
- The green space network does not represent additional developable area.

(Development yields are rounded)

Table 1: NELDAP Precincts and Developable Land

Zone	DEVELOPABLE AREA
Park Residential	142 ha
Low Density Residential	81 ha
Low Medium Density Residential	22 ha
Medium Density Residential	58 ha
High Density Residential	31 ha
Narangba District Centre	6 ha
Green Space Network	354 ha
Other uses	
Proposed Local Centre	1 ha
Schools (Existing and proposed)	12 ha (7.2 + 5.5)

Table 2: NELDAP Dwellings and Population

Zone	DEVELOPABLE AREA	DENSITY	DWELLINGS	OCCUPANCY RATE	POPULATION
Low Density Residential	81 ha	15 dwellings per ha	1,215	2.8	3,402
Low Medium Density Residential	22 ha	25 dwellings per ha	550	2.8	1,540
Medium Density Residential	58 ha	40 dwellings per ha	2,320	1.8	4,176
High Density Residential	31 ha	70 to 80 dwellings per ha	2,480	1.8	4,464
Narangba District Centre	6 ha	80 dwellings per ha	480	1.8	864
Total	198ha		7,045		14,446

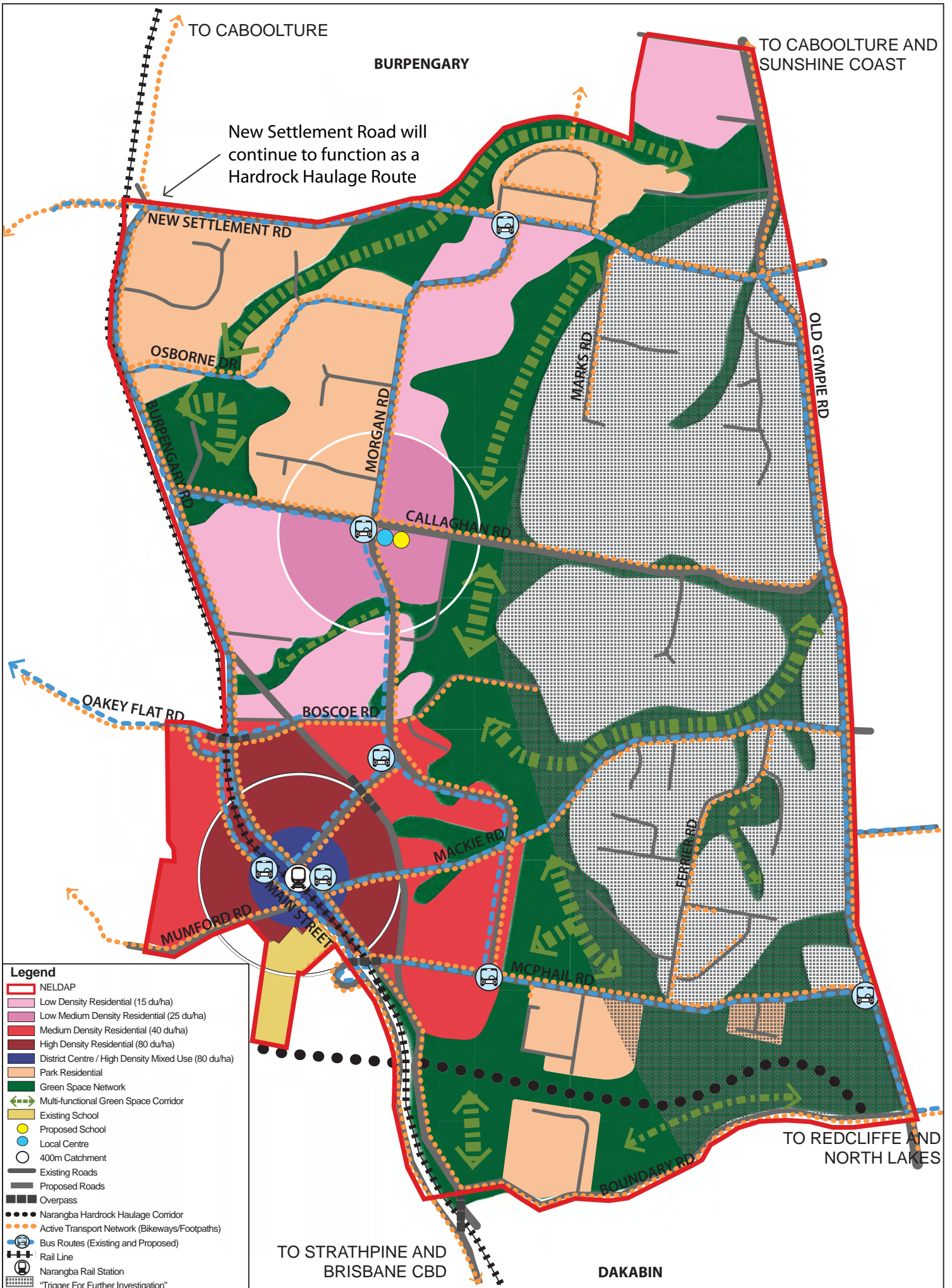


Figure 12
Narangba East Local
Development Area Plan
Structure Plan

4.3 Overall outcomes applying to all development

This section details the outcomes to be achieved for development throughout NELDAP.

Open space/environmental

1. Development provides appropriately located sporting and recreational open space and parkland which provides for the recreational needs of the community in accordance with Council's Desired Standard of Service.
2. Areas of environmental value are protected, preserved and integrated. Development maintains koala and other essential habitat linkages and demonstrates appropriate koala sensitive design techniques to support the safe movement of koalas and other fauna.
3. Development mitigates any adverse impacts on adjoining areas of environmental significance, including creeks, gullies, waterways, wetlands, habitats and vegetation through location, design, operation and management requirements.

Community facilities

1. Development ensures the provision of an appropriate range of community facilities and services to cater for the NELDA community in accordance with Council's DSS and state government standards for the delivery of schools.

Infrastructure

General:

1. Development is consistent with the network of infrastructure indicated on the NELDAP maps, in relation to the road, public transport, cycleway and pedestrian network, water, sewerage, and stormwater.
2. Development has a high level of accessibility to all precincts within NELDAP by the following modes in order of priority:
 - the pedestrian and cycleway network; and
 - the road network;
3. Development provides for the protection and enhancement of a high quality streetscape along all roads.

Public transport:

1. Development provides connectivity to public transport nodes, and facilitates ease of access to the Narangba Rail Station.
2. Development provides connectivity to a high frequency priority bus network.
3. Allocation of suitable land for park'n'ride/kiss'n'ride facilities around the Narangba District Centre will be provided along with the development of associated road connections to link to these facilities.

Road network and traffic:

1. Development provides a safe, convenient, efficient, legible and integrated road network which –
 - has a high level of connectivity with the Narangba District Centre and with adjacent precincts and the adjoining road network; and
 - has an inter-connected grid street pattern.
2. Development ensures that vehicular traffic does not have an adverse impact on the pedestrian and shopping environment within the Narangba District Centre and local centre.

Pedestrian network and cycleways:

1. Development provides a pedestrian and cycleway network along all major and minor roads, which –
 - Is attractive, safe, convenient, comfortable and well designed; and
 - Has a high level of connectivity between and through developments; and with adjacent precincts and public transport infrastructure; and
 - Has weather protection for pedestrians; and
 - Has distinctive landscaping, street furniture and paving materials.

-
2. Development fosters improved pedestrian movements within strategic locations by prioritising walking facilities within:
 - 400 metres of bus stops; and
 - 800 metres of the Narangba Rail Station and Narangba District Centre and local centre.

Freight:

1. The development and/or contribution towards the provision of a network of arterial roads and other minor roads will facilitate distribution to retail centres, whereas collector roads and access streets allow access only to appropriate areas.
2. The hard rock haulage route will significantly reduce heavy vehicles using the road network and will be buffered from sensitive land uses.

Connections to water and sewerage:

1. Development provides connections to reticulated water and sewerage and demonstrates that adequate servicing is being provided.

Stormwater:

1. Development demonstrates that stormwater is managed and treated in a way that ensures the principles of water sensitive urban design are applied.

Sequencing:

1. Development is sequenced in accordance with the delivery of infrastructure and must demonstrate the appropriate provision of infrastructure.

Waste management:

1. Development ensures that sustainability principles are incorporated and that appropriate waste management measures are facilitated.

Telecommunications:

1. All necessary telecommunications facilities including the provision of fibre optic are incorporated into development.

Electricity:

1. Development is provided with connection to the electricity network as required.

Car parking within the Narangba District Centre and local centre

1. Development provides car parking to service the centre at an appropriate rate.

4.4 Land use intent

4.4.1 Intent for park residential precinct

The park residential precinct includes extensive expanses around the north and to the south of the NELDA. The park residential precinct (Figure 13) is intended to provide for a single dwelling house on existing rural residential allotments and maintains the current development pattern. No expansion of the Park Residential precinct is envisaged.

The outcomes for this precinct are described as follows:

Land use

Development provides for residential housing in a rural setting while preserving and minimising impacts on environmentally sensitive locations and scenic quality. Environmental and landscape values, ecosystems and natural physical processes are maintained and incorporated as features in the overall urban form. Development may include the following land uses -

1. Home based business;
2. Dwelling house;
3. Agriculture;
4. Forestry;
5. Park/Local utility; and
6. Dependant person's accommodation.

Built form

Development within NELDAP park residential precinct -

1. protects and enhances the existing and intended amenity and character of the adjoining precincts;
2. provides a high level of amenity in relation to the built form, landscaping, streetscape and public place;
3. does not unreasonably increase the demand for public services or public facilities;
4. minimises conflict between land uses within the precinct and land uses within adjoining precincts;
5. is designed to be sensitive to the amenity of the location and incorporate measures to minimise any adverse visual impacts on the adjoining green space network;
6. facilitates a wide range of home based employment opportunities contributing to local employment needs;
7. is to be based on a permeable, interconnected network of public streets that integrates with surrounding development and responds to the topography of the area;
8. ensures key open and green spaces (including small local parks) are developed giving consideration to the existing topography within the park residential precinct;
9. promotes walkable communities and outcomes and supports the use of public transport; and
10. is framed by, and/or visually and physically integrated with, the green space network where possible; and
11. ensures:-
 - a) The neighbourhoods continue to enjoy a unique rural residential character, based on a large lot subdivision layout and characterised by individual detached houses in a park like setting.
 - b) The neighbourhoods have access to off street cycle and pedestrian pathways that provide convenient linkages to the district or local centres, schools and the green space network.

Lot size

Development for reconfiguring a lot –

1. Provides a minimum lot size of 3,000m².

Density and site cover

Within the park residential precinct:

1. A density ranging between 1-2 dwellings per hectare will be provided;
2. No more than one dwelling unit per 3,000m² of site area shall be provided; and
3. Building bulk is consistent with a dwelling house.

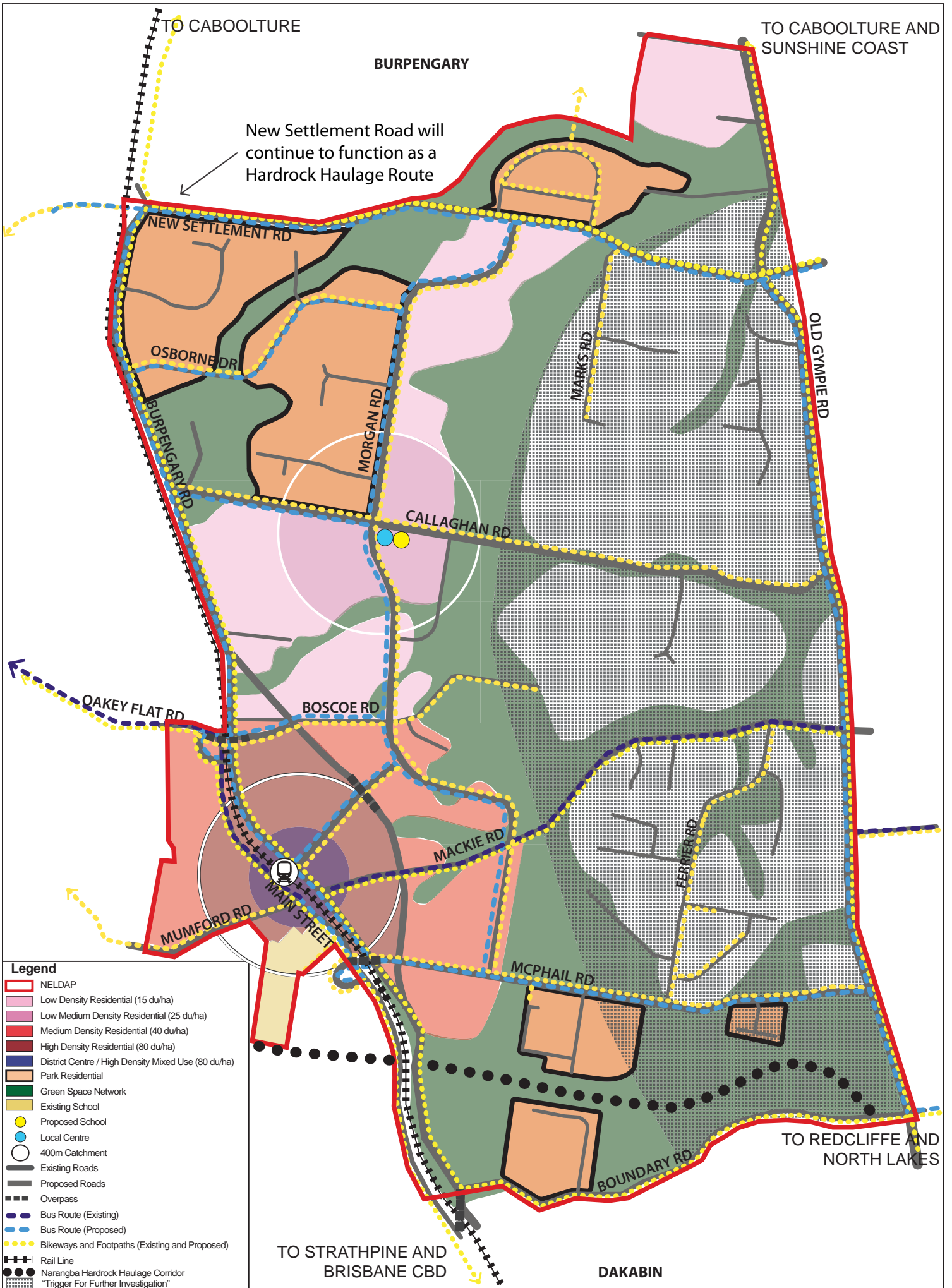


Figure 13
NELDAP
Park Residential
Precinct

4.4.2 Intent for low density residential precinct

The low density residential precinct (Figure 14) is intended to accommodate a range of predominately detached dwelling types. The expected density for these areas is 15 dwellings per hectare, with building heights of up to 2 storeys.

The outcomes for this precinct are described as follows:

Land use

The NELDAP low density residential precinct will predominantly be comprised of uses appropriate within a low density residential setting and may include the following land uses –

1. Dual occupancy;
2. Dwelling house;
3. Home based business;
4. Child care centre;
5. Special care facility;
6. Educational establishment;
7. Park;
8. Local utility;
9. Retirement village; and
10. Dependent person's accommodation.

Built form

Development within NELDAP low density residential precinct –

1. protects and enhances the existing and intended amenity and character of the adjoining precincts;
2. provides a high level of amenity in relation to the built form, landscaping, streetscape and public place;
3. has a low rise built form (1-2 storeys);
4. is designed to be sensitive to the amenity of the location and incorporate measures to minimise any adverse visual impacts to the adjoining green space network;
5. is framed by, and visually and physically integrated with the green space network;
6. incorporates acoustic treatments and building setbacks which minimise noise impacts from Burpengary and Old Gympie Road;
7. facilitates a wide range of home based employment opportunities contributing to local employment needs;
8. is to be based on a permeable, interconnected network of public streets that integrates with surrounding development and responds to the topography of the area;
9. will promote walkable communities and outcomes and supports the use of public transport;
10. provides a distinctive sense of place for each discrete neighbourhood area; and
11. incorporates energy efficient principles that are responsive to the sub-tropical climate of South East Queensland.

Lot size

Development for reconfiguring a lot –

1. Provides lots greater than 450m², and may comprise of lots between 400m² to 450m².

Density and site cover

1. A minimum density of 15 dwellings per hectare will be provided within the low density residential precinct. No more than one dwelling per site.
2. Development has a site cover of up to 45% within the low density residential precinct and a building height that does not exceed 2 storeys (8.5 metres).

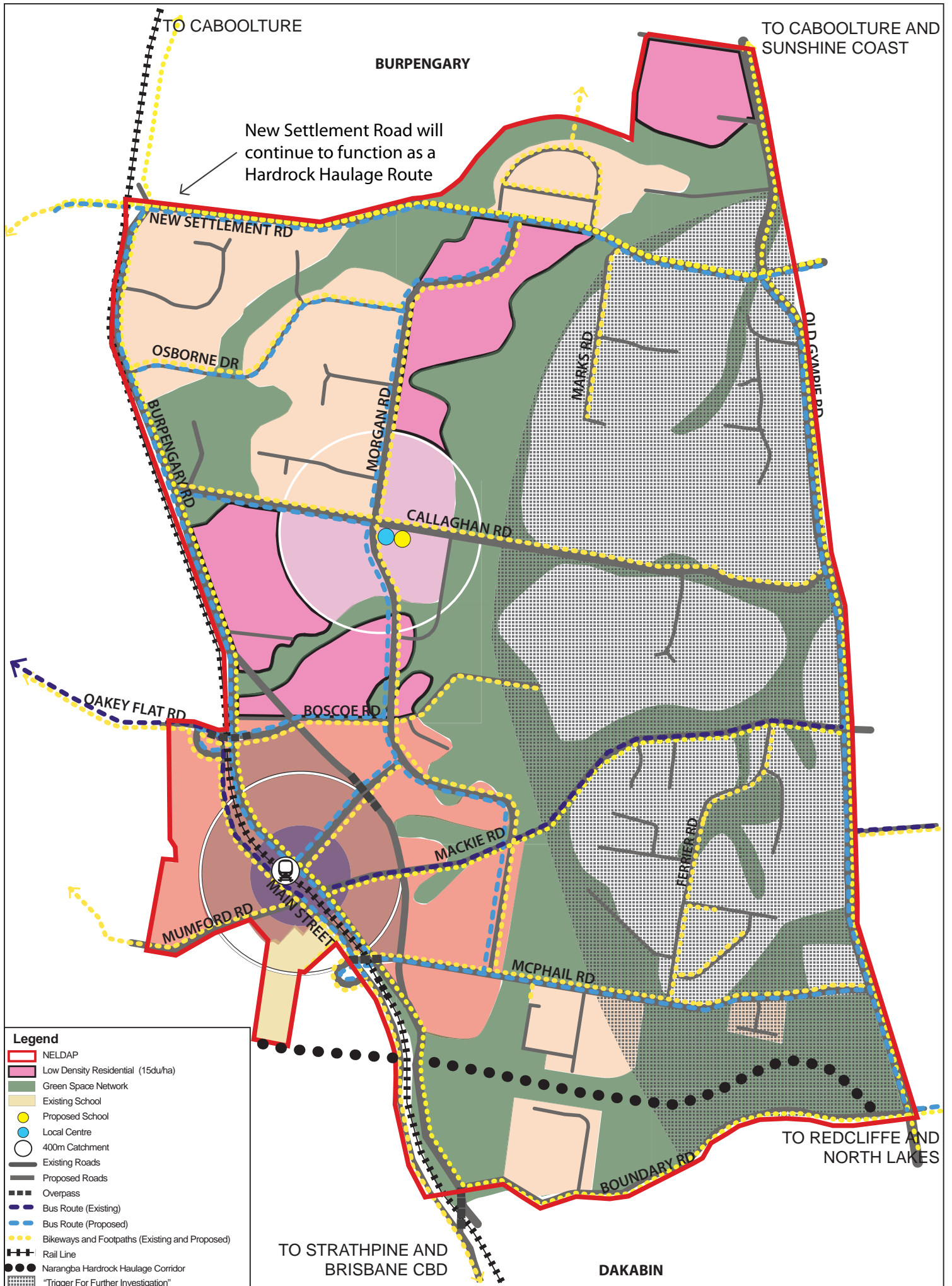


Figure 14
NELDAP
Low Density Residential
Precinct

4.4.3 Intent for low–medium density residential precinct

The low–medium density residential precinct is predominantly developed for residential densities at an average of 25 dwellings per hectare. This precinct includes the local centre, together with residential development (Figure 15). The local centre will have a primary role of providing weekly shopping needs to residents, particularly in relation to food retailing. A future school may also be located within the low-medium density residential precinct, to service the surrounding catchment.

The outcomes for this precinct are described as follows:

Land use

The NELDAP low–medium density residential precinct will predominantly comprise of low - medium density residential uses and may include the following land uses:

1. Dual occupancy;
2. Multiple dwelling;
3. Dwelling house;
4. Home based business;
5. Child care centre;
6. Special care facility;
7. Educational establishment;
8. Park;
9. Local utility;
10. Dependent person's accommodation; and
11. Retirement village.

Within the local centre, the following uses may be developed –

1. Local retail and take away facilities;
2. Medical centre and limited professional suites; and
3. Mixed use development, comprising shops and/or office and/or multiple dwellings;

Built form

Development within the NELDAP low–medium density residential precinct –

1. protects and enhances the existing and intended amenity and character of the adjoining precincts;
2. provides a high level of amenity in relation to the built form, landscaping, streetscape and public place;
3. has a low to medium rise built form (1-3 storeys);
4. provides a distinctive sense of place for each discrete low-medium density neighbourhood area and for the local centre;
5. facilitates a wide range of home based and local centre employment opportunities contributing to local employment needs;
6. is to be based on a permeable, interconnected network of public streets that integrates with surrounding development and responds to the topography of the area;
7. supports the use of public transport;
8. creates walkable communities that are within 800 metres walking distance of the local centre and future school; and
9. incorporates energy efficient principles that are responsive to the sub-tropical climate of South East Queensland.

Lot size

Development for reconfiguring a lot –

1. Where subdivision is sought has a lot size sufficient to accommodate a maximum density of one dwelling unit per 400m² site area.

Density and site cover

1. A density of 25 dwellings per hectare will be provided. No more than one dwelling unit per 400m²- shall be permitted.

-
2. Development has a site cover of up to 50% and a building height not exceeding 3 storeys.

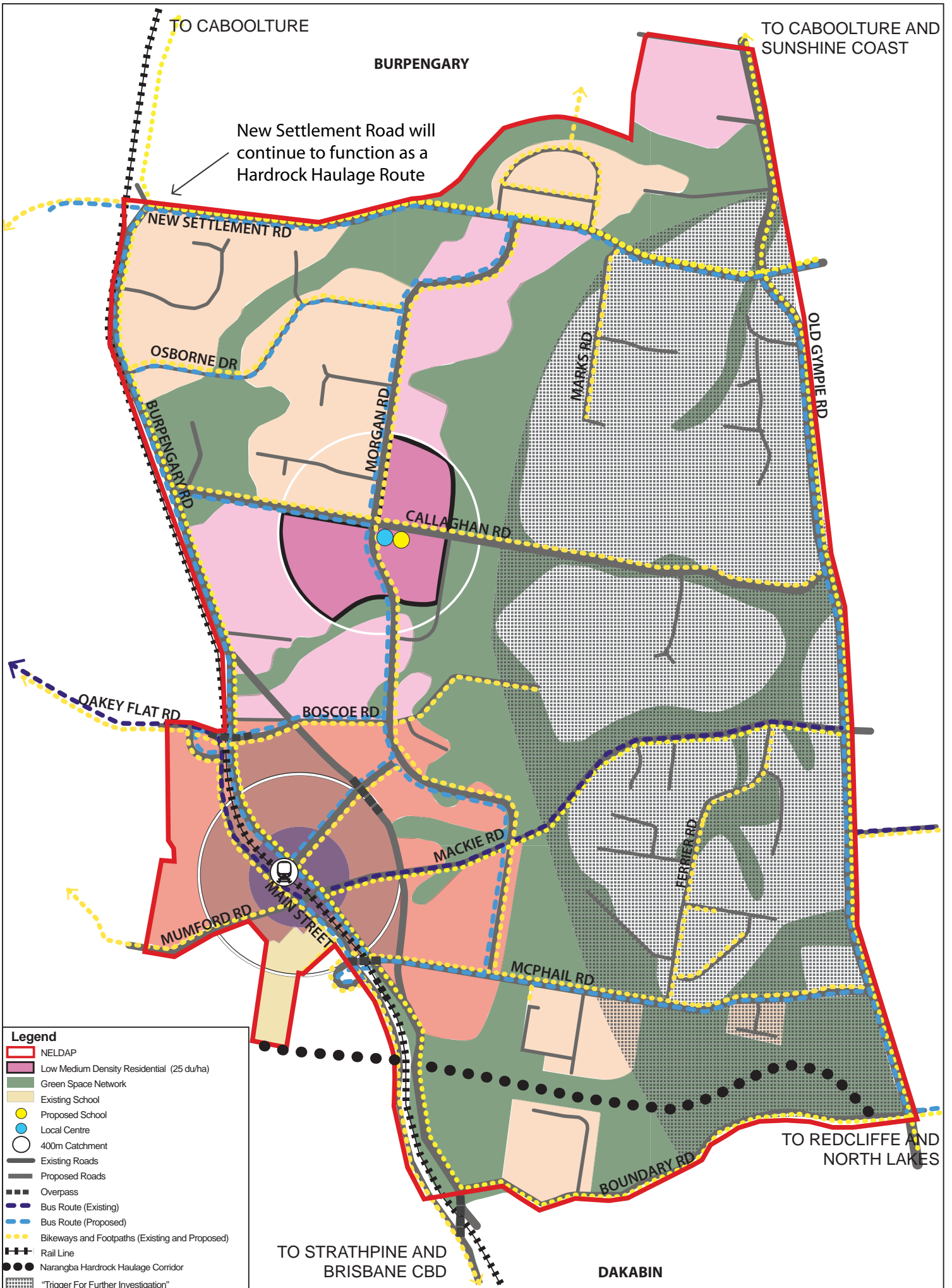
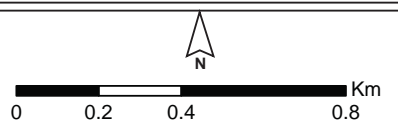


Figure 15
NELDAP
Low Medium Density Residential
Precinct



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4.4.4 Intent for medium density residential precinct

The medium density residential precinct (Figure 16), will contribute to the promotion of TOD principles where within 800 metres walking distance to the Narangba Rail Station and will provide for appropriate residential densities to be developed to support these TOD principles. Development shall achieve an average density of 40 dwellings per hectare. Areas in close proximity to the railway line will ensure they are adequately buffered from any potential rail noise through appropriate noise attenuation measures.

The outcomes for this precinct are described as follows:

Land use

The medium density residential precinct will predominantly comprise medium density residential uses and may include the following land uses –

1. Multiple dwelling;
2. Home based business;
3. Child care centre;
4. Special care facility;
5. Educational establishment;
6. Park;
7. Local utility; and
8. Retirement village.

Built form

Development within the medium density residential precinct –

1. promotes an urbanised realm that enhances the intended amenity and character of the precinct;
2. provides a high level of amenity in relation to the built form, landscaping, streetscape and public place;
3. generally has a low to medium rise built form (3-4 storeys);
4. is to be based on a permeable, interconnected network of public streets that integrates with surrounding development and responds to the topography of the area;
5. will promote walkable communities and outcomes and supports the use of public transport;
6. protects the amenity of residents adjoining the railway line by ensuring that appropriate buffering and noise attenuation is put in place;
7. provides a transition of densities and building heights to the adjoining high density residential precinct and adjacent Narangba District Centre;
8. provides that a residential use has a high level of accessibility and legibility with the public transport infrastructure being within 800 metres walking distance of the Narangba Rail Station; and
9. incorporates energy efficient principles that are responsive to the sub-tropical climate of South East Queensland.

Density and site cover

For development within the medium density residential precinct:

1. A density of 40 dwellings per hectare will be provided.
2. A building height not exceeding 4 storeys is provided

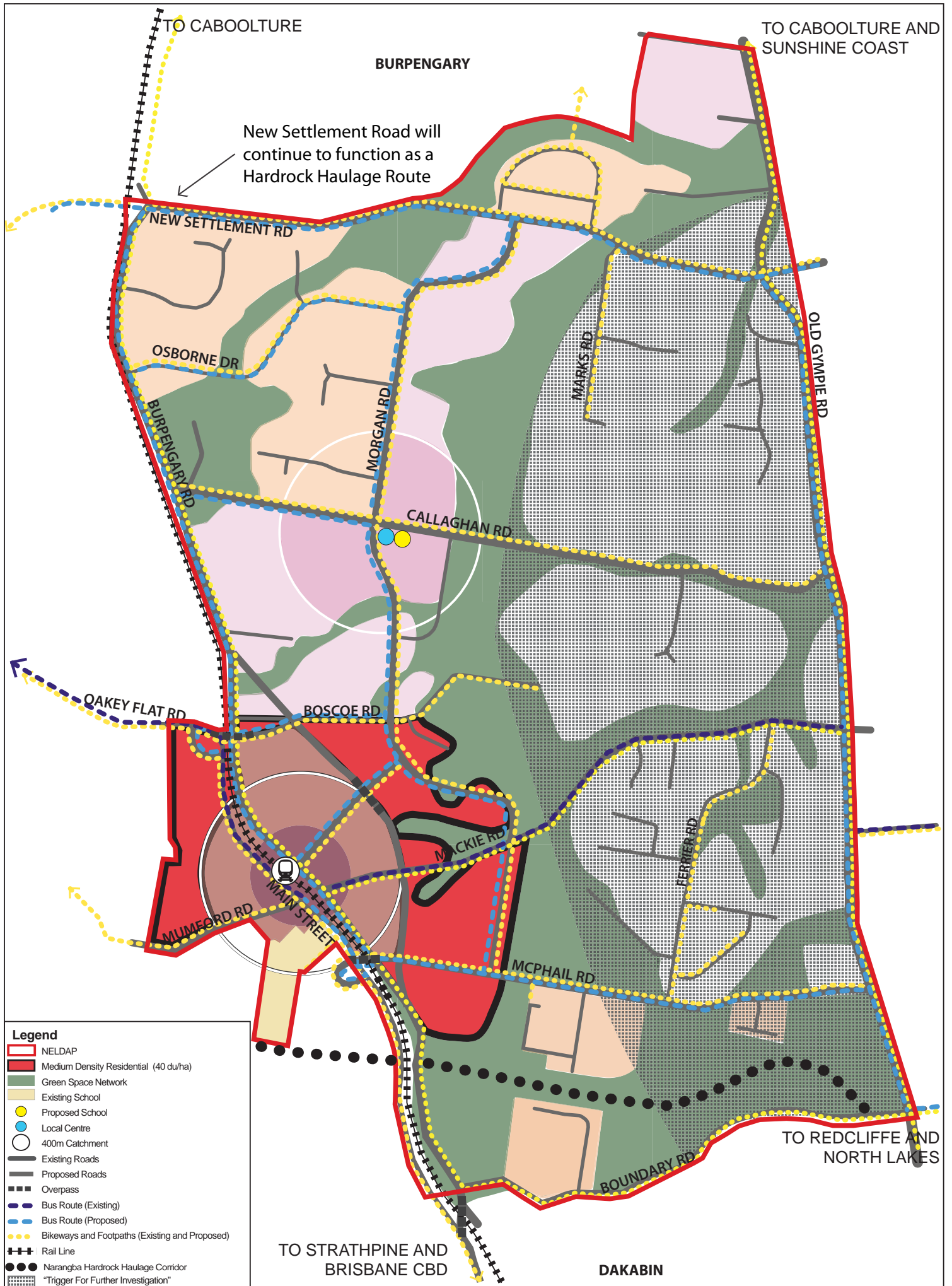


Figure 16
NELDAP
Medium Density Residential
Precinct



4.4.5 Intent for high density residential precinct

The high density residential precinct (Figure 17) is intended to maximise opportunities to accommodate high density residential development up to six in height in close proximity to the Narangba District Centre and Narangba Rail Station. This high density residential precinct will support the function of the Narangba District Centre and maximise Transit Oriented Development outcomes within a walkable catchment of 800 metres of the Narangba Rail Station.

The outcomes for this precinct are described as follows:

Land use

Development will provide predominantly high density residential uses as well as a secondary supportive role to the Narangba District Centre and may comprise the following land uses –

1. Home based business;
2. Multiple dwelling;
3. Entertainment and recreation (indoors);
4. Limited lower order commercial premises and services such as offices, provided these do not detract from the commercial function of the adjoining Narangba District Centre;
5. Limited lower order retail services such as shops, provided these do not detract from the retail function of the adjoining Narangba District Centre;
6. Community activities such as educational establishments, child care centres, special care facility, parks, local utility and the like; and
7. Mixed use development, comprising shops and/or offices and/or multiple dwellings.

Built form

Development within the high density residential precinct-

1. provides a built form that delivers high quality architecture in a manner that supports the outcomes of this NELDAP through the consideration of flexibility in built form outcomes, including building height, site coverage and setbacks;
2. has appropriate ground floor activation that is complementary to the proposed use;
3. provides a high level of amenity and embraces sustainable practices;
4. provides an appropriate transition in scale from the higher density areas of up to six storeys immediately adjoining the Narangba District Centre, to a density and building height which is more commensurate with the adjoining medium density residential precinct;
5. increases residential densities for sites adjacent to or within 200 metres of public open spaces, ensuring that buildings have direct frontage to and actively address the open space areas, to facilitate casual surveillance and encourage frequent utilisation of the communal green space network;
6. incorporates a superior built realm that is complemented by quality landscaping that incorporates attractive sub-tropical design principles within buildings, streets and spaces;
7. encourages a wide variety of uses that are supportive of the precinct;
8. will be based on a permeable, interconnected network of public streets;
9. will integrate with surrounding development by contributing to the achievement of an interconnected network of public streets;
10. facilitates a high level of accessibility between the Narangba Rail Station, the Narangba District Centre, and adjoining residential precincts;
11. will integrate with surrounding precincts by contributing to a strong public transport network and pedestrian and cycle network, including highly legible linkages to the Narangba District Centre precinct and Narangba Rail Station;
12. develops key open and green spaces (including small local parks), giving consideration to the existing topography within the precinct;
13. provides functional and connected public open space areas which will be delivered early in the development process to facilitate connections with the Narangba District Centre precinct;

-
14. provides a variety of housing choices at a range of higher densities to meet diverse residential accommodation needs. This includes affordable housing options that allow people of all income levels to live within close proximity to the Narangba District Centre;
 15. ensures that car parking areas are not a dominant visual element of the precinct;
 16. provides for a road connection or bypass road which bypasses the district centre, as referred to within the proposed road network; and
 17. in the area of the bypass road, is designed to mitigate any adverse impacts from associated heavy vehicle traffic, including potential acoustic and visual amenity impacts.

Density and site cover

For development within the high density residential precinct:

1. A density of 70 - 80 dwellings per hectare will be provided.
2. A building height not exceeding 4 storeys where adjoining the medium density residential precinct; and a building height not exceeding 6 storeys where adjoining the Narangba District Centre precinct.

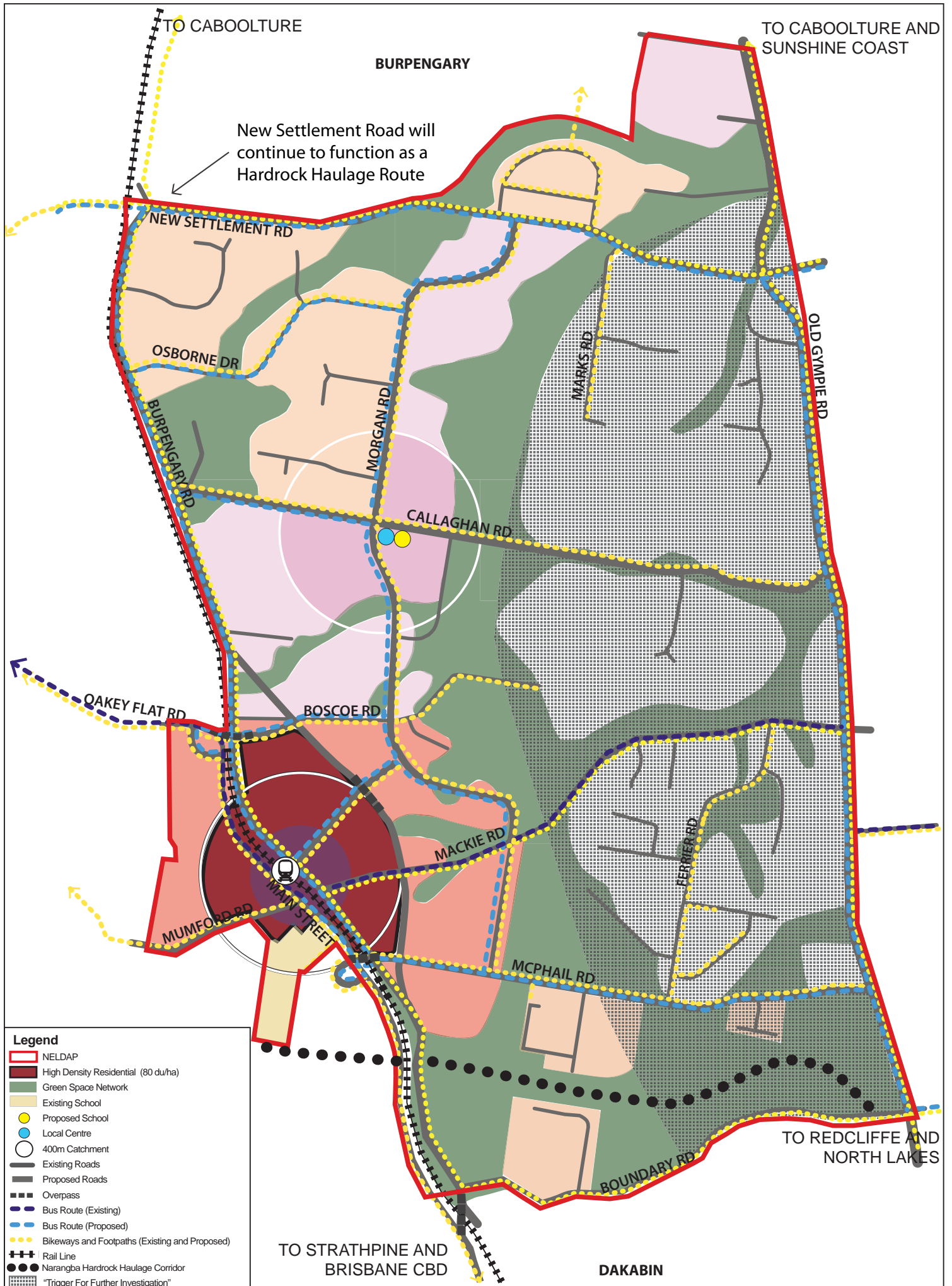


Figure 17
NELDAP
High Density Residential
Precinct

4.4.6 Intent for Narangba District Centre precinct

A master plan will be prepared for the Narangba District Centre precinct to provide further direction on the nature and form of land uses in the precinct. The following intent for the precinct provides a framework for the master plan.

The Narangba District Centre precinct (Figure 18) develops to comprise a mix of retail and commercial tenancies, combined with high density mixed use residential opportunities where appropriate. It shall not exceed a total GFA of 17,000m² for retail and commercial uses. The Narangba District Centre will optimise its location to the Narangba Rail Station by promoting Transit Oriented Development principles.

The outcomes for this precinct are described as follows:

Land use

The Narangba District Centre precinct will provide a major community focus, including a town square and plaza and may comprise the following land uses–

1. Shopping centre;
2. Shops;
3. Offices;
4. Medical offices;
5. Restaurants;
6. Cafes’
7. Entertainment and recreation (indoors);
8. High density mixed use development, comprising shops and/or offices and/or residential, including multiple dwelling, accommodation building and dual occupancy;
9. Limited services industry;
10. Community facilities, including child care centre, educational establishment, special care facility, parks, local utility etc.; and
11. Transit Oriented Development.

Built form

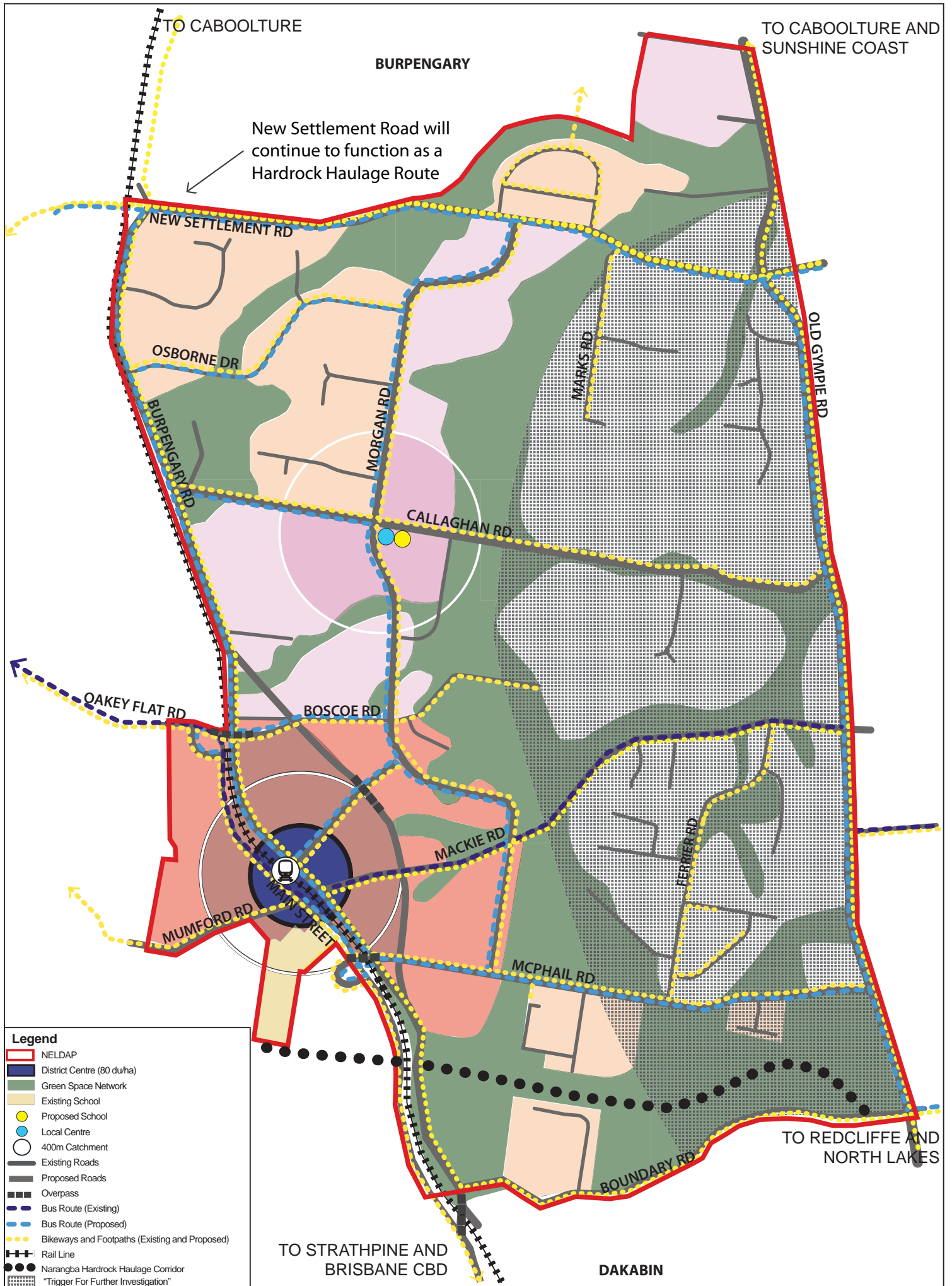
Development within the Narangba District Centre-

1. protects and enhances the role of the Narangba District Centre as a vibrant, attractive and safe town centre that-
 - provides a distinctive sense of place;
 - provides high quality, attractive and interesting streetscapes;
 - provides a high standard of architectural design;
 - incorporates sub-tropical design principles;
 - integrates advertising signage with the built form;
 - provides a comfortable and attractive pedestrian environment;
 - has a main street which –
 - has a continuous façade built to the full road frontage;
 - is integrated with a plaza (refer below);
 - provides weather protection;
 - is centrally located within the Narangba District Centre and
 - is directly accessible from major public transport facilities, including the Narangba Rail Station;
2. will have an appropriate frontage that dominates the streetscape and engages pedestrians;
3. will have a retail and commercial character at the ground floor level and a commercial character or a residential character above the ground floor level;
4. protects and enhances the role of the centre as a Narangba District Centre which functions as a retail, commercial, transit and community node where there are high levels of activity and high employment generating development;

-
5. does not provide for low intensity uses;
 6. has a plaza which –
 - is integrated with the town centre and any other shopping facilities;
 - is integrated with the main street;
 - is centrally located within the Narangba District Centre; and
 - is directly accessible from major public transport facilities, including the Narangba Rail Station;
 7. is in accordance with a master plan for the Narangba District Centre precinct to ensure that it –
 - is integrated with other adjoining development in providing shared car parking and access areas, built form, cycling and pedestrian facilities and the like;
 - provides a high level of amenity in relation to built form, landscaping, streetscape and advertising devices;
 - provides landmark buildings and complements the existing built form;
 - protects and enhances high standards of legibility and accessibility between developments, public transport nodes and surrounding precincts;
 - is intensive and dominates the streetscape, having a medium rise built form, ranging in height from 2 storeys to 6 storeys; and
 - incorporates energy efficient principles that are responsive to the sub-tropical climate of South East Queensland.

Density and site cover

1. A density of a minimum of 80 dwellings per hectare is provided within the district centre.
2. All development comprising residential dwelling units should be comprised as part of mixed use development.
3. Development has a site cover of up to 100%, on the basis that sufficient provision has been made for landscaping, car parking and the like.



4.4.7 Intent for green space network precinct

The green space network precinct (Figures 19 and 20), is intended to retain and regenerate an integrated network of open space within NELDA for the purposes of ecological protection, preserving and enhancing scenic amenity values, and where appropriate, provide for active and passive recreation opportunities. It is intended that the green space network for NELDA, frame residential development in a functional and visual sense and is incorporated into development where practicable. In summary, the green space network responds to areas with significant environmental values including habitat corridors, significant flora and fauna, significant regional ecosystems, koala habitat, natural waterways and flood prone land.

It is proposed the green space network will have both public and private ownership. For those areas retained in private ownership, Council with the agreement from individual land owners will seek to manage these properties in accordance with a voluntary conservation agreement.

Where publicly owned, the green space network precinct will accommodate parks and associated sporting and recreational uses. The green space network will integrate with surrounding precincts by contributing to a strong pedestrian and cycle network, including linkages to the Narangba District Centre and Narangba Rail Station.

The green space network precinct is divided into a number of sub-precincts, on the basis of function and the desired character for each. The sub-precincts, and the outcomes for each are described in further detail in the following sections (refer to Figure 19).

Intent for conservation sub-precinct

The green space network precinct contains conservation areas of remnant vegetation communities that provide core habitat refuge, feed source, and breeding sites for flora and fauna species. This sub-precinct will facilitate connectivity between those areas supporting flora and fauna. It is intended that the sub-precinct remains undeveloped with limited human encroachment to protect biodiversity and environmental values and preserve ecological function.

The outcomes for this sub-precinct are described as follows:

1. Environmental features will be retained. Degraded areas within the sub-precinct shall be rehabilitated.
2. The sub-precinct will be highly protected to ensure that the ecological values of the area are not compromised by development in the NELDA.
3. Adjacent development acknowledges and protects the role of the sub-precinct as an important linkage for fauna, providing connectivity to nearby larger habitat systems.
4. Public access to the sub-precinct will be restricted to passive walking trails where approved by Council, which will be contained within publicly owned land.
5. The bypass road and other roads, must be designed to minimise impacts on the ecological values of the sub-precinct.

Intent for waterways and wetlands sub-precinct

The green space network incorporates waterways and wetlands comprised of creeks, natural drainage lines and riparian vegetation communities. It is intended the sub-precinct maintain the hydraulic capacity of creeks, whilst protecting existing water bodies, and ecologically sensitive riparian vegetation.

The outcomes for this sub-precinct are described as follows:

1. The waterways/wetlands sub-precinct will function as a corridor that allows for protection and enhancement of environmental values, including water quality.
2. It is envisaged that this sub-precinct be restricted to providing protection of the surrounding environment, with limited public access provided for pedestrian and cycle through movements within the waterways/wetlands sub-precinct.
3. The waterways/wetlands sub-precinct will provide improved water quality outcomes, flood mitigation, protect and maintain the existing ecological values of creeks, and provide a movement path for fauna.

4. The bypass road and other roads, must be designed to minimise impacts on the ecological values of the sub-precinct and will incorporate appropriate amelioration measures where possible.

Intent for stormwater sub-precinct

The green space network incorporates a stormwater sub-precinct of stormwater management infrastructure and flood prone areas comprised of natural and constructed drainage paths and flood plains. The sub-precinct contains areas intended to maintain the hydraulic capacity of the creeks, incorporate a purpose designed stormwater treatment train and preclude the establishment of urban uses in areas subject to flood inundation.

The outcomes for this sub-precinct are described as follows:

1. Environmental features will be retained and rehabilitated where appropriate.
2. The sub-precinct is highly protected to ensure that the ecological values of the area are not compromised by development.
3. The sub-precinct will assist in stormwater management by incorporating appropriate water quality treatment/ stormwater management devices within the corridor, such as water sensitive urban design.
4. The sub-precinct will be incorporated into the broader green space network, by providing a function that protects stormwater quality and flood inundated areas and contributes to the overall green space network which is integral to the sub-precinct.
5. Adjacent development acknowledges and protects the role of the sub-precinct as an important linkage for fauna, providing connectivity to nearby large habitat systems. Regeneration is undertaken in degraded areas.
6. Public access to this sub-precinct is limited, although pedestrian and cycle linkages adjacent to the sub-precinct are appropriate on publicly owned land.
7. The bypass road and other roads, must be designed to minimise impacts on the ecological values of the sub-precinct and will incorporate appropriate amelioration measures where possible

Intent for sport and recreation parks sub-precinct

The NELDAP will broadly provide for a range of high quality indoor and outdoor sports, informal recreation and community activities and provide active and passive open space areas that are accessible and meet the needs of the NELDA population. The local park network will be located within 400 metres of the majority of dwellings and, where possible, will link to the drainage and wildlife corridors contained within the various other sub-precincts of the green space network. Sport and recreation parks will enhance natural values through appropriate protective measures and management systems. Neighbourhood parks and playing fields shall be connected to the cycleway and pedestrian path networks contained in the greater green space network.

Intent for rural residential green space sub-precinct

[Note the proposed green space network sub-precinct covers many existing properties with existing dwellings. Some are still vacant blocks. The rural residential green space sub-precinct applies to that portion of existing lots that are not required for further infrastructure purposes including sport and recreation precincts or the conservation, waterway and wetlands precincts.]

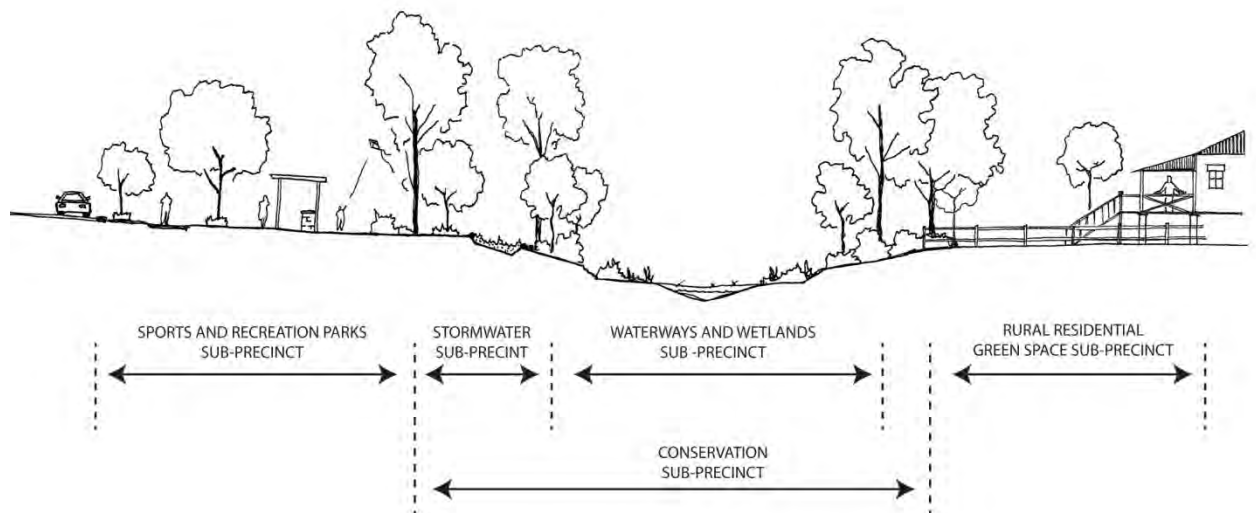
The rural residential green space sub-precinct is intended to provide for single dwelling houses on existing privately owned lots. It is envisaged that these areas require detailed flora and fauna investigations prior to any development being contemplated in or adjoining them. These residential areas are characterised by their vegetation cover, the presence of koala food trees, and their role in the creation of habitat and wildlife corridors. These areas generally make up sites that form part of major habitat linkages. Innovative approaches to development outcomes in order to maintain these characteristics are required. Fencing in this location is required to be fauna friendly allowing the unrestricted movement of fauna.

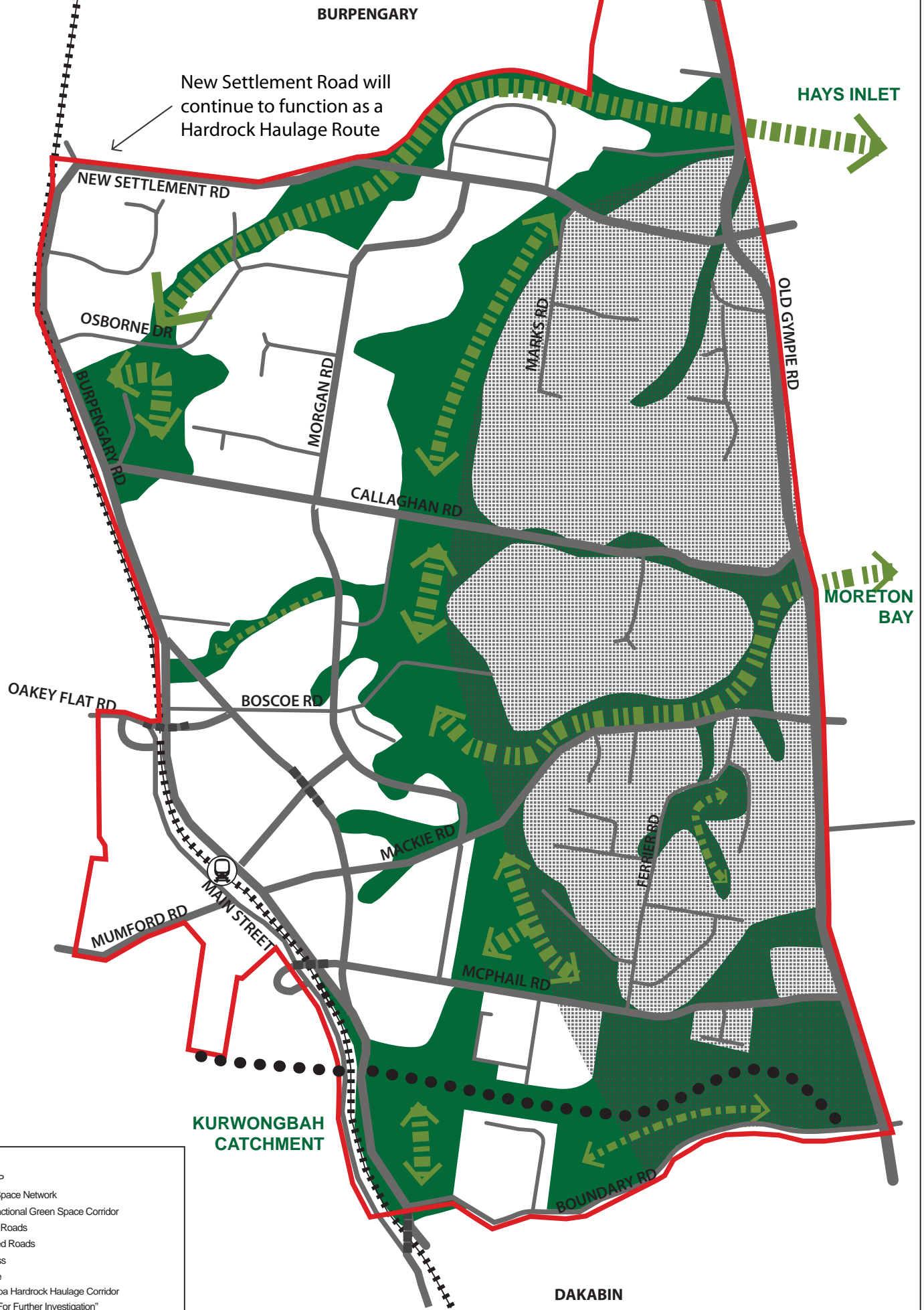
The configuration and density of residential developments is maintained in its existing form to protect environmental values including wetlands, drainage lines and bushland habitats from the encroachment of urban development.

The outcomes for this sub-precinct are described as follows:

1. Development protects, enhances and provides for the long term management and enhancement of environmental values of the precinct.
2. Development provides for lifestyle choice in an environmental setting.
3. Development ensures uses are low key, cover only a small portion of the land and have a very low impact on environmental values.
4. Development provides for single dwelling houses on existing privately owned lots.
5. Development protects, enhances and maintains waterways, habitat and movement corridors for koalas and other fauna.
6. Development provides opportunity for home businesses, low key tourism and recreational pursuits in an environmental setting.
7. Development maintains current lot sizes with no additional lots created.

Figure 19: NELDAP Green Space Network Precinct Concept





New Settlement Road will continue to function as a Hardrock Haulage Route

BURPENGARY

HAYS INLET

NEW SETTLEMENT RD

OSBORNE DR

BURPENGARY RD

MORGAN RD

MARKS RD

OLD GYMPIE RD

CALLAGHAN RD

MORETON BAY

OAKEY FLAT RD

BOSCOE RD

MACKIE RD

FERNER RD

MUMFORD RD

MAIN STREET

MCPHAIL RD

KURWONGBAH CATCHMENT

DAKABIN

4.4.8 Intent for community facilities

Community uses will be integrated with the Narangba District Centre to provide uses such as public meeting places, public halls and a child care facility. The existing community uses located on Mackie Road create the opportunity to provide a strong community precinct. There is an opportunity to build on this centre to develop a centre for training, community facilities and child care facilities.

The outcomes for the community facilities infrastructure network are as follows:

1. Development provides for community facilities infrastructure which:-
 - services the development;
 - is co-located with other community facilities, infrastructure and green space infrastructure where appropriate, to create generous, attractive and highly accessible community nodes;
 - demonstrates a high quality in design that contributes to the creation of memorable community places that provide an important source of meaning and identity for residents of the NELDAP;
 - is multi-functional;
 - protects and enhances the function of community facilities infrastructure; and
 - is safe, efficient and legible in meeting the requirements of the intended use.
2. Development provides for community facilities to be located and designed with direct access to the public transport and active transport network.

4.5 Infrastructure intent

Urban growth in NELDAP is supported by the coordinated planning and timely delivery of infrastructure for:

- Movement;
- Total water cycle management;
- Energy; and
- Telecommunications.

This section details the intents for the development of the infrastructure network.

4.5.1 Intent for movement

Transport networks are essential for achieving accessibility for residents and practical and direct circulation for the efficient functioning of residential areas. The NELDAP provides an integrated network of roads, streets and pathways that facilitate the safe and efficient movement of private vehicles, buses, cyclists and pedestrians to destinations within and beyond the NELDA.

NELDAP capitalises on the strong inter-regional transport spine of the Caboolture railway line and its capacity for mass transit long haul trips. With this major transport corridor passing through NELDA, the movement system of NELDAP has focussed on providing easy access to the Narangba Rail Station by transport modes other than private vehicles.

NELDAP provides an integrated network of local bus services and cycle and pedestrian links to provide residents with a viable alternative to private vehicle trips.

NELDAP acknowledges, however, that private vehicle trips will still be the dominant form of transport and has endeavoured to structure the road hierarchy so that high speed, high volume inter regional trips for private and freight vehicles are separate to lower speed, lower volume trips.

Intent for road transport

A legible connected and permeable road network for all street users, ensures the safe and efficient movement of motorised and non motorised vehicles within the NELDAP and to the surrounding road network.

The outcomes are described as follows:

1. Development is carried out in accordance with:-
 - The road hierarchy identified conceptually on Figure 21 (NELDAP Road Network);
2. Development provides road infrastructure which achieves the following:-
 - Services the development;
 - Integrates with the existing and planned road network, public transport network and cycle and pedestrian network;
 - Protects and enhances the function of roads in the road hierarchy;
 - Provides a highly connected and permeable road network to allow high levels of movement within and external to the development;
 - Where required, provides dedicated public transport lanes and bus priority at major intersections and is otherwise capable of accommodating prioritised public transport circulation;
 - Incorporates landscaping and verge treatments that mitigate the appearance of the road as a dominant urban element in the landscape, and minimises pollutants generated by stormwater runoff;
 - Is safe, efficient and legible in meeting the requirements of the intended use;
 - Where required for evacuation purposes, is established above the defined flood event;
3. Development provides appropriate access and egress for emergency services vehicles.
4. Development provides for a network of local streets which:-
 - Is highly permeable;
 - Based on a grid or modified grid pattern layout that operates at neighbourhood and district levels; and
 - Ensures priority of pedestrians, cyclists and public transport users over private vehicles.

-
5. Development provides road infrastructure which is designed to incorporate wildlife movement infrastructure to facilitate the safe movement of fauna.

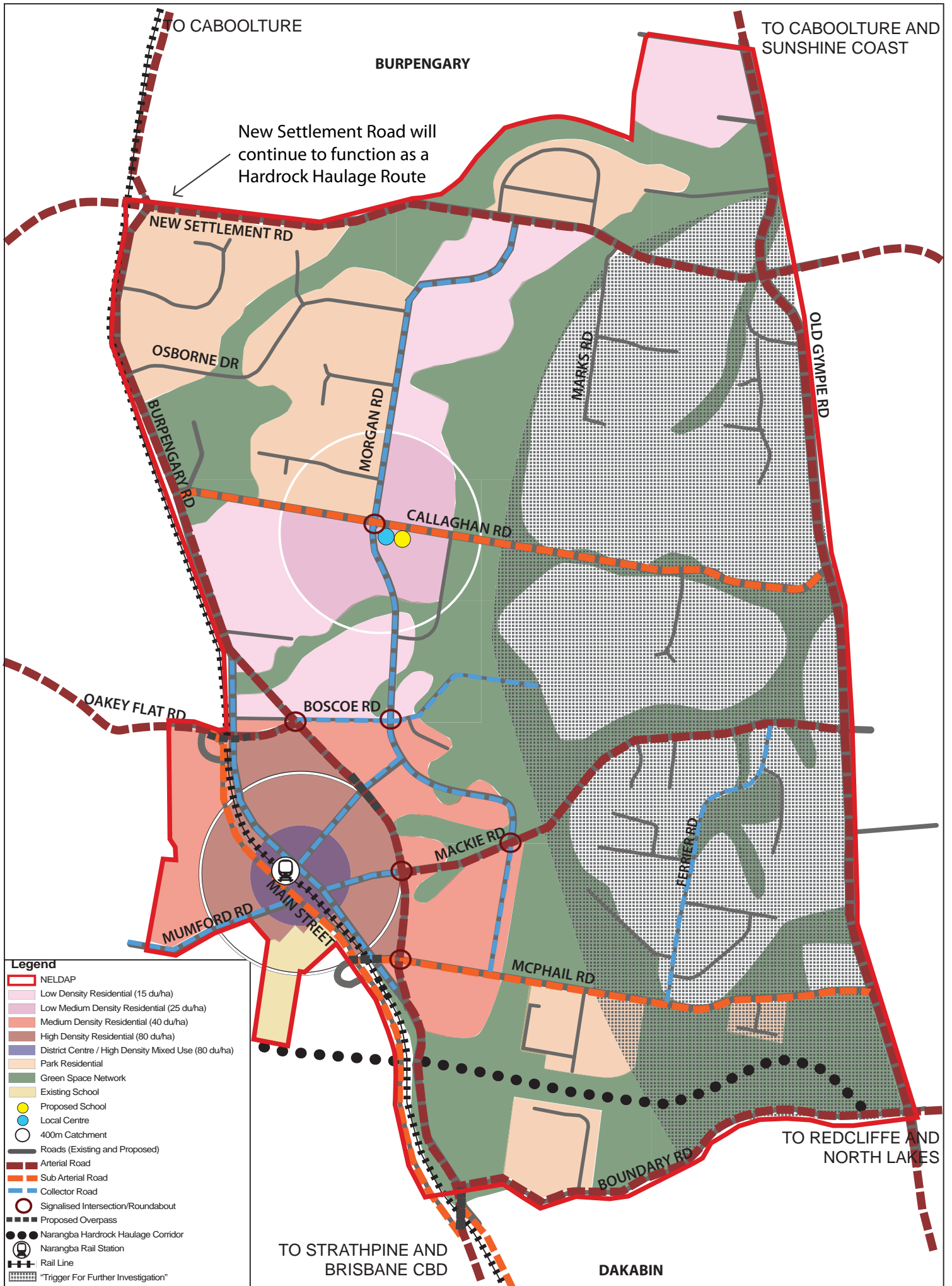


Figure 21
NELDAP
Road Network

Intent for active transport

An extensive pedestrian and cycle way network links the Narangba District Centre, residential areas, green spaces, schools, social and cultural facilities and the broader regional active transport network.

The outcomes are described as follows:

1. Development is carried out in accordance with:-
 - The active transport network identified conceptually in Figure 22 (Active Transport Network).
2. Development provides cycle and pedestrian infrastructure that:-
 - Ensures priority for pedestrians, cyclists and public transport users over private vehicles; and
 - Incorporates uninterrupted movement of cyclists and pedestrians at existing and proposed bridges, underpasses and other structures over waterways, roads and dedicated transit corridors.
3. Development provides for cycle and pedestrian infrastructure which incorporates:-
 - Adequate facilities at common destinations of cyclists and pedestrians so as to encourage cycleway and pathway use, such as the following:
 - Seats;
 - Standby areas;
 - Secure cycle parking;
 - Picnic facilities;
 - Drinking fountains;
 - Shade;
 - Lighting;
 - Signage;
 - Additional end of trip facilities such as showers and lockers at key cyclist and pedestrian destinations, including at Narangba Rail Station and commercial buildings within the district centre.
4. Development provides cycle and pedestrian infrastructure which:-
 - Services the development;
 - Integrates with the existing and planned cycle and pedestrian network within and external to the NELDA;
 - Accesses key trip generators within NELDAP including the transport hubs and centres, green space, and community facilities;
 - Protects and enhances the function of cycle and pedestrian infrastructure; and
 - Is safe, efficient and legible in meeting the requirements of the intended use.
5. Development provides pleasant, safe, convenient and non-discriminatory access for cycle and pedestrian infrastructure.

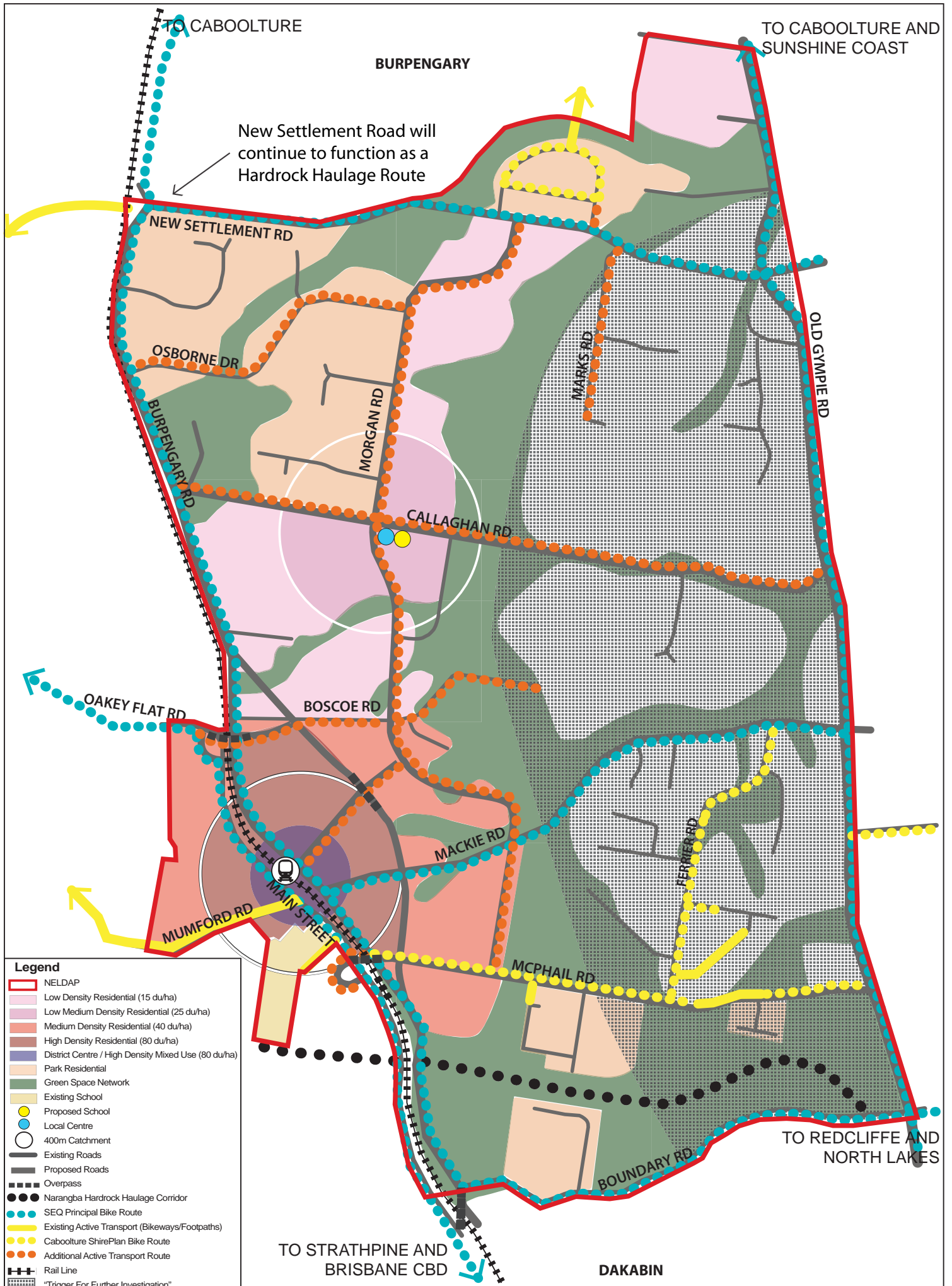


Figure 22
NELDAP
Active Transport
Network

Intent for public transport

Development maximises the potential for mode shift from private vehicles to public transport trips. Road networks provide opportunity for efficient local bus services with bus stops that are within reasonable walking distance of all future dwellings. Development provides for an effective public transport system to link within and outside of NELDA, and designs roads that can cater for proposed bus routes shown in Figure 23: Public Transport Network.

The outcomes are described as follows:

1. Development is carried out in accordance with:-
 - the public transport network identified conceptually on Figure 23 (NELDAP Public Transport Network);
2. Development provides for the dedicated transit network to be:-
 - efficiently and effectively connected with the sub-regional public transport networks outside of the NELDA including the City Train network;
 - designed, constructed and operated to provide users with the following:-
 - efficient bus and rail interchange connections to key destinations within and outside of the NELDA;
 - service frequency and reliability; and
 - reduced travel times.
3. Development provides for the dedicated transit network to be designed, constructed and operated so as to:-
 - minimise impacts on residential amenity;
 - maximise safety for users of the corridor and surrounding areas;
 - minimise impacts on ecologically important areas including changes to the hydrological regime.
4. Development provides for bus stops which:-
 - are distributed throughout the development to efficiently service local neighbourhoods having regard to the planned characteristics of the route and the level of service offered;
 - are located at centres and other key destinations such as regional and district sport and recreation parks and schools;
 - incorporate high quality urban design and streetscape treatments such as appropriate seat, shelter, street furniture and lighting;
 - incorporate elements that reflect standard Translink bus stop branding;
 - incorporate secure cycle storage options with a single bike loop as the minimum requirement at a regular bus stop in conjunction with some form of shade and wet weather protection; and
 - are safe, comfortable, efficient and otherwise fit for purpose.

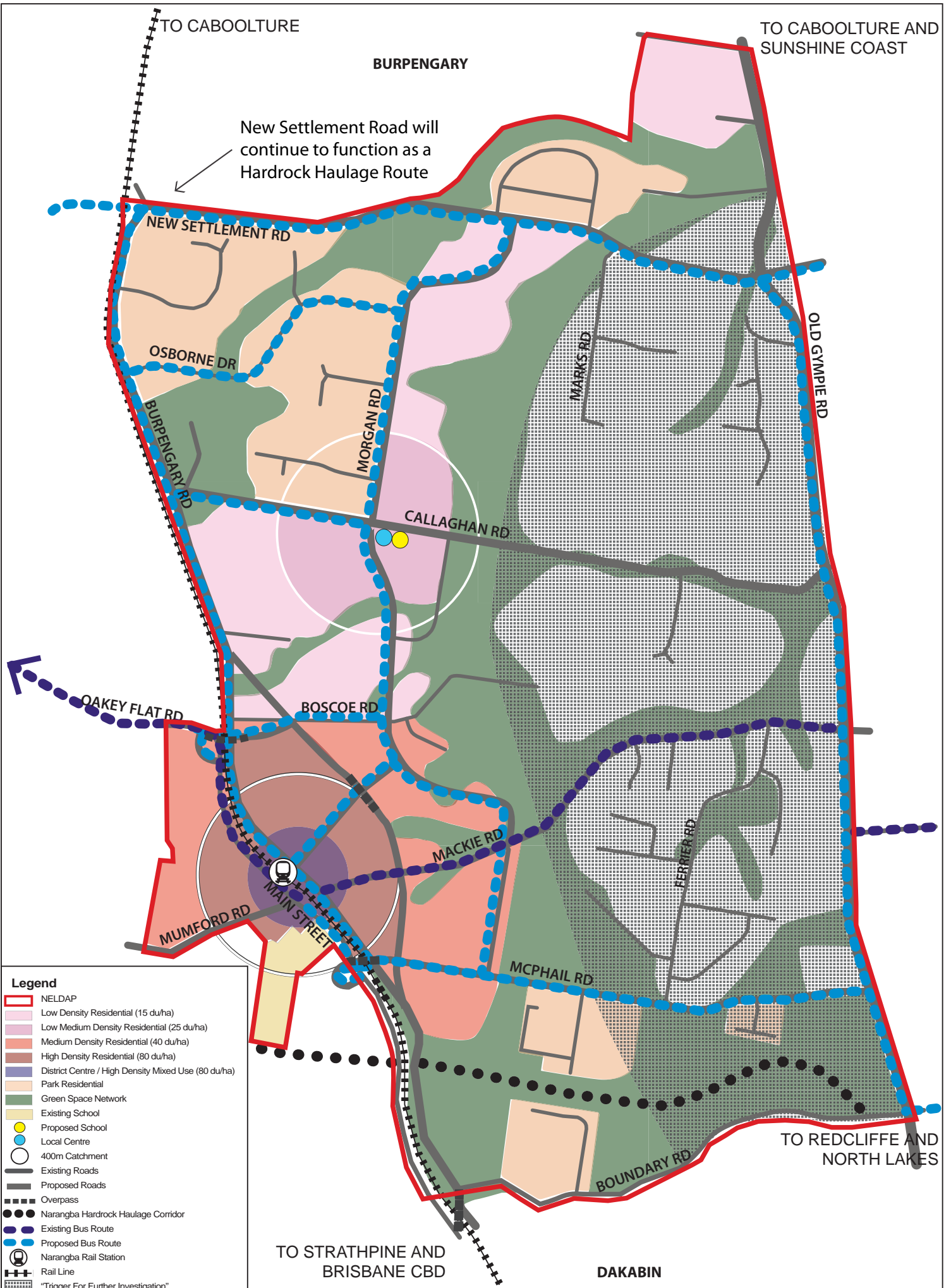


Figure 23
NELDAP
Public Transport
Network

4.5.2 Intent for total water cycle management

In order to meet current water supply, wastewater, stormwater, groundwater and wetland and waterway health challenges, future growth within NELDA will be planned from a “total water cycle management” basis. Note that Council has adopted a Total Water Cycle Management (TWCM) Strategy.

Conventional water management has created the following challenges:

- Continuing concerns over regional water supplies and the need for demand management and source substitution measures;
- Increasing stormwater and flooding issues from development;
- Degradation of SEQ waterways and wetlands (including Moreton Bay) and groundwater; and
- Increased impact of wastewater from sewerage discharges, sewer overflows, on-site sewerage systems and industrial discharges.

There are a number of key drivers responsible for the shift within the NELDAP from conventional water management to total water cycle management principles.

- Climate: potential impacts of climate change have provided added pressure to ensure water management in NELDAP is as sustainable and efficient as possible;
- SEQ Waterway and Moreton Bay ecosystem health: unless measures are taken to reduce pollutant discharge loads from urban development such as NELDAP, the ecological health of Moreton Bay will be adversely affected;
- Population growth: with population growth in South East Queensland expected to continue to increase, the demand for water supply will increase significantly, as will the amount of wastewater produced. Development in NELDAP will need to ensure there is a reasonable demand for this scarce resource;
- Increasing water cycle knowledge and awareness: there is a steady increase in the understanding of water cycle issues and capacity to implement total water cycle management within South East Queensland; and
- National and State direction: key policies, strategies and legislative requirements from both a national and state level set a direction for management of water as a valuable resource and for water sensitive planning.

These and other important drivers have necessitated the NELDAP adopt total water cycle management principles and to set strategies for demand management, supply substitution, and discharge management on all new development in NELDA.

4.5.2.1 Intent for demand management

It is intended that all development in NELDA have water efficient appliances and fittings (includes tap aerators, low flow shower heads, waterless urinals and low volume dual flush toilets). All commercial and residential buildings should have roof water tanks for harvested rainwater to be used for toilet flushing and gardens. This includes future high-rise development in NELDA being required to reticulate stormwater runoff from the complete site (including rooftops and on-site gardens) throughout every level of the building for internal fittings. In addition, demand for water consumed by air conditioning cooling towers in offices and shopping centres in NELDAP is to be reduced through improved building design (such as window shading or tinting), or the use of water efficient cooling systems or innovative heat rejection methods from air-conditioning systems.

Intent for supply substitution

Development in NELDAP will optimise the use and reuse of alternate water resources for a range of domestic and external applications including toilet flushing, cold water for washing machines and non-drinking outdoor uses.

- Rainwater harvesting: All development in NELDAP is to harvest rainwater runoff and store water in on-site tanks.

- Recycled water/ reclamation of wastewater: It is the conclusion of NELDAP that the cost of trunk treatment, conveyance, and reticulation of recycled water for NELDAP is prohibitive as it involves, the provision of treatment facilities to produce Class A+ recycled water, trunk mains to transport the Class A+ recycled water to NELDAP, the provision of a third pipe reticulation network throughout NELDAP and internal reticulation of existing and future private developments.
- Reclamation of wastewater: As an alternative, the NELDAP promotes coordination by larger water consumers in NELDAP to mining wastewater at source. This involves extracting wastewater from on site or the sewer reticulation network before it enters the trunk sewer network mains, treating wastewater to Class A+ specified standards onsite and reticulation of recycled water back on site for non-potable applications.

4.5.2.2 Intent for discharge management (water quality)

With regard to water quality, development in NELDAP will integrate a number of water sensitive urban design (WSUD) applications appropriate to NELDAP urban landscape to ensure that pollutant loads of stormwater runoff meet acceptable standards. The important principle of WSUD is that water quality should be controlled at the source either on site or in close proximity. This assumes that treatment devices should be located within the 'site / development' and funded by the developer, rather than on a 'catchment' basis funded by the Priority Infrastructure Plan. All developments in NELDAP are required to install water quality improvement treatments that reduce the annual load of pollutants leaving the site/development in accordance with Council guidelines. These water quality improvement treatments are to be on an approved design and be located on private land within the development. The property owner is responsible for the ongoing maintenance of the treatment to ensure pollutant reduction is maintained indefinitely.

Increased stormwater run-off and pollutants in the Saltwater Creek catchment is a concern, since it is upstream of Hays Inlet (which is heavily protected under RAMSAR and other state legislation). It is likely that end-of-pipe WSUD treatment will be required in addition to developer's local WSUD devices to achieve water quality objectives for this catchment.

4.5.2.3 Intent for discharge management (water conveyance)

Development in NELDAP is to ensure there is no net worsening of flood impacts downstream of the development. In order to achieve no net-worsening of flood levels downstream at-source detention basins will be required. These detention facilities are to be located on private property and maintained by the developer/site manager. Within practical limitations, all major trunk drainage will be 'open waterway' systems with 'conventional' drainage systems of pipes and overland flow drainage paths for minor drainage paths only. The open waterways will be publicly owned, where public access is required. Where there is not a requirement for public ownership, and the waterway conveys stormwater drainage from upstream properties, Council will consider acquiring easements over all or part of the waterway. Generally, flood storage areas will remain in private ownership. The width and location of the publicly owned waterways and easements will be determined for each waterway and reflect the 100 year ARI flood inundation.

The outcomes for water quality and water conveyance are described as follows:

1. Development ensures that the stormwater infrastructure:-
 - meets the environmental values and water quality objectives for downstream receiving waters including RAMSAR wetlands;
 - prioritises WSUD approaches whilst also balancing the need to maximise the developable area, achieve compact, walkable communities and minimise maintenance requirements;
 - incorporates site responsive solutions, including the retention and integration of natural drainage corridors and the minimisation of large scale earthworks;
 - integrates stormwater management into the overall urban design including road layout, street design and green space to maximise amenity whilst achieving functionality;
 - avoids 'regional' treatment solutions (for example a single large wetland which treats stormwater for the whole development) and instead incorporates more localised on site solutions based on identified sub catchments;

- provides for the removal of the full range of pollutants using a 'treatment train' approach which removes primary (gross pollutants), secondary (sediments) and tertiary pollutants (nutrients);
 - provides for stormwater to be fully treated to an acceptable level prior to discharge into natural streams or creek systems;
 - avoids the use of ornamental lakes and ensures that any proposed wetland is self-sustaining;
 - does not concentrate stormwater infrastructure including treatment, conveyance and storage within the green space network
 - is carried out in accordance with the standards for the planning, design and construction of the stormwater infrastructure network specified in Caboolture ShirePlan.
2. Development provides stormwater infrastructure which:-
 - services the development;
 - integrates with the existing and planned stormwater infrastructure network;
 - protects and enhances the function of the existing stormwater infrastructure; and
 - meets the requirements of the intended use.
 3. Development provides stormwater infrastructure which ensures the proper conveyance of stormwater from premises and prevents the following:-
 - the ponding of stormwater on site;
 - a hazard to personal health and safety or property; and
 - the inundation of any habitable or non habitable floor space.
 4. Development provides that the natural flow of surface water from the premises or adjoining premises is not altered so as to concentrate surface water onto other premises so as to cause a risk to personal health and safety or property.
 5. Development provides for stormwater infrastructure that is designed and constructed in accordance with contemporary best practice standards for WSUD.

4.5.2.4 Intent for potable water supply

A network of water mains ensures that NELDA is supplied with potable water to meet service requirements stipulated by Unitywater. This will require integrating with the existing reticulation network. The upgrading of the existing water supply is essential for achieving increased development within the NELDA.

The outcomes are described as follows:

1. Development is carried out in accordance with:
 - The water supply infrastructure network identified conceptually in Figure 24. (NELDAP Water Supply Network); and
2. Water mains as depicted in Figure 24 are funded and provided by the developers; and
3. Development minimises demand for reticulated water from the SEQ water grid whilst ensuring an adequate balance between environmental, social and economic outcomes by providing for the implementation of local water recycling, stormwater harvesting and other water saving measures to service the NELDAP; and
4. Development provides water supply infrastructure which:
 - services the development;
 - integrates with the existing and planned water supply infrastructure network;
 - protects and enhances the function of the water supply infrastructure; and
 - meets the requirements of the intended use.

The proposed trunk water supply network required to service the proposed development is shown in Figure 24.

The rationale underpinning the proposed network augmentation is as follows:

- Bulk Supply: The existing and planned bulk supply capacity to the NELDA is considered adequate given the recent upgrades to this network.
- Storage Reservoirs: The existing 40 ML storage capacity may not have sufficient capacity to service the ultimate development of the NELDA. Consequently, it is likely that additional storage is required. Two sites are suitable for construction of the new reservoir:
 - Oakey Flat Road – on Council land immediately west of the existing reservoirs ; and/or

- Boundary Road – by increasing the capacity of the proposed new 24ML reservoir or construction of an additional reservoir at a later date.
- Trunk Main Network: It is proposed to service the NELDA via the trunk main network layout as shown in Figure 24.

4.5.2.5 Intent for sewerage infrastructure

A reticulated network of sewer mains, ensures the transfer of sewerage from development within the NELDA to the sewerage treatment plant (STP) whilst integrating with the existing reticulation network. The provision of a comprehensive trunk sewer network is essential for achieving increased development within the NELDA.

The outcomes are described as follows:

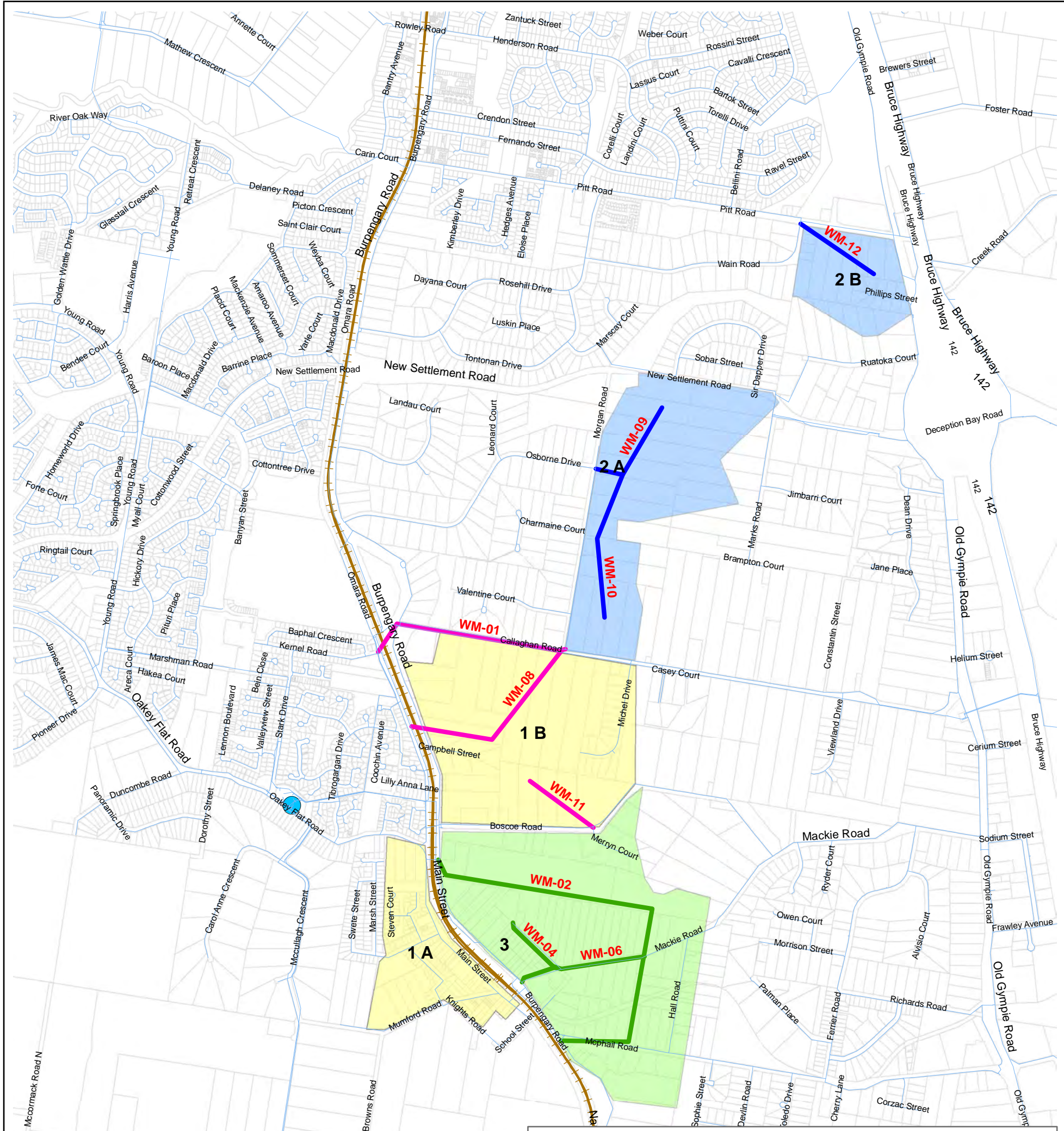
1. Development is carried out in accordance with:-
 - the sewer network identified in Figure 25 (NELDAP Sewer Network); and
2. Development provides sewer infrastructure which:-
 - services development within NELDA;
 - integrates with the existing and planned sewer infrastructure network;
 - protects and enhances the function of the sewer infrastructure; and
 - meets the requirements of the intended use.
3. Development minimises stormwater inflow and infiltration to the sewer network.

The trunk sewer network required to service the proposed development is shown in Figure 25.

To implement the TWCM Strategy Moreton Bay Regional Council is currently preparing a TWCM Detail Plan, where the solutions identified in the strategy are being assessed in detail through modelling, for their practicability and feasibility. As a part of the TWCM Detail Plan, the water quality of the Caboolture River and Moreton Bay Water will be assessed. This study will determine the amount of total nutrients that can safely and responsibly be discharged to Caboolture River and Moreton Bay in accordance with DERM licensing. Consequently, the findings of this study will provide Unitywater the upper EP that can be serviced by Burpengary East Sewerage Treatment Plant. The detail plan will also identify stormwater treatment opportunities such as water sensitive urban design and stormwater harvesting.

However, Unitywater will be able to utilise the NELDAP in undertaking planning for future augmentation of the water supply and sewerage system to service the new population.

The careful and focussed management of new growth fronts and the timely augmentation and expansion of the network to facilitate different growth fronts including NELDA will be required.



NELDA Trunk Water Per Stage

1 (Pink line)

2 (Blue line)

3 (Green line)

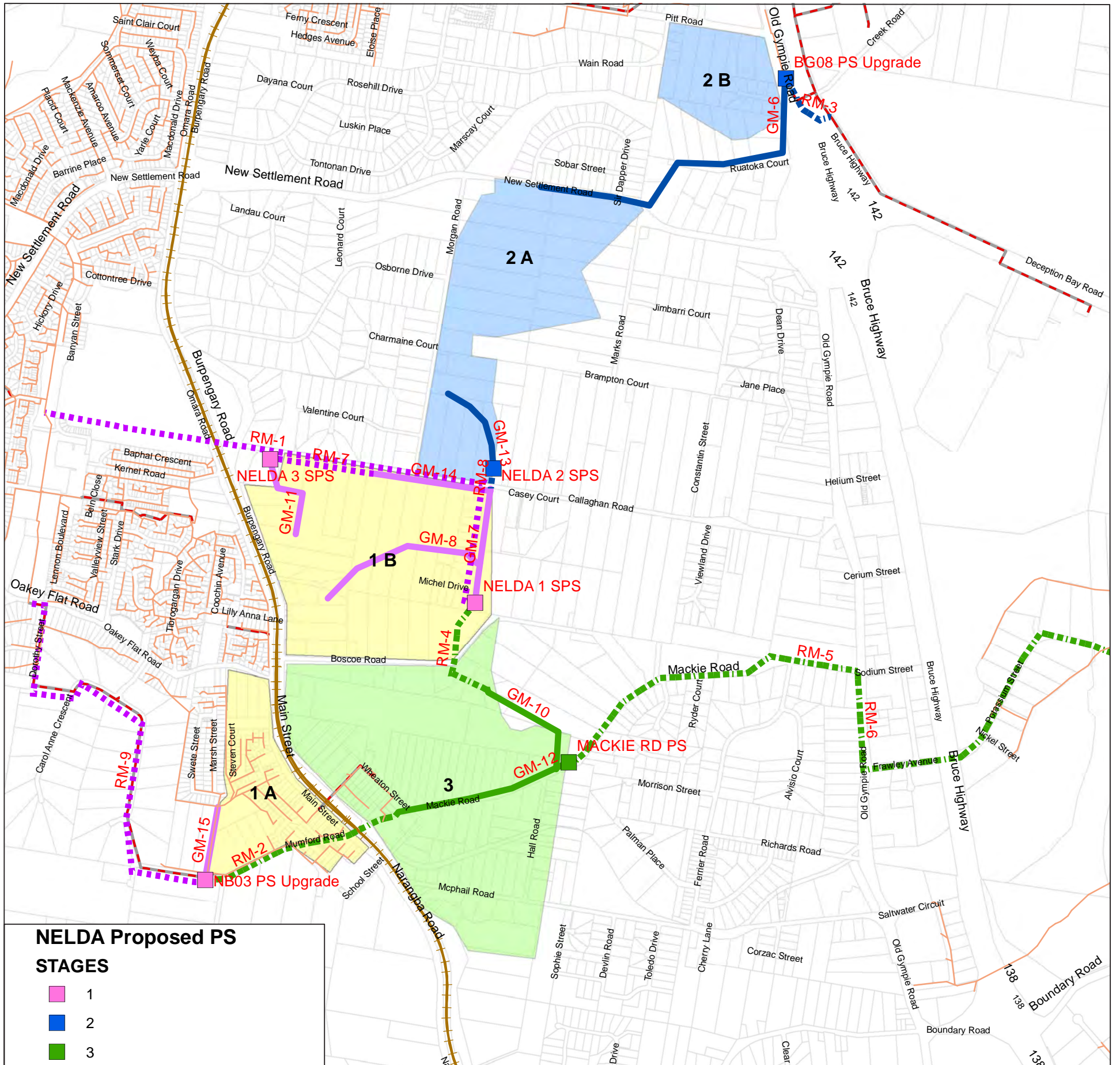
LABEL	STAGE	Comments
WM-01	1	Will be funded and provided by developers
WM-02	3	Will be funded and provided by developers
WM-03	3	Will be funded and provided by developers
WM-04	3	Will be funded and provided by developers
WM-06	3	Will be funded and provided by developers
WM-08	1	Will be funded and provided by developers
WM-09	2	Will be funded and provided by developers
WM-10	2	Will be funded and provided by developers
WM-11	1	Will be funded and provided by developers
WM-12	2	Will be funded and provided by developers



**Figure 24
NELDAP
Water Supply Network**

Scale 1:20,000

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(GM20121122 MP12/2131)



NELDA Proposed PS

STAGES

- 1
- 2
- 3

— Export_Output

NELDA Proposed RM

STAGES

- 1
- 2
- 3

NELDA Proposed GM

STAGES

- 1
- 2
- 3

NELDA Stages

- 1 A
- 1 B
- 2 A
- 2 B
- 3

Item	Type	Description	STAGE	Constructed by	Comments
GM-11	Gravity Main	Incoming gravity sewer for NELDA 3 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-14	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-15	Gravity Main	Incoming gravity sewer for NB 03 SPS	1A	Unitywater	Will be constructed by Unitywater
GM-7	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
GM-8	Gravity Main	Incoming gravity sewer for NELDA 1 SPS	1B	Developer	Will be funded & provided by potential developers.
NB03 PS Upgrade	Sewer Pump Station	NB 03 PS Upgrade	1A	Unitywater	Will be constructed by Unitywater
NELDA 1 SPS	Sewer Pump Station	NELDA 1 PS (new)	1B	Developer	Will be funded & provided by potential developers.
NELDA 3 SPS	Sewer Pump Station	NELDA 3 PS (new)	1B	Developer	Will be funded & provided by potential developers.
RM-1	Sewer Rising Main	Temporary Rising Main for PS NELDA 1	1B	Developer	Will be funded & provided by potential developers.
RM-7	Sewer Rising Main	New RM for NELDA 3 PS	1B	Developer	Will be funded & provided by potential developers.
RM-9	Sewer Rising Main	Temporary Rising Main for PS NB 03	1A	Unitywater	Will be constructed by Unitywater
BG08 PS Upgrade	Sewer Pump Station	BG 08 PS Upgrade	2B	Developer	Will be funded & provided by potential developers.
GM-13	Gravity Main	Incoming gravity sewer for NELDA 2 SPS	2A	Developer	Will be funded & provided by potential developers.
GM-6	Gravity Main	Incoming gravity sewer for BG 08 SPS	2B	Developer	Will be funded & provided by potential developers.
NELDA 2 SPS	Sewer Pump Station	NELDA 2 PS (new)	2A	Developer	Will be funded & provided by potential developers.
RM-3	Sewer Rising Main	New RM under the highway for PS BG 08	2B	Developer	Will be funded & provided by potential developers.
RM-8	Sewer Rising Main	New RM for NELDA 2 PS	2A	Developer	Will be funded & provided by potential developers.
GM-10	Gravity Main	Incoming gravity sewer for Mackie Road SPS	3	Developer	Will be funded & provided by potential developers.
GM-12	Gravity Main	Incoming gravity sewer for Mackie Road SPS	3	Developer	Will be funded & provided by potential developers.
MACKIE RD PS	Sewer Pump Station	Mackie Road PS (new)	3	Unitywater	Will be constructed by Unitywater
DB 06 PS Upgrade	Sewer Pump Station	DB 06 PS Upgrade	3	Unitywater	Will be constructed by Unitywater
RM-2	Sewer Rising Main	New RM for NB 03 to divert flows towards east	3	Developer	Will be funded & provided by potential developers.
RM-4	Sewer Rising Main	New RM for Nelda 1 PS - Final configuration	3	Developer	Will be funded & provided by potential developers.
RM-5	Sewer Rising Main	New RM for Mackie Road PS (First segment)	3	Unitywater	Will be constructed by Unitywater
RM-6	Sewer Rising Main	New RM for Mackie Road PS (Second segment)	3	Unitywater	Will be constructed by Unitywater

Figure 25
NELDAP
Sewerage Network

Scale 1:20,000

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(GM20121122 MP12/2131)



4.5.3 Energy distribution network intent

Energy efficient measures are incorporated into the design of development. Sites are identified during the planning phase of developments for electricity distribution lines and sub-stations.

The outcomes are described as follows:

1. Development provides for electricity infrastructure to ensure that the NELDA is provided with a reliable supply of energy.
2. Development provides for an underground reticulated electricity network to be laid in common service trenches that incorporate telecommunications and gas services.
3. Development provides for all electrical services to be located within a road reserve at a distance of 0.3 metres to 1.2 metres from the property boundary.
4. Development provides suitable land for electrical substations in accordance with ENERGEX requirements.
5. Development provides for electricity infrastructure to be located and designed to avoid or minimise impacts on ecologically important areas and protect local character and amenity.
6. Development provides for the installation of electricity infrastructure to be in accordance with ENERGEX requirements.
7. Development provides for sustainable energy generation infrastructure that contributes to the development's ongoing energy needs and reduces reliance on the main power grid.

4.5.4 Telecommunications network intent

The development of the NELDA provides the opportunity to ensure that all telecommunication infrastructure is designed and installed as an integral part of the development. Given the scale of the development and that it will be implemented over a long period, it is important that it is capable of responding to changes in technology requirements over the period of the development.

The outcomes are described as follows:

1. Development provides for the following telecommunications infrastructure to service the development:-
 - conduits and pits to enable the provision of fibre optic cabling.
2. Development provides an underground access connection pit and lead-in duct in the footpath, plus a conduit from the property boundary to the following:-
 - a designed entry point in each building; and
 - each lot in a Community Title Scheme.
3. Development provides the following underground access at a size and capacity that is capable of accommodating the ultimate development scenario for the site and the NELDAP:-
 - pits and conduits throughout a subdivision including fibre optic distribution hubs as necessary;
 - a central aggregation point to establish connection to a region wide network.
4. Development provides optic fibre as follows:-
 - in commercial areas, point to point network design with dedicated optic fibres;
 - in residential areas, network design with passive optic network using splitters.
5. Development provides a dedicated or shared network management centre with head-end active equipment capable of delivering data, video, telephone, free to air TV and pay TV to Australian Standards.
6. Development is to identify a wholesale only carrier to own, operate and maintain the built network as an open access network with multiple competing service providers.
7. Development provides conduits for telecommunication infrastructure, including fibre optic cable which are:-
 - laid in common service trenches that incorporate electricity and gas services;
 - provided on an alignment of 2.1 to 3.0 metres from the boundary of each lot created; and
8. Development in the NELDAP is support by high quality telecommunications infrastructure. Future residents and business operators within the NELDAP will have access to a choice of telecommunications options and providers.

5. NELDAP implementation and review

5.1 Background

The key outcomes sought by NELDAP will primarily be achieved through its incorporation into the Moreton Bay Regional Council Planning Scheme. Existing Council and State government policies, local laws and programs will also be utilised to assist in achieving a sustainable, integrated and well planned community. In addition, a number of non-scheme activities and programs are planned to contribute to the achievement of the specific strategies and outcomes sought by NELDAP.

The development and delivery of land will be subject to the priorities set by developers, land owners and the ability of the servicing agencies to provide the required infrastructure.

5.2 Sequencing

The cost of major trunk infrastructure and the ability for Council, State agencies and developers to finance these items will have a major influence on how fast NELDA develops. NELDAP requires major sewerage infrastructure including three gravity sewers prior to development occurring west of the railway line. As such, the sequencing of these three trunk sewers will play an important role in which areas develop first.

Other drivers that will determine the rate of development of NELDA include:

- The cost advantage of land at NELDA over competing developments across the sub region;
- Market demand for smaller units and townhouses verses traditional lots;
- The attractiveness of the NELDA's lifestyle and amenity; and
- The priorities of individual landowners and developers.

These drivers have been assessed to produce the Sequencing Strategy shown in Figure 26. The strategy identifies the area around Boscoe, Burpengary and Callaghan Roads to the proposed Green Space Network to the east of Michel Drive to be developed first providing a diversity of residential uses and a local centre to transition development for the new Narangba East community. Due to the low demand for multi storey unit development in the Narangba District Centre, this area is anticipated will be developed in the future.

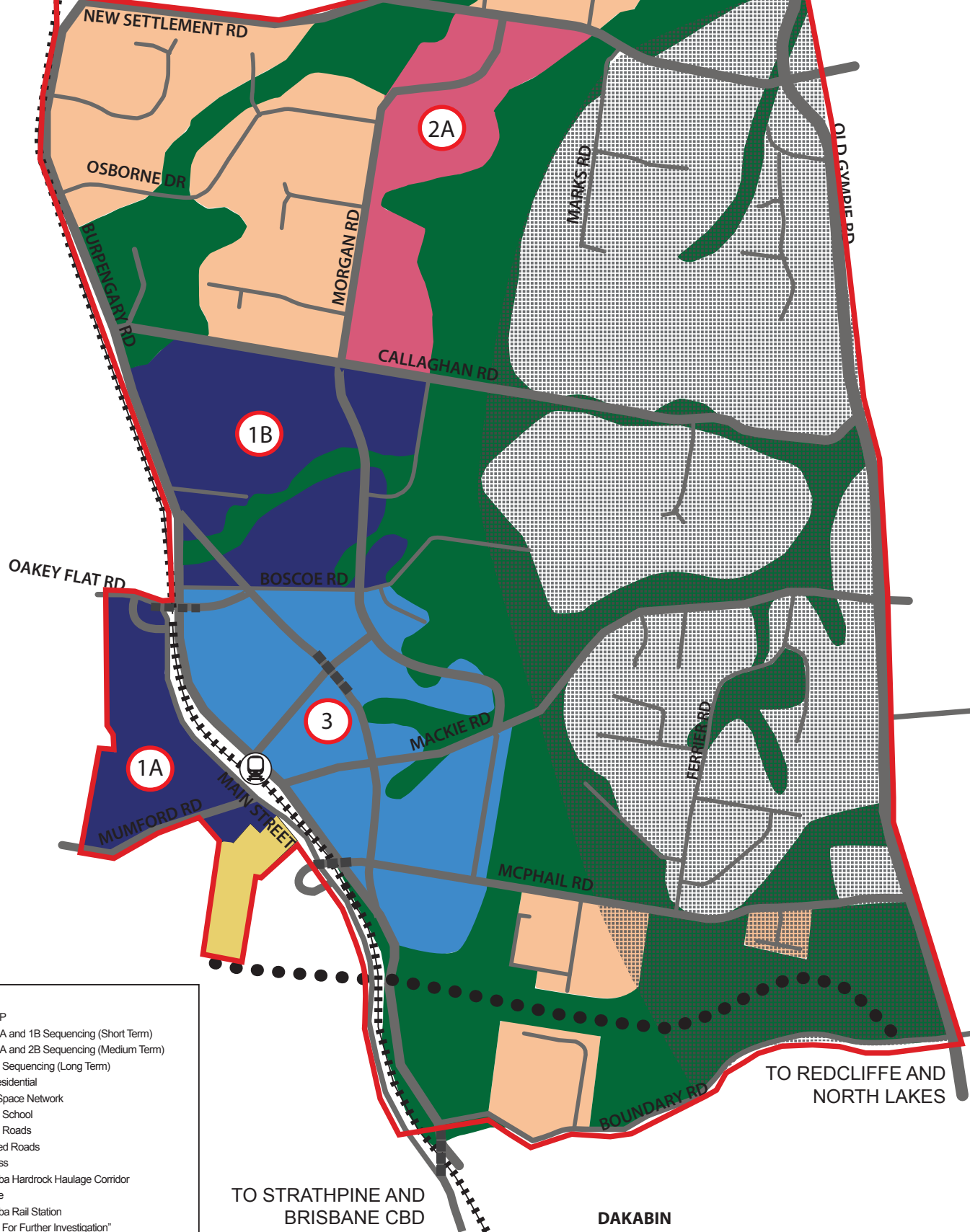
It is important to note that development applications received by Council in response to NELDAP should not be approved until such time as the necessary infrastructure planning and concept planning has been undertaken to ensure that they do not compromise the overall intent or orderly development of NELDA.

TO CABOOLTURE

BURPENGARY

TO CABOOLTURE AND SUNSHINE COAST

New Settlement Road will continue to function as a Hardrock Haulage Route



Legend

- NELDAP
- Stage 1A and 1B Sequencing (Short Term)
- Stage 2A and 2B Sequencing (Medium Term)
- Stage 3 Sequencing (Long Term)
- Park Residential
- Green Space Network
- Existing School
- Existing Roads
- Proposed Roads
- Overpass
- Narangba Hardrock Haulage Corridor
- Rail Line
- N Narangba Rail Station
- "Trigger For Further Investigation"

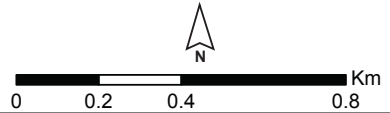
TO STRATHPINE AND BRISBANE CBD

DAKABIN

TO REDCLIFFE AND NORTH LAKES



Figure 26
NELDAP
Sequencing Strategy



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(GM20121122 MP12/2131)

5.3 New planning scheme

The NELDAP and future Master Plans will be implemented through the new Moreton Bay Regional Council Planning Scheme. The inclusion of NELDAP into Council's statutory planning document will ensure that the development intent for NELDA is embedded in the new Planning Scheme. The administration of the new Planning Scheme once completed, will then influence development outcomes for NELDA in terms of land use and built form.

In preparing a new Planning Scheme which is compliant with the Queensland Planning Provisions (QPP), consideration should be given as to how the preferred planning and land use allocations for NELDAP can be translated into QPP compatible zones.

The land use precincts contained within the NELDAP as part of this planning exercise are as follows:

- Park residential precinct;
- Low density residential precinct;
- Low-medium density residential precinct;
- Medium density residential precinct;
- High density residential precinct;
- Narangba District Centre;
- Green space network precinct;
 - Conservation sub-precinct
 - Waterways and wetlands sub-precinct
 - Stormwater sub-precinct
 - Sport and recreation parks sub-precinct
 - Rural residential green space sub-precinct

Appendix 1 outlines the QPP zones purpose and suggested overall outcomes, and allocates the NELDAP preferred land use designation to the most appropriate QPP zone. When preparing the new Planning Scheme, the allocation of QPP zones will need to be considered and decisions made concerning the implementation of NELDAP via zoning or other local planning mechanisms. Please note that the "mandatory input – local government context" in Appendix 1, is a required step under the QPP requiring Council input during the preparation of planning scheme amendments.

5.4 Priority infrastructure plan and adopted infrastructure charges resolution

Ongoing development of NELDAP will occur progressively in response to market demand. Service providers will need to undertake detailed planning and design of their respective infrastructure and coordinate delivery with other development fronts. Once finalised, the funding and delivery will be outlined in a Priority Infrastructure Plan and Adopted Infrastructure Charges Resolution. This will see the delivery and funding of trunk infrastructure in a timely and efficient manner. Due to the application of the maximum adopted charge, alternative funding mechanisms and overall sequencing of delivery will need to be considered and addressed.

5.5 Future initiatives: implementation strategy

In addition to the statutory planning requirements following the adoption of the NELDAP, there are a number planning investigations that should be progressed as a matter of priority. To ensure NELDAP'S strategies are clearly articulated in a way that allows for implementation and monitoring, this section has converted the NELDAP strategies into realistic action statements, and has identified performance measures and implementation partners.

These initiatives are summaries under the following five key points

- Liveability
- Sustainability and green space

- Integrated transport
- Community infrastructure
- Employment

Each initiative is supported by the following items.

- **Policy summary:** Provides a short interpretation of NELDAP'S main strategies to identify the issues that should be addressed by 2031 arranged under the five themes which encapsulate the NELDAP directions: liveability, sustainability and green space, integrated transport, community infrastructure, and employment and learning.
- **Goals:** Summarise what is to be achieved under each policy.
- **Actions:** Convert the NELDAP strategies into realistic action statements.
- **Performance measures:** Determine whether the quality of life and environment in NELDAP is improving. Monitoring will enable Council and other stakeholders to develop strategies and commit resources to areas that require attention. A series of performance measures, linked to NELDAP goals and actions has been developed to assess trends across the NELDAP
- **Potential partners:** The principal agencies responsible for the implementation of actions. It illustrates the fact that successful implementation of the strategies contained within NELDAP is dependent upon a range of entities who will often need to co-operate closely:
 - **MBRC:** Most of the NELDAP strategies will be implemented through the new planning scheme. Note that while some of the strategies to be implemented through the planning scheme will have no direct financial implications for Council, some in particular those relating to environmental enhancement and for the provision of recreational, leisure, community and cultural facilities will. State government: A number of State government departments will have been and will be further liaised with toward the implementation of NELDAP. In particular these departments include:
 - Department of Education and Training: Primarily responsible for the provision of the proposed school and any other tertiary and educational facilities
 - Department of Transport and Main Roads: primarily responsible for implementing the major road improvements included in NELDAP. However, some of the traffic management measures and road improvements will be carried out by MBRC.
 - Translink: responsible for public transport services including rail and bus services.
 - Department of Environment and Resource Management (DERM): required as a contact point and consulting party during the development of the Green Space Network Policy.
 - **Implementation by the private sector:** It is expected that most of the development resulting from the strategies contained in NELDAP will be initiated by the private sector, particularly those relating to employment, housing and commercial development. In addition, some of the road, water, sewerage and community infrastructure may be funded, at least in part, by private developers.
 - **Implementation by other bodies:** Church groups, community associations and voluntary organisations will play an important part in implementing many of the NELDAP proposals, particularly in the field of community services and environmental improvements.

5.5.1 Liveability

<p>Policy summary</p>	<p>The key to liveability, which is emphasised throughout the NELDAP sustainability strategy, residential development strategy and community infrastructure strategy, is to incorporate environmentally sensitive and attractive design features into local centres and community assets. Liveability can be enhanced by ensuring NELDAP residents have access to essential goods and services, affordable residential options, and providing facilities to cater for the future population.</p>	
<p>Goal: A NELDAP that is well planned, attractive and sustainable.</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Ensure infrastructure and services are delivered in accordance with new development and population growth. • Improve design quality and sustainability standards across all development. • Incorporate water quality and quantity, biodiversity and energy into planning scheme amendments pertaining to NELDAP. • Expand and enhance public spaces in the proposed district centre. • Improve the infrastructure and environment of the local employment areas. • Provides affordable, attractive and sustainable housing options. • Enhance the functional appearance and amenity of developments in NELDAP. • Ensure new development considers the existing streetscape character of the locality. • Ensure new residential development is within walking distance of facilities and infrastructure. 	
<p>Goal: A NELDAP with high quality community infrastructure.</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Plan for and provide infrastructure to meet future community needs. • Develop management plans for key infrastructure. • Centres to incorporate open space and community infrastructure. 	
<p>Performance measures</p>	<p><i>Design:</i></p>	<p>NELDAP aesthetics.</p>
	<p><i>Accessible facilities:</i></p>	<p>Proximity to community infrastructure and the local and district centres.</p>
	<p><i>Condition of facilities:</i></p>	<p>Condition reports. Community satisfaction surveys.</p>
<p>Potential partners</p>	<ul style="list-style-type: none"> • Education providers (private) • Community groups. • Old Government Departments responsible for education, transport, planning, infrastructure and local government. • Developers. 	

5.5.2 Sustainability and green space

<p>Policy summary:</p>	<p>The key NELDAP sustainability and green space strategies are defined in the following categories; sustainability, green space network, natural hazard, energy and total water cycle management. These strategies aim to deliver outcomes that include flora and fauna protection and the enhancement of movement corridors to bolster overall habitat values, clean waterways, healthy open space corridors and generally, to produce a smaller environmental footprint, to ensure NELDAP is a leader in environmental protection and management. These NELDAP strategies flag that MBRC will be pursuing a number of initiatives in the coming years in the areas of energy, water, biodiversity, transport, waste and sustainable corporate processes. Many of these actions, while led by MBRC, will be carried out in partnership with the community, State government agencies, developers and other stakeholders.</p>	
<p>Goal: A NELDAP that protects the biodiversity value of its green space network</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Protect and manage biodiversity values on public and private land. • Create and preserve green corridors and public open space areas throughout proposed residential areas and local and district centres. • Protect and enhance koala habitat where possible, and other areas of environmental value across the NELDAP. 	
<p>Goal: A NELDAP that improves its waterways</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Implement recommendations from the NELDAP biodiversity study. • Develop catchment action plans to improve the health of waterways. • Implement actions to avoid and mitigate flood risk. 	
<p>Goal: A NELDAP with accessible parks and open space catering to all ages and cultures</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Provide toilets and shade structures in parks. • Monitor the provision and availability of green space across the NELDA. 	
<p>Goal: A NELDAP that is a leader in sustainability of its energy and water resources</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Install solar lighting in selected public locations. • Provide information and education on energy efficiency. • Work with the community to increase carbon offsets. • Develop and implement stormwater pollution prevention programs. • Develop and implement rainwater harvesting and water conservation programs. 	
<p>Goal: A NELDAP that reduces pollution, resource consumption and advances recycling and waste services</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Develop long term local waste and recycling options and continue to reduce waste going to landfill. • Reduce consumption and increase reuse and recycling of resources. • Work with businesses to ensure they are planning for how their products will be disposed of or recycled. • Investigate and advocate for programs to reduce noise pollution from cars, motorbikes, trucks and freight movement. 	
<p>Performance measures</p>	<p><i>Habitat:</i></p>	<ul style="list-style-type: none"> • Water quality • Bushland conservation and biodiversity protection
	<p><i>Parks and open space:</i></p>	<ul style="list-style-type: none"> • Provision of parks and open space • Distribution of parks and open space

	<i>Energy and water consumption:</i>	<ul style="list-style-type: none"> • Energy use by sector and per capita • Water use by sector and per capita
	<i>Waste diverted from landfill:</i>	<ul style="list-style-type: none"> • Proportion of recycled waste
Potential partners	<ul style="list-style-type: none"> • Local environment groups and catchment and river management groups. • Local businesses. • Waste management services. • Qld Government Departments responsible for climate change, energy efficiency, sustainability and environment. 	

5.5.3 Integrated Transport

<p>Policy summary:</p>	<p>NELDAP will have a well connected transport network, with services and infrastructure that serves the community with sustainable, efficient and affordable options.</p> <p>Further, MBRC will maintain ongoing discussions with Translink to address the existing car parking issues and concerns around the Narangba rail station that inevitably will be challenging as further development occurs. Solutions will need to be addressed in a holistic manner rather than an adhoc solution with alternative and additional local bus services preferable.</p> <p>Planning for NELDAP should aim to reduce the reliance on private vehicles and fossil fuels in an integrated multimodal network. Facilitation of further active transport measures through the provision of dedicated and shared cycleways and pedestrian pathways connecting key locations around the NELDA will further provide sustainable alternative transport options to driving.</p>	
<p>Goal: A NELDAP with a safe and integrated street network for all users</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Resolve the car parking issue around Narangba rail station with Translink. • Improve road safety in NELDAP by implementing strategies for safe roads. • Provide cycling and pedestrian facilities e.g. bike lockers/storage facilities and racks. • Upgrade and install more street signage to improve visibility and movement around NELDAP. • Have safe, efficient and consistent speed limits with adequate lighting on local streets to improve road safety. • Improve access and mobility for pedestrians, cyclists, mobility-impaired groups and public transport users. • Implementation of CPTED strategies throughout the NELDAP integrated transport network. • Provide a well planned and integrated network of on-road and off-road bicycle routes. • Work with neighbouring councils, and DTMR to develop an integrated transport framework for NELDAP. • Maintain continual liaison with State government for funding commitments and construction timeframes for the hardrock haulage route. 	
<p>Goal: A NELDAP with public transport systems that meet the needs of residents, workers and visitors</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Improve the accessibility of transport infrastructure, services and information. • Liaise with Translink to provide reliable and frequent public transport services for all users. • Liaise with DTMR regarding delivery timeframes for the hardrock haulage route. • Improve the integration of bus and rail transport at the Narangba rail station. • Provide local groups and residents with the support needed to be able to effectively advocate for their transport needs. • Revitalise the railway precinct at the Narangba rail station. • Provide affordable and environmentally friendly transport options for NELDAP residents. 	
<p>Performance measures</p>	<p><i>Connectivity:</i></p>	<ul style="list-style-type: none"> • Travel times

		<ul style="list-style-type: none"> • Footpaths in residential areas. • Bus coverage of the NELDAP.
	<i>Cycling, walking and using public transport:</i>	<ul style="list-style-type: none"> • Public transport usage. • Bicycle usage.
Potential partners	<ul style="list-style-type: none"> • Transport advocates and associations, community transport providers, bus companies and commuters • Translink • DTMR responsible for State controlled roads and the hardrock haulage route 	

5.5.4 Community Infrastructure

<p>Policy summary:</p>	<p>Throughout various stages of NELDAP'S development, the NELDAP community has asked for a broad range of services and programs based around the district and local centres and facilities. Council plays a key role in planning and advocating for community services, supporting local groups and organisations and managing community and cultural facilities. Recognising that many services are beyond the domain of local government, Council will need to maintain strong community networks and partnerships locally, and in the wider south-east Queensland region.</p>	
<p>Goal: A NELDAP with high quality services catering for day-to-day needs</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Develop community hubs/facilities where NELDAP community members can access information, advice and services. • Improve the delivery of Council services. • Review service delivery for target groups (e.g. youth, aged) in response to demographic changes. • Provide information to the NELDAP community about services offered by Council, community organisations and government agencies. • Improve the health of the NELDAP community by encouraging and providing opportunities for physical activity for all residents. • Liaise with community providers to address community needs and ensure opportunities for a range of services and facilities can be adequately addressed to meet the NELDA community needs. 	
<p>Goal: A NELDAP that meets community health and wellbeing needs</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Support and promote programs for people of all ages. • Support and promote grant opportunities available to community organisations. • Facilitate opportunities for collocation of community services. • Liaise with State and federal government to ensure high quality services are provided within NELDAP. 	
<p>Goal: A NELDAP that is clean and safe</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Work with the community and key stakeholder to improve safety and reduce crime. • Continue to improve lighting in streets and public places. 	
<p>Performance measures</p>	<p><i>Satisfaction with services:</i></p>	<ul style="list-style-type: none"> • Community satisfaction
	<p><i>Community health & wellbeing:</i></p>	<ul style="list-style-type: none"> • Social disadvantage • Mental health
	<p><i>Community safety:</i></p>	<ul style="list-style-type: none"> • Reported crime statistics • Perceptions of safety • Road safety
<p>Potential partners</p>	<ul style="list-style-type: none"> • Local organisations providing programs and services in areas including youth development, children's services, community development, aged care, disability services, and service clubs. • Old Government Departments responsible for health, ageing, community services, housing, disability, child protection, justice and community safety. 	

5.5.5 Employment and learning

<p>Policy summary:</p>	<p>A priority for NELDAP is to provide more jobs and education opportunities. Currently, Burpengary-Narangba specialises in industrial activities, with a greater reliance on the industrial sector than the service sector. Occupations of people employed in the region reflect this, with a higher proportion of technicians and trades workers, machinery operators and drivers and labourers in Burpengary-Narangba than in the benchmark areas of MBRC and Queensland. In order to maintain economic growth, Council will work to support job generators particularly through the provision of local employment opportunities at the Narangba district centre and local centre, home based employment and the protection of strategic regional industrial lands such as the Narangba Industrial Estate.</p>	
<p>Goal: A NELDAP that promotes long term economic and employment growth</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Work with small and new businesses to enhance employment creation. • Create vibrant centres which generate local business demand. • Promote investment opportunities in NELDA. 	
<p>Goal: A NELDAP of lifelong learners</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Review the capacity of libraries to meet current and future learning opportunities. • Build partnerships with educational institutions to develop the skills and knowledge of local residents. • Implement a range of education programs and initiatives to help small and new businesses in NELDAP. • Provide high-speed internet connectivity. 	
<p>Goal: A NELDAP that meets the demand for professional and specialised employment opportunities</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Identify and pursue opportunities to attract a diversified range of employers to NELDAP. • Modernise and reposition industry to build on NELDAP's advantages of proximity to road and rail. 	
<p>Goal: A NELDAP that provides for a greater range of youth employment opportunities</p>	<p>Actions:</p> <ul style="list-style-type: none"> • Facilitate work experience, training and mentoring programs for young people. • Work with small and new business to enhance employment creation for young people. 	
<p>Performance measures</p>	<p><i>Employment:</i></p>	<ul style="list-style-type: none"> • Labour force participation rate • Youth employment
	<p><i>Education and skills development:</i></p>	<ul style="list-style-type: none"> • Population with tertiary qualifications • Population without post school or trade qualification
	<p><i>Business start-ups and diversity:</i></p>	<ul style="list-style-type: none"> • Business start-ups • Businesses by industry and size
<p>Potential partners</p>	<ul style="list-style-type: none"> • Local employers, education institutions including TAFE, training providers and established business networks. • Qld Government Departments responsible for employment, industry, investment, trade, education and training. 	

5.6 Key initiatives

Council will investigate a range of suggested initiatives that could go beyond the “business as usual” approach to achieve key NELDAP directions. Accordingly, the following list has been developed.

5.6.1 Car Parking Strategy

Car parking around Narangba Rail Station is currently at capacity and a concern for the community. NELDAP acknowledges that this issue needs to be resolved and recommends further discussions with Queensland Rail to develop a Car Park Strategy. Whilst NELDAP seeks to create a more sustainable community that encourages public and active transport modes, it is recognised car parking around the Narangba Rail Station needs to be addressed in a holistic manner to ensure a long term solution can be provided whilst encouraging public transport opportunities. NELDAP further supports the provision of an integrated public transport network that will provide a number of bus services providing connections to the Narangba Rail Station that is anticipated to alleviate the car parking issue to some extent. The Car Park Strategy should be considered prior to the development of the District Centre Master Plan.

5.6.2 Environmental Offsets

The NELDAP responds to koala habitats identified by the State Planning Policy (2/10): Koala Conservation in South East Queensland (SPP) and SEQ Koala Conservation State Planning Regulatory Provisions (SPRP) and confirmed through detailed ecological investigations, by retaining and protecting them within a green space network. (The green space network responds to areas with significant environmental values including habitat corridors, significant flora and fauna, significant regional ecosystems, koala habitat, natural waterways and flood prone land).

In addition, areas identified for rehabilitation by the State that may accommodate future urban development will be required to avoid the loss of koala habitat. Where this is not possible, off-set planting will be required within the NELDAP in accordance with the State's koala habitat offset policy.

Furthermore, the Queensland Government Environmental Offsets Policy (QGEOP) came into effect on 1 July 2008 and will be reviewed in 2013. There needs to be a rationalisation of State and Council offset schemes so that developers deal with only one scheme. It is recommended therefore that Council establish an Environmental Offsets Scheme in partnership with DERM that will offset any unnecessary removal of significant habitat and vegetation by development.

5.6.3 Master Plan and Urban Design Framework & Green space network policy

It is recommended that a Master Plan and Urban Design Framework for the Narangba District Centre and local centre be considered prior to the commencement of Planning Scheme amendments and detailed infrastructure planning. A Master Plan should be prepared to provide further direction on the nature and form of land uses and detailed urban design in the district and local centre. The Master Plan may also provide an appropriate vehicle for providing additional direction on the placement of landmark and gateway sites and treatment of the public realm. The treatment of roads, local green space themes and public spaces could be more fully articulated to ensure a common theme throughout the district and local centre. The Master Plan would also help to confirm the location of the proposed additional roads and street network within the district centre. In addition, it would provide more clarity around the land uses in the District Centre which are not sequenced to be developed until the longer term. Note the District Centre Options provide a starting point for the master planning.

The green space network is being implemented across a large number of parcels of land the majority of which are in private ownership. Further it draws on and integrates a number of statutory plans and Councils and State government programs and as such relates to properties in a specific and often unique way. The implementation mechanisms include:

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- Conditions of future development approvals;
 - Purchase of land for infrastructure (Parks, Storm water) through the Priority Infrastructure Plan;
 - Purchase of land for conservation by Council;
 - Purchase of land as part of Koala Habitat Acquisition Program by the State Government; and
 - Voluntary Conservation Agreement program/s.

A Green Space Network Policy is required to address the complex nature of implementation in that it implements multiple policy objectives and is delivered through multiple but integrated plans and programs. The Policy should specifically address:

- Policy objectives;
- A cadastral based map of the green space network;
- Identification of statutory processes and government programs and how they relate to each property identified in the green space network; and
- Specific programs to integrate and coordinate between the multiple mechanisms.

To support the development of the Green Space Network Policy more detailed planning and investigation as part of individual implementation plans (eg Priority Infrastructure Plan) is required and will continue.

5.6.4 Total Water Cycle Plan

To implement the TWCM Strategy Moreton Bay Regional Council is currently preparing a TWCM Detail Plan, where the solutions identified in the strategy are being assessed in detail through modelling, for their practicability and feasibility. As a part of the TWCM Detail Plan, the water quality of the Caboolture River and Moreton Bay Water will be assessed. This study will determine the amount of total nutrients that can safely and responsibly be discharged to Caboolture River and Moreton Bay in accordance with DERM licensing. Consequently, the findings of this study will provide Unitywater the upper EP that can be serviced by Burpengary East Sewerage Treatment Plant. The detail plan will also identify stormwater treatment opportunities such as water sensitive urban design and stormwater harvesting.

However, Unitywater will be able to utilise the NELDAP in undertaking planning for future augmentation of the water supply and sewerage system to service the new population.

5.6.5 Road corridor study

The NELDAP has identified a number of new roads and associated upgrades required to support the future population of Narangba East. The purpose of the proposed roads is to enhance north-south connectivity and ensure accessibility throughout Narangba East and particularly into the District Centre is maintained whilst accommodating the anticipated increased traffic volumes. At this point in time, the roads are indicative and significant planning and design work is required to determine a suitable location and alignment for these roads and associated upgrades. Council supports the need for a detailed road corridor study including detailed engineering design.

5.7 Monitoring and review

Monitoring and implementation of the NELDAP and the strategic planning directions is an essential part of the implementation program. This should include:

- Monitoring of the residential and worker population within NELDAP, particularly within the Narangba District Centre;
- Monitoring of land uses and activity within the Narangba District Centre; and
- Ongoing assessment of community needs and services.