SCHEDULE B -

The Griffin Local Area Plan
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1.0 Introduction

Griffin presents a community with some unique challenges and opportunities. The Council has tackled these issues through a structured process. As a consequence of this process and Council’s decisions to:

- seek to achieve higher overall densities consistent with moves towards more compact and sustainable urban form as proposed in the Regional Plan for SEQ; and
- seek to create a unique sense of place.

The outcomes of this Local Area Plan depart from the more traditional development forms that typify most of the Shire’s urban areas.

These unique challenges, the Council’s preferred concepts for addressing the challenges, and the Council’s guiding principles for development are set out below.

This first section of this Local Area Plan is covered in some detail, as the planning and design intent clearly differs to that which has previously been sought elsewhere in the Shire, and readers would do well to fully appraise themselves of the intent and desired outcomes before referring to other sections of the document.

The main planning issues are –

- The Council’s ability to control development through the limitations of headworks
- Better alignment and timing of infrastructure provision with land planning and development processes
- The number and intent of the development applications that have been recently lodged over land in this area
- The requirements of the SEQ Regional Plan
- The unique constraints that confront development in the area
- The significant opportunities that the area offers for development
- The Council’s desire for overall higher density housing outcomes

The preferred concept is development which is –

- Generally restricted to land above the Q_{100} flood line except that limited filling may be approved subject to meeting Council requirements in regard to environmental, hydraulic and amenity outcomes
- Responsive to the unique topography of the area
- Medium density, in a range of housing forms
- Laid out in a manner which efficiently utilises the planned North-South Urban Arterial, and
- Designed and delivered in a form which enables highly urbanised lifestyles to be enjoyed

The Guiding Principles for Development are derived from a ‘Griffin Development Model’ which features an integrated arrangement of –

- Ridgeline and Parkway Boulevards and Apartments; and
- Detached Infill Housing and Local Streets
2.0 Purpose of the Plan

The purpose of this Local Area Plan is to provide detailed planning provisions for the future development of land within Griffin. The purpose is also to ensure the creation and maintenance of character within the area, and ensure that development occurs in an orderly and sustainable manner. The Study Area has an area of approximately 284 hectares. The Griffin Local Area Plan recognises the requirements of a future community, in excess of 13,000 people, and provides for living, working and recreational land uses.

This Plan is one of the three local area plans prepared as part of the Northern Growth Corridor planning project.

This Plan has been prepared as an interim step towards the subsequent development and adoption of a Structure Plan under the SEQ Regional Plan, one of the principal instruments for establishing the desired use of land and the preferred timing of development within the Urban Footprint. As such, it establishes a broad structure, layout, appropriate land uses and infrastructure corridors required for future development and community needs within the Griffin Local Area Plan Area. The Plan respects all significant environmental constraints, maintains open space and creates landscaped buffers to major development corridors.

With the aim of reflecting the requirements of the SEQ Regional Plan, this Local Area Plan:

- contains acceptable urban uses;
- incorporates best practice sustainability principles;
- seeks to minimise demand for water, power and waste, and maximise reuse opportunities;
- sets dwelling densities aimed at maximising yield;
- plans for land use and transport integration;
- plans for the integration of existing areas with surrounding areas;
- concentrates a mix of higher residential densities and commercial intensities around existing or future public transport nodes;
- seeks the creation of balanced and affordable communities with a clearly defined range and mix of housing type;
- defines the physical and social infrastructure required to service the area which can be staged economically to meet the demand;
- identifies and preserves infrastructure corridors;
- plans for the provision of community uses and public services, including education, health, and social services;
- responds to development constraints, including identifying and protecting significant nature conservation and other environmental values as well as mitigating undesirable impacts;
- makes provision for local job opportunities;
- provides for, and supports, the use of internal and external public transport, walking and cycling; and
- provides for open space within the area.

This Local Area Plan applies to all development regulated by PineRiversPlan which is located within the Plan Area indicated on Figure 1 – Griffin Local Area Plan Area.
Figure 1 – Local Area Plan Area
3.0 Neighbourhood Design Principles

3.1 Sustainability

The Griffin area is to be planned and developed in line with principles that enable provision of land uses and other elements to maximise its capacity to be a liveable and sustainable urban area of the Pine Rivers Shire and the SEQ Region.

Land use within the Griffin area will primarily be residential comprising a varying range of housing form and type. To allow for an optimal level of sustainability and liveability to be reached, development should be undertaken in accordance with the following general principles:

3.1.1 Natural Environment Principles

- Areas of natural environmental values including significant vegetation and waterway systems are maintained in as natural a condition as is reasonably possible and appropriate buffers are in place;
- Areas of natural environmental value, cultural heritage value and scenic amenity are incorporated into the design and layout of development to enhance the appearance, interest and local identity of the neighbourhood;
- Buffers in line with Department of Primary Industry and Environmental Protection Agency requirements for separation of urban development and impacts to the environment are provided in accordance with the following minimum distances:
  - State significant wetland area or RAMSAR listed wetland – 100m
  - Local significant wetland area – 50 m
  - Coastal management areas – 100 m above Highest Astronomical Tide
  - Freshwater wetlands and waterways – 50m of established natural vegetation
  - Tidal lands or marine plants and declared Fish Habitat Areas – 100m of established natural vegetation;
- The relief of the land is maintained and followed as much as is reasonably possible with the placement of roads and the formation of building sites that have minimal disturbance to the site. Where land is affected through cutting, filling, benching platforms or similar practices, the revised landform result needs to be planned and designed to properly respond to drainage, visual amenity and other considerations. This principle must be balanced against the benefits of achieving more intensive urban development in appropriate locations given the proximity to centres and public transport nodes. Such development in these locations may involve a greater degree of modification of the natural landform to achieve suitable building platforms, movement systems and other urban design objectives;
- The principles of water sensitive urban design and appropriate stormwater and erosion and sediment control measures apply to the design and construction of drainage infrastructure. Urban drainage systems are designed to maintain the ecological function and appearance of natural drainage paths to minimise the downstream impact of water runoff in terms of soil erosion, siltation and flooding;
- Significantly constrained areas such as land subject to acid sulfate or erosion prone areas are suitably identified in any site analysis investigations and appropriate management responses are implemented to minimise environmental harm.

1 The above distances may vary where circumstances such as local topography and development impacts warrant revisions to the assessing authority’s satisfaction while still maintaining the integrity of the above significant environmental areas and their respective function.
3.1.2 Economic Principles

- A diversity of residential housing types and densities is provided to meet different housing preferences, needs and levels of affordability (This principle also has relevance to the Social and Well-Being set of principles);

- In overall terms, the pressure to accommodate growth is addressed if less land is used to house more people than neighbourhoods in outer suburban areas have traditionally achieved in the post World War 2 period. This principle and the preceding principle are consistent with the requirements placed on local governments by the SEQ Regional Plan 2005-2026;

- The consumption of treated water from the Council’s urban water reticulation system is minimised by incorporating water sensitive urban design measures and other appropriate practices. These include the capturing and reuse of rainfall, use of water tanks and use of devices such as water-efficient shower roses, dual flush toilets, water and energy efficient washing machines and other examples to use water more efficiently. Safe forms of household wastewater reuse (e.g. ‘greywater’) and planting low rainfall-tolerant species in street and park landscaping can also assist in reducing the need to consume reticulated sources of water (This is also relevant to the Environment set of principles); and

- The position of road corridors, allotment layout and the design of housing responds to the prevailing climatic conditions. This is achieved by maximising access to northerly aspects for sunlight and prevailing breezes from an easterly direction, protecting against the colder westerly winds in winter and the afternoon heat and glare of the sun setting in the west during summer. There is also a preference to reduce the need for use of air-conditioning and heating through improved design and materials used in the construction of residential premises.

3.1.3 Social and Community Well-Being Principles

- Features of cultural heritage value and areas of natural environmental value and scenic beauty are protected and incorporated into the design and layout of development to enhance the appearance, interest and local identity of the neighbourhood;

- The road layout provides opportunities for convenient, easily identified and varied routes for local walking and cycling between households and to local destinations like parks, schools and shops;

- The road layout provides for efficient and convenient bus services through neighbourhoods;

- Local shops and other services are provided in locations that make them convenient and financially viable, are accessible by a number of means – car, bicycle and on foot, and are supported by clustering complementary activity near them (such as home based businesses);

- Denser housing types like apartments and townhouses are positioned to place as many people as possible in convenient walking distance to shops, high capacity public transport and other local services, both for the convenience of the residents and for the viability of those services;

- Local business and employment opportunities are provided for small-scale enterprises in and around local centres and through home-based business activity;

- Opportunities for people to meet and get to know their neighbours are provided in a number of ways – in parks, on the footpath and by providing for local shops, cafes and other services in the neighbourhood; and

- The location and design of housing provides opportunities for personal privacy and retreat, but also promotes security and allows for surveillance of public places and connection with the wider neighbourhood by facing out to, and looking over, parks, footpaths and streets.

- Dwelling house lots are arranged to prevent the need to back onto parkland. Parkland is provided in neighbourhoods in a way which provides extensive, if not complete, frontage of the parkland to a road.
3.2 A Sense of Place

The Griffin Local Area Plan seeks to depart from the low density standard form of urbanisation. It also seeks to provide an appropriate place for residents to live, work and play that has a distinctive local identity and character - a "sense of place".

A "sense of place" is an important consideration that residents in particular have for a given locality. Neighbourhoods that have a "sense of place" are believed to be better neighbourhoods because they connect with individual resident's personal identity and experiences and help people to feel that they 'belong' somewhere that is of value to them.

A genuinely distinctive "sense of place" can be difficult to achieve when land development and building practices, regulatory requirements, pressures for economic efficiency and consumer preferences combine to promote standardised patterns of land subdivision and building appearance in new development.

Nevertheless, a "sense of place" can be established by retaining and incorporating into new development elements of the natural environment and cultural history of a location. These include:

- Natural features such as the topography of an area;
- Areas of vegetation or individual plants with habitat value, particular endemic identity or those that are of particular aesthetic or ecological value;
- Habitats and linkages for fauna to co-exist with any further development activity in the area;
- Natural streams and water bodies and minimising or avoiding adverse disturbance to underground formations such as any aquifer formations and springs; and locally occurring geological conditions (e.g. exposed rock formations);
- Cultural artifacts and sites such as places important to traditional owners, more contemporary landmark sites as well as more recent artifacts such as buildings, fences, dams, roads and machinery;
- The broader physical setting of an area and the opportunities to maintain, enhance or where appropriate to do so, establish, long distance views and more immediate visual connections between the new development and its surroundings through urban design measures; and
- Opportunities to establish or reinforce identity of an area through landscaping, street furniture of an appropriate form, number and location, building materials and appearance as well as other elements of urban design undertaken at a more detailed level.

A "sense of place" is also about people’s perception of how the positive and negative character elements balance out. This includes elements such as the attractiveness of local centres, streetscapes, parks and protected local vegetation, views to waterways and other features and traffic volumes on local roads. The Pine Rivers Shire Council study The Character and Amenity of the Established Residential Areas of the Shire (GHD, 2001) found that the most significant influences on the character of residential areas are typically (and not necessarily in order of importance):

- Terrain and significant natural features;
- The patterns of streets and open space;
- The patterns and sizes of allotments;
- The extent and type of remnant vegetation and introduced planting in gardens and parks, and especially trees along street verges;
- The types of house construction and style;
- The extent to which there might be a mix of housing types and densities (e.g. duplex housing and apartments as well as infill cluster housing developments or group title developments); and
• Relationship to major transportation routes and significant non-residential uses (especially commercial and industrial uses).

The Griffin Local Area Plan proposes to provide an urban development framework that effectively responds to the particular features and considerations of the area and to provide Griffin with a distinctive local character and identity.

3.3 Transport-Land Use Integration

There are several key principles that can be readily applied to Griffin to achieve effective transport – land use integration in new urban development and these include:

• Provide for residential land use within an acceptable walking distance to key public transport and neighbourhood centre nodes. The acceptable walking distance is usually a comfortable walking distance for a person which is about 5 minutes or a radius of 400 metres. The placement of housing and determining the walkable distance will need to take account of matters including:
  - the land topography;
  - the standard of the linkages for varied modes;
  - the facilities at the node to store items such as bicycles; and
  - the permeability of the neighbourhood to allow for alternative and reasonably direct routes to the node;

• Establish a local activity centre that includes appropriate public transport facilities and waiting environments for people to conveniently access and use;

• Locate convenience shopping and other complementary community and business services in suitable locations that can, in turn, support and service higher density housing forms. With its convenient and highly accessible location for a range of transport modes and its capability to service a large local population base, the centre can provide a platform for community and other social activity;

• Arrange local and district bus services in a manner which enables collection of passengers and connection with scheduled intersuburban rail services to maximise patronage of the railway station from beyond its immediate walkable catchment;

• Locate major and minor collector routes in a manner which provides convenient and relatively direct routes through the neighbourhood and addresses existing recognised road and other transport mode network deficiencies within the district;

• Provide for bus routes on major and minor collector roads in Griffin in a manner which places a bus service within a comfortable walk of most houses and factors in future network improvements associated, for example, with population growth, development of other localities and the construction of public transport corridors as part of the north-south arterial road infrastructure;

• Implement a neighbourhood road layout that has high levels of interconnection through the provision of suitable standards of footpaths, parks and pathways. These facilities are to provide relatively direct, convenient and comfortable walking and bicycling routes to activity centres, bus stops, schools and other places of community activity; and

• Design major and minor collector streets to function as lines of connection within the neighbourhood, rather than as impediments to access and circulation. This is to be achieved, for example, by having adjoining development front towards and address the street (by using a range of road design approaches including service roads, rear access lanes and reciprocal access easements, as appropriate to the circumstances).
3.4 Integration with Existing and Emerging Neighbourhoods

A large portion of Griffin is not developed for urban purposes and is currently used for farming and other rural practices. There is one area in the central section of Griffin that has been developed as a low density conventional residential housing estate. The following principles apply to provide effective integration between new and existing development:

- The location of access points to new development from the local arterial and major collector road network should align with, or account for, intersections accessing existing development. In some locations, this will mean establishing controlled four-way intersections. In other locations, intersection spacing which achieves acceptable Council engineering design standards will be required;

- Where existing development provides for local street connections to undeveloped land sites, these connections generally should be made good in the design of new road layouts;

- Where existing development has parks, pathways or open space linear corridors at its boundaries, new development generally should be designed to connect with, or extend, these facilities;

- The positioning and density of higher density housing in new development should take into account the density and character of development directly adjoining the site under consideration, as well as that of facing development across the street. A gradation of density and other measures to treat the new development boundaries and other relevant aspects to complement the existing is to be undertaken.

3.5 Balancing Urban and Environmental Sustainability

The Griffin Local Area Plan starts from the premise that Griffin has been allocated for urban development for an extended period in Pine Rivers Shire Council planning instruments, is included in the SEQ Regional Plan 2005-2026 Urban Footprint and is to be developed to provide an efficient and liveable residential neighbourhood.

Where tradeoffs are required, it is important to ensure that, on the one hand, features of significant natural environmental value are not compromised by urban development, and on the other, that the liveability and ‘walkability’ of urban areas and the effective functioning of public transport and other service catchments is not compromised by extensive environmental reservations. This means that some green spaces may need to be reduced, dams filled, minor natural drainage paths realigned or natural flood containments modified to ensure satisfactory urban outcomes.

In other cases, high value environmental constraints as determined by Council planning and State legislation (primarily the Vegetation Management Act 1999) mean that particular areas will not be able to be developed for urban purposes.

In some instances, to enhance the liveability and level of access as well as urban services and convenience for the community, there may be a need to place a higher emphasis upon revising the relief of the land to achieve the above effectively.

Such tradeoffs are not appropriate in all instances and the circumstances of each case will need to be evaluated in terms of, for example:

- the proximity to existing or potential centres or similar elements to warrant higher density housing being constructed; and

- the extent of adverse visual impact that may be created.

Where there are significant works proposed for planned infrastructure such as the North-South Urban Arterial, then there may be opportunity to consider the revision of the landscape. This should be where adjoining properties are not unduly affected and the proposal is highly consistent with the planning intent for the locality.
4.0 Local Area Plan Elements

4.1 The Preferred Concept for Griffin

The Griffin Local Area Plan mapping deals with the themes of land use and transport. These illustrate a preferred concept which is robust and comprised of interrelated land uses, transport and urban design outcomes. The planning intentions are expressed in Figure 2 and Figure 3. The issues identified in the legend for each Figure are described in this section.

Griffin is to be developed in accordance with principles that maximise its capacity to be a sustainable neighbourhood and contribute to greater levels of sustainability in the urban form of Pine Rivers Shire and South East Queensland generally.

The preferred concept is intended to be implemented predominantly though private development, and contains the following key elements:

- The Q_{100} flood line limits development except where shown on Figure 2.
- Development responds to the unique topography.
- Development is of a higher density and takes a range of housing forms (through application of the "Griffin Development Model") particularly around proposed local activity centres;
- Efficient Use of the Planned North South Urban Arterial; and
- Delivery of highly urbanised lifestyles through attention to urban design elements.

The following guiding principles for development are intended to assist proponents in the preparation of development applications:

- Provide a range of housing types in accordance with the Griffin Development Model;
- Open space and treatment of the public realm such as streets, facilities, and communal areas contribute to the local character;
- Incorporate views and vistas, both within and beyond the local neighbourhood;
- Landscape treatments, facilities, and urban design features define neighbourhood character;
- Built form is designed to be sympathetic to local site characteristics and development constraints (i.e. slope, risk hazards, maintains views and features);
- Subdivisions deliver a high level of residential amenity (environment, safety, privacy, convenience, and visual attractiveness); and
- Transport systems cater for a range of modes, including public transport, pedestrian, and cycle, and are safe, attractive, and convenient.

4.2 Land Use Elements

The Land Use Elements that have been mapped where relevant are:

- Residential Areas and Densities;
- Local Activity Centres (Commercial Centres, Employment Areas and Other Activity Nodes);
- Community Facilities;
- Park and Open Space Networks;
- Protection of Natural Systems; and
- Protection of Features of Heritage and Cultural Significance.
4.3 Residential Areas and Densities

The Griffin area is intended to be developed predominantly for residential development. This will provide a significant area of medium density residential development. The area will become a distinct point of difference for residential densities in the Shire and can capitalise on the regional opportunities noted earlier. There are three critical success factors in this:

- an overall average yield of 23 dwelling units per hectare;
- 45 dwelling units per hectare near the centres; and
- application of the ‘Griffin Development Model’.

Density is expressed as ‘net density’ (i.e. is based on the area occupied by housing and associated land plus the area of local roads and local open space). The average net residential density is taken to be the measure of housing density expressed as dwellings per hectare calculated by adding the area of residential lots plus the area of local roads, local-level park, open space (i.e. excluding arterial roads and Rural and Open Space designated areas) and then dividing by the number of dwellings created. Because under this Local Area Plan not all developments are required to provide land for local parks, it is intended that the area of local park to be used in the calculation of net density will be derived from a calculation based on an assumed population and the desired standard of service for local parks. For the purpose of calculating the population of a proposed residential development, it shall be assumed that the average residential dwelling occupancy rate shall be 2.6 for a detached house and 1.7 for each dwelling unit within a multiple dwelling unit development. The population derived from this calculation shall then be used to determine the assumed local park requirements of a development, whether or not the development is actually required to provide land for a park or to contribute towards provision of local park land. The area of local park to be included in the calculation of net density shall be calculated by applying the desired standard of service of 1.2 hectares per 1000 people² to the population of the proposed development using the assumed occupancy rates.

Land required for major roads, including the boulevarde style roads, neighbourhood, district and regional level open space are not to be included in the calculation of net density.

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² 1.2 Ha per 1000 population is the assumed demand for local level open space used in Council’s Priority Infrastructure Plan for Local Community Purposes.
Notes:

In accordance with the Development model for Griffin:
- On slopes less than or equal to 5% an average of 25 dwelling units per hectare is intended to be achieved.
- On slopes greater than 5% an average of 12 dwelling units per hectare is intended to be achieved.

The boundaries of the open space areas are indicative only and will be assessed by Council based on best available information at the time an application is considered by Council. Where the boundaries of the public open space shown on the structure plan generally follow the boundaries of the Q100 flood line and the Q100 flood line is revised based on best available information a corresponding adjustment will be considered to the boundaries of the public open space areas.

The development layout shown on the Local Area Plan Figure 2 Land Use is indicative and is intended to communicate graphically the development principles incorporated in the structure plan. The extent to which individual development proposals achieve this is a matter for the development assessment process to determine.

Designated school sites do not preclude alternative sites being utilized for public/private school and related purposes if site investigations indicate to the satisfaction of Council that other suitable sites are available for these purposes.

In respect to the local activity centre proposed on Dohles Rocks Road LA-2, in the event that a local shopping centre is established in Dohles Rocks Road, Murrumba Downs on the western side of the Bruce Highway, this site LA-2 may be used for a range of uses including neighbourhood facilities, community facilities, commercial services, indoor entertainment and sport, hotel and service station.

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4.3.1 An overall average yield of 23 dwelling units per hectare

Most of the land above the \( Q_{100} \) flood line is intended to be developed for a range of residential forms at an average 12 dwelling units per hectare on steeper slopes and 25 dwelling units per hectare on flatter slopes in accordance with relevant elements of the “Griffin Development Model”.

Land within 400 metres of the centre of the local activity centres is intended to be developed at a minimum density of 45 dwelling units per hectare. This is to be achieved through integrated medium density residential development. Such development is to be purposefully designed to both reinforce the functional roles of the local activity centres and to enhance their transit supportive roles with the proposed arterial and sub-arterial roads.

All development is also intended to be responsive to topography. The land above the \( Q_{100} \) line is characterised as fingers or peninsulas of land generally oriented east/west in the northern portion of the area (‘Bray’s Road Peninsula’), and more isolated ‘islands’ of land in the southern portion. These topographical forms create opportunities for development which has an orientation down the slopes towards the flood plain lands (largely paddocks and farms) and also long views north, east and south to more distant localities and Moreton Bay. This topographical response can produce development forms which differ greatly to the ‘urban carpet’ which typifies most of the established areas of the Shire.

4.3.2 Application of the ‘Griffin Development Model’

Development is to have due regard to the "Griffin Development Model". In summary, this model arranges residential development in the following ways:

- Ridgeline Boulevards;
- Ridgeline Apartments;
- Parkway Boulevards;
- Parkview Apartments;
- Detached Infill Housing; and
- Local Streets.

4.3.3 Ridgeline Boulevards

Sub-arterial and collector roads generally run along the ridgelines. These are designed so as to be clearly recognisable as boulevards and public transport routes with generous street trees, wide medians and verges, extensive pedestrian paths and ground level vegetation, and well designed public transport waiting environment infrastructure.

4.3.4 Ridgeline Apartments

Generally, but not exclusively, fronting ridgeline boulevards are duplexes, triplexes, attached housing, and low rise apartment buildings. These address the ridgeline boulevard and are also designed for the upper levels to capture the views that may be possible away from the ridgeline.

4.3.5 Parkway Boulevards

Collector roads generally run along the land immediately above the \( Q_{100} \) flood line, separating development from the floodable land and sensitive landscape and vegetation areas. These are designed so as to be clearly recognisable as boulevards and public transport routes with generous street trees, wide medians and verges, extensive pedestrian paths and ground level vegetation, and well designed public transport waiting environment infrastructure.

4.3.6 Parkview Apartments

Generally, but not exclusively, fronting Parkway Boulevards are duplexes, triplexes, attached housing, and low rise apartment buildings. These address the boulevard and are also designed to capture the views of the open spaces beyond the boulevard.
4.3.7 Detached Infill Housing

In the land remaining between the Ridgeline and Parkview Apartments, detached housing will be developed along local roads which link the boulevards. The detached housing is be provided in a range of lot sizes from 320m$^2$ and incorporate sustainable building and site planning practices such as minimal benching, water conservation, solar orientation and design for a wide cross-section of the potential market. Within this area, there is also an expectation that duplex and triplex developments will be provided on appropriate corner sites and other sites which offer advantages for the occupants of such forms. It is preferable that these be distributed throughout the detached housing areas, and designed to complement local pocket parks and pedestrian access ways. Laneway lot houses may be capable of fronting the park on up to 50% of the parkland frontage where there is a wide pathway provided with high standard furnishings separating the parkland from these dwelling lots and enabling convenient access to the open spaces.

The following Table 4.1 indicates the range of dwelling products Council considers acceptable within the various designated density areas. It is the designer’s responsibility to provide a mix of dwelling products within developments as well as achieving the average minimum density. Designers are encouraged to be innovative and hence may put forward other housing products they consider may be appropriate for consideration by Council.

**Table 4.1: Acceptable Housing Products and Associated Design Codes**

<table>
<thead>
<tr>
<th>Density Designation (average minimum dwelling units per hectare)</th>
<th>Allowable Housing Products</th>
<th>Applicable Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 du/ha</td>
<td>Small and standard lot detached housing</td>
<td>Detached houses on small residential lots code$^1$</td>
</tr>
<tr>
<td></td>
<td>Rear laneway housing</td>
<td>‘Fonzie Flat’ code$^2$</td>
</tr>
<tr>
<td></td>
<td>Duplex dwellings</td>
<td>Laneway Lots code$^2$</td>
</tr>
<tr>
<td></td>
<td>Townhouses</td>
<td>Duplex dwelling code$^1$</td>
</tr>
<tr>
<td></td>
<td>Four pack housing</td>
<td>Multiple dwelling Units (FAR restricted to 0.3) code$^1$</td>
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<td></td>
<td></td>
<td>Four Pack Housing code$^2$</td>
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<td></td>
<td></td>
<td>Urban Residential Subdivision Design Code$^1$</td>
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<td></td>
<td></td>
<td>Boundary Relocation Design Code (where applicable)$^1$</td>
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<td>Access Easement Design Code (where applicable)$^1$</td>
</tr>
<tr>
<td>25du/ha</td>
<td>Small lot housing</td>
<td>Detached houses on small residential lots code$^1$</td>
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<tr>
<td></td>
<td>Rear laneway housing</td>
<td>Laneway Lots code$^2$</td>
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Notes:
1. These codes are contained in PineRiversPlan.
2. These codes are in draft stage.
4.3.8 Local Streets

Local streets will generally form important links between the boulevards, and be designed to incorporate water sensitive urban design measures so that the landscaped gardens and verges along the local streets perform important water quality enhancing functions.

These streets will include generous pedestrian paths, and be aligned so as to create, and capitalise upon, the vistas of and over the flood plain.
4.4 Local Activity Centres (Commercial Centres, Employment Areas and Other Activity Nodes)

This Local Area Plan provides for two local activity centres to service Griffin. One is on the north side of Brays Road, close to the North-South Urban Arterial Road and designated LA-1 on Figure 2. The other is on the northern side of Dohles Rocks Road, close to the Bruce Highway and designated LA-2 on Figure 2.

Each of these centres is intended to primarily provide for the daily convenience needs of local residents. The centres would also be expected to draw patronage from public transport or private vehicle travellers passing the respective sites for other travel purposes. While the Local Area Plan proposes two local activity centres, LA-2 may not eventuate if a local centre is approved and developed on land immediately west of the Dohles Rocks Road / Bruce Highway Interchange. A local centre west of the highway is expected to meet the local shopping needs of residents in the southern part of Griffin, south of Dohles Rocks Road. In the event that a local centre is built immediately to the west of the Bruce Highway on Dohles Rocks Road, then this Plan will be deemed not to support a second local activity centre east of the Bruce Highway on Dohles Rocks Road.

The local activity centres are not intended to attain a size or range of functions that would either draw a high proportion of custom or act as a draw for special purpose trips from outside of the local convenience catchment. A maximum retail gross floor area of 1,800 m$^2$ applies to each of the centres unless the need for a larger centre is demonstrated to the satisfaction of Council through a retail needs assessment study.

A centre providing a retail gross floor area of 1,800m$^2$ is expected to consist of a small convenience store of approximately 500 m$^2$ and a combined 1,300m$^2$ of other retail based small scale tenancies such as video hire, café, post office, takeaway food premises, detached bottle shop, newsagency or the like. Other complementary community or non-retail commercial services may be established at these centres to enhance their local service capability and diversify local employment and business opportunities. These may include a community hall, child care centre and small scale office premises.

Application for a development permit for a local activity centre or to extend a local activity centre will be required to demonstrate the need, timing and size of the proposed retail floor space component of the proposed development through a retail market feasibility report that includes consideration of the existing and proposed retail floor space in competitive centres within the trade area of the proposed centre.

There is potential for a small local activity centre to emerge east of the North-South Urban Arterial in the vicinity of Brays Road. This centre may include a small convenience centre to service residents within its vicinity, and be 250-300m$^2$ GFA in conjunction with a mixed use commercial and residential development.

An area alongside Dohles Rocks Road incorporating local activity centre LA-2 has been designated for a range of commercial and community purposes. These uses are intended to complement the development of LA-2, but in the event LA-2 does not proceed, all of this area is intended to be developed for a range of commercial and community purposes as described in Figure 2.

The Local Area Plan anticipates the establishment of an intensive urban character for these local activity centres with active edges to footpaths, covered outdoor areas, outdoor seating and eating spaces and customer car parking. Crime Prevention Through Environmental Design (CPTED) principles are to be incorporated in the layout of the premises. Integrated driveways are to be used to minimise points of entry/egress to the developments. Particular consideration is to be given to the measures used to address the impacts of the electricity transmission corridor and the North-South Urban Arterial Road traffic.
The local activity centres are to be ‘master planned’ and incorporate of key design elements such as:

- building orientation;
- positioning of doors and windows;
- weather protection;
- pedestrian movement paths and levels;
- outdoor seating and service access; and
- creation of integrated centre characters.

The centres are to be developed with a high level of accessibility and convenience to their immediate catchments.

4.5 Community Facilities

In addition to the range of community facilities which may be required to support the area and which can mostly be provided by the private sector in the local activity centres, two preferred primary school sites have been identified.

The site to the north of Brays Road was identified by Education Queensland in November 2005 as a preferred location to be included in the Local Area Plan. The timing of construction of this school is subject to the area achieving student population threshold benchmarks as determined by Education Queensland, and subject to funding.

The southern site has been identified by Council as being appropriate for a potential private school as the land in the flood plan could be developed for school and community sporting facilities and flood free areas used for school buildings.

The designation of preferred sites for school purposes does not preclude the land being developed for residential purposes as an alternative land use if proposals for a school do not eventuate. Also, designation of a site for a school does not preclude a school being developed at an alternative location provided that a development application demonstrates that an alternative site is suitable and appropriate for school purposes.

4.6 Park and Open Space Networks

In accordance with Future Recreation Land Maps 8-12 and 9-12 in PSP26 - "Development Contributions for Trunk Infrastructure - Local Community Purposes" (to subsequently be incorporated in the Local Community Purposes Priority Infrastructure Plan), a combination of land area Future Bushland Recreation Park, District Park and Neighbourhood Park of 18.57 hectares is required in the eastern part of Griffin (identified as SC-8 BRP/DP/NP on the Future Recreation Land Maps.)

A future local sporting facility of 6 hectares is required in the north-eastern part of the Plan area in the Bray's Road Peninsula section of Griffin (identified as SC8-LSF1 on the Future Recreation Land Maps).

These open space areas are intended to complement and supplement the land that has been set aside for similar purposes adjacent to the study area boundaries. In addition to these open space areas, is land that has been designated for specific purposes such as "electricity transmission corridor" that provides for additional linear open space. Together, this land provides extensive areas of open space within Griffin and environs that is in addition to the planned parkland and sports fields to service the local community.

4.6.1 Local Parks

Local parks are identified in this Local Area Plan. These are to be provided in accordance with Council's development contributions policies (subsequently the Priority Infrastructure Plan), are to be located on one or more local access roads with full frontage to the road and are to have appropriate cycle and pedestrian linkages provided to, and through, each park for local resident
use. Exceptions to the full frontage requirement include where, for example, laneway lots are provided with an appropriately wide and well furnished path separating the local park from the adjacent residential lots.

4.6.2 Neighbourhood Parks

Neighbourhood parks are to be located generally as indicated on Figure 2. (NB: neighbourhood parks also fulfill a local park function for the relevant catchment).

A neighbourhood park should be designed to have a close visual and functional relationship to its surrounds in terms of access points, pedestrian movement paths, placement of playground and other park furniture, lighting and landscape planting to channel views and facilitate passive surveillance between the two areas. Where warranted, small local parks (as part of nodes in the linear park system) fringing, or within, the Q_{100} drainage corridors should be provided.

4.6.3 Linear/Linkage Park

All land below the Q_{100} Flood Line is to be transferred to the Council as drainage reserve as part of the development approval process. Land in this situation above the Q_{20} level is accepted as public open space (usually in the form of a linear/linkage park).

4.6.4 Recreation Trails

The route of recreation trails is generally along the fringe areas of Griffin, providing access to significant environmental features such as Freshwater Creek, the Pine River and Hays Inlet. A footbridge is required to provide access across Freshwater Creek. The design, type and location of the recreational trail facilities will be dependent on a Recreation Trail Plan being finalised.

4.7 Regional Ecosystem Vegetation

Land confirmed as containing Remnant Of Concern or Remnant Endangered regional ecosystems is generally expected to be unavailable for urban development (subject to the outcome of the development assessment process including referral to the Department of Natural Resources and Mines or equivalent as a concurrence agency). The extent of these areas as identified by Queensland Government regional ecosystem mapping at the time of preparation of this Local Area Plan is shown on Figure 2.

Development will generally be required to provide road frontage, drainage reserve or public open space adjoining land unavailable for development for this reason. Appropriate buffers are to be provided in line with the above considerations for tidal and freshwater areas to conform to State legislation.

4.8 Protection of Natural Systems

The principal means of protecting the values of natural systems in the Plan area is:

- through the inclusion of land below the Q_{100} flood line in open space and drainage reserves. Land below this is generally not capable of being filled without causing unacceptable hydraulic (flooding) or adverse environmental impacts. Where some filling may be possible, this is shown on the relevant maps, but the extent of these potential filling areas is quite limited;

- through the identification of land containing Remnant Of Concern or Remnant Endangered regional ecosystems; and

- through providing appropriate buffers in line with State legislation.

These areas are generally unavailable for urban development.
4.9 Protection of Features of Heritage and Cultural Significance

Items or sites of European or indigenous cultural heritage significance will need to be appropriately identified and incorporated (where practical, and in line with legislation or other relevant accepted standards) in the proposed development, or alternatively buffered appropriately to retain the contextual significance of the element for the locality. To date, no specific sites of cultural heritage significance have been designated within the study area in the planning scheme. However, a number of sites (but not an exhaustive list of sites) of heritage significance are known to exist in the Griffin area. Information about these sites is contained in a Cultural Heritage Inventory of Landscapes, Sites and Places held by Council. The Aboriginal Cultural Heritage Act 2003 requires proponents of development to undertake appropriate consultation and investigative processes in addition to complying with gazetted cultural heritage duty of care guidelines.

4.10 Transport Infrastructure (See Figure 3)

4.10.1 State Transportation Infrastructure

The Queensland State Government has prepared the South East Queensland Infrastructure Plan and Program (2005). This document sets out the principal regional projects for the road network. For the Griffin area, this includes the construction of the North-South Urban Arterial to supplement the Bruce Highway.

4.10.1.1 North-South Urban Arterial

With the need to ensure the function of the Bruce Highway is not adversely impacted upon by surrounding population growth and the resultant trip generation, the State Government has proposed a new urban arterial road through Mango Hill and Griffin. The road corridor has been preserved for the eventual construction of the North-South Urban Arterial in line with the development of the Griffin Area.

The planned North-South Urban Arterial Road will also provide a direct link to the North Lakes Shopping Centre and planned Town Centre, as well as direct links to the Bruce Highway interchange with the Gateway Motorway south of the North Pine River in the long term.

The arterial road reserve (average 100m) is also intended to function as a corridor for a future busway, linking the Griffin area with centres and railway stations to the north and west, and destinations in the northern suburbs of Brisbane.

Initially, the road corridor will be developed to form part of the local sub-arterial road network to service Griffin and surrounding areas. There will initially be at grade controlled intersections with Dohles Rocks Road and Brays Road. Brays Road will ultimately be grade-separated using an overpass.

As indicated in the Infrastructure Plan and Program for South East Queensland 2005-2026, construction of the first sections of the North-South Urban Arterial road are planned to commence in 2009-10. Henry Road will be transformed into the planned North-South Urban Arterial. The urban arterial will require the construction of a vehicle bridge across Freshwater Creek. The Department of Main Roads, Queensland Transport and the Pine Rivers Shire Council will outline the arrangements required to allow for the urban arterial to be constructed as a local road of regional significance in a Memorandum of Understanding prepared as a parallel exercise to the preparation of this Local Area Plan.
4.10.1.2 Public Transport

The State Government has preserved the Petrie-Kippa Ring corridor (originally reserved for railway purposes) to be used in the foreseeable future as part of a northern multi-modal facility. This corridor fringes the northern section of Griffin; however, no stops/stations are currently intended to be located within Griffin. Access to the southern-most stops/stations in Mango Hill may be possible for residents in the north western section in particular, through the construction of a pedestrian bridge across Freshwater Creek.

Local bus services for the Griffin area are likely to be a combination of local, feeder and school bus types to cater for the population. Local bus services are to be provided to link the residents in the separate neighbourhoods with local facilities such as local activity centres, community facilities, parks and sports fields. There is also an opportunity for the provision of a local feeder bus service that allows residents to be taken to and from nearby railway stations such as Petrie and Dakabin.
4.10.2 Pine Rivers Shire Council Transport Infrastructure

4.10.2.1 Sub-arterial Roads

Brays Road will service the northern section and Dohles Rocks Road provides for access to the southern area of Griffin. These roads provide an east-west connection to Murrumba Downs.

Brays Road currently is a sealed 2 lane undivided carriageway. Some urban related road improvements have occurred with the construction of the residential estate development near Cairns Road. The road will be designed as a graded overpass with appropriate access/egress lanes provided for the North-South Urban Arterial.

Ultimate design for Brays Road will be a divided carriageway with 2 lanes in each direction and appropriate landscape works and enhancements for the road to function as a key access corridor for Griffin, particularly from the west.

Brays Road has a nominal reserve width of 30m and the road extends east from the proposed North-South Urban Arterial corridor to service the Bray’s Road Peninsula land areas. The width of the road allows for some additional enhancements that can improve the visual amenity of the road corridor providing a tree-lined corridor with other features to reduce the harshness of the pavement and having regard to matters such as appropriate safety considerations, sightlines and drainage.

Dohles Rocks Road is a sealed 2 lane undivided carriageway. The road has a reserve width of approximately 30m and extends from the proposed North-South Urban Arterial Road corridor to the east to connect with Dohles Rocks Village and land for conservation and environmental reserve purposes further east of the Plan area. This road will intersect at grade with the proposed North-South Urban Arterial and require a controlled intersection.

Ultimate arrangements for this intersection are yet to be determined. The ultimate design for Dohles Rocks Road will be a divided carriageway with 2 lanes in each direction and appropriate landscape works and enhancements for the road to function as a key access corridor for Griffin, particularly from the south and west.

4.10.2.2 Collector Roads

Given the extent of the Griffin Local Area, there is a need to plan for the effective location of a collector road network to service the resident population and allow for appropriate access for all modes of transport to key facilities and elements of the area. This planning has unique challenges in this context given the separation of residential areas by flood prone land and the proposed North-South Urban Arterial. The topography of the land and the function of the North-South Urban Arterial will result in limited access locally to that road corridor. Collector roads shown as crossing the North-South Urban Arterial to the north of Bray’s Road require investigation and assessment, but should be an integral feature in achieving the desired level of internal connectivity for the ultimate development of the Bray’s Road Peninsula.

The broad structural aspects of the proposed local transport system are reflected in the depiction of the major elements of the local road network and bicycle network in Figure 2 and Figure 3.

The specific principles to be incorporated in development in the Plan area are the following:

- The enhancement of the east-west sub-arterial roads connecting Griffin with the North-South Urban Arterial and the Bruce Highway regional corridor, and which are to be designed as landscaped boulevard-style roads. This type of road design and layout can provide for a central, unifying element of the built environment of the Plan area and provide views to the notable features of Griffin as residents and visitors travel to and from the west.

- Road networks may incorporate rear laneways for vehicle access to maximise active frontages to streets, to provide a high standard of visual amenity in streets and to provide comfortable and safe pedestrian and cycle environments with a minimum number of vehicle crossings interrupting the footpath.

Figure 2 and Figure 3 identify a model road network. Individual development applications may put forward modifications to this model network at the detailed level to suit the specifics of particular development proposals. However, individual development applications are expected to implement
the general form depicted on the Plan Maps to provide the accessibility and connectivity required to and within the area.

Where cul-de-sac roads are used they are expected to incorporate pedestrian connections through to other elements of the street network at the cul-de-sac head. These connections are to be in the form of road reserve extensions of a shape and width that retains the option of connecting the road carriageway through at a future time.

The Land Use Elements in Figure 2 and the Transport and Access Movements in Figure 3 identify the points of access to the external road network and the general alignment of the collector street network. Individual development applications are required to adopt these points of access and collector street alignments. The alignment of other elements of the street network and the lot layout of individual development applications will be assessed against the applicable codes of the PineRiversPlan at the time of application.

4.10.2.3 Pedestrian and Bicycle System

Development is to deliver appropriate layouts with permeability which allows for, and encourages, enhanced levels of walking and cycling activity. Factors to also consider are the level of connectivity, safety and the appropriateness of the infrastructure to encourage use for walking and cycling.

The Griffin Local Area Plan incorporates a network of bikeways and shared bicycle/pedestrian pathways to achieve the linkages. These are a combination of off-road shared pathways through parks and on-road bikeways. Also, a recreation trail links significant environmental and recreation areas from Freshwater Creek to the Pine River and eastwards to Dohles Rocks and surrounding conservation areas of Hays Inlet. Crossing points of Freshwater Creek are proposed and these are to be located where there is minimal impact on the waterway and the surrounding environment generally as shown on Figure 3 – Transport and Access.

4.11 Other Infrastructure

4.11.1 Integrated Urban Water Management

Council’s Northern Growth Corridor Integrated Urban Water Cycle Management Strategy has examined the environmental, social and economic outcomes of various water cycle management strategies for the Northern Growth Corridor. The outcomes of this study form the basis of the Northern Growth Corridor Waterways for Life strategy for reduction of potable water consumption, reduction of nutrients being discharged into the river system, and coastal waterways, and control of nutrients from new development.

The principal elements of the strategy are:

- Water conservation measures including:
  - Queensland Development Code (QDC) Part 29 and extension to the non-residential sector;
  - Landscaping and native planting controls;
  - Sub-metering for all residential community title and non-residential development;
- Use of recycled water for external use and toilet flushing;
- Use of recycled water for open space irrigation;
- Provision of rainwater tanks (5kl) in new residential development; and
- Incorporation of Water Sensitive Urban Design.

The Waterways for Life strategy is intended to be implemented through the development assessment process and through required infrastructure agreements for all new developments in the Northern Growth Corridor.
4.11.2 Water and Sewerage

The current Pine Rivers Shire Council 15 Year Capital Works Programme identifies water supply and sewerage infrastructure works relevant to development in the Griffin Local Area Plan area. These infrastructure works are listed in Table 4.2 Infrastructure Program.

4.11.3 Drainage, Electricity and Telecommunications

4.11.3.1 Drainage

Major drainage corridors likely to affect urban development in the Plan area have been identified and include:

- The corridor in the southern area of Griffin extending from the Bruce Highway across Dohles Rocks Road and Henry Road;
- The Pine River and low lying areas subject to storm tide surge inundation; and
- The corridor in the northern area of Griffin adjacent to Freshwater Creek.

Each of these areas is included in the public open space system on Figure 2. Land below the ultimate ARI 20 floodline in the southern area of Griffin is to be included in drainage reserves. Drainage infrastructure in these drainage reserves is to be designed and constructed in a manner that maintains (or where necessary restores) the natural profile and characteristics of the drainage paths and restricts the volume and velocity of stormwater runoff to levels that are not likely to create erosion of, or adverse siltation in, drainage paths and waterways.

4.11.3.2 Electricity

Energex has identified the need for two 33/11 kV zone substations in the Griffin area near the intersection of Dohles Rocks Road and the Bruce Highway and near the intersection of Brays Road and Cairns Road. The primary area of interest for the location of these sites is shown on Figure 2. New 33/11 kV zone substations generally require a land area of about 4,000 m², consisting of about 50m frontage with 80m depth. ENERGEX prefers to locate its substations in commercial/industrial areas. Where there is no suitable commercial/industrial land available, ENERGEX has site selection criteria such as staying away from schools/child care centres, and maintaining suitable buffers to domestic residences.

4.11.3.3 Telecommunications

No specific telecommunications infrastructure or land requirements have been identified as being required to support urban development in the Plan area.

4.12 Infrastructure Program

The following table (Table 4.2 Infrastructure Program) describes a three phase infrastructure plan for key community infrastructure requirements in the Plan area and is derived from detailed infrastructure planning undertaken by Council as part of its planning program for the Northern Growth Corridor.

With regard to the development of the Northern Growth Corridor (NGC), Council does not intend providing all necessary major development infrastructure works to serve these areas. It is envisaged that the majority of the major development infrastructure within the NGC will be provided by developers under infrastructure agreements or by way of development approval conditions. Major infrastructure works outside of the NGC, but related to development of the area, will generally be provided by Council.
Table 4.2  Infrastructure Program

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**Stormwater**

Local Catchments 22 and 23 (PSP24 - Development Contributions for Trunk Infrastructure - Stormwater).

Timing determined by timing of development applications

**Community Facilities**

One State Primary School

Timing subject to area achieving student population threshold benchmarks as determined by Education Queensland, and subject to funding.

One Potential Private Primary School

Timing determined by timing of development applications

One Local Community Centre

Timing subject to monitoring of population growth in the area.

**Open Space**

Nine Local Parks | $0.55/ha |

Timing determined by timing of development applications over land containing designated open space.

Four Neighbourhood Parks | $0.55/ha |

One Local Sporting Facility | $0.55/ha |

One Bushland Recreation park | $0.03/ha |
5.0 Implementation Strategy

5.1 Relationship to Infrastructure Planning

The SEQ Infrastructure Plan and Program 2005-2026 (the Infrastructure plan) was released in April 2005 and outlines the Queensland Government’s infrastructure priorities to support the SEQ Regional Plan. The Infrastructure Plan’s key objectives include supporting a more compact urban form, development of the Western Corridor and sub-regional self-containment. ³

At the local government level, Priority Infrastructure Plans (PIPs) prepared under the IPA are intended to integrate local government land use and infrastructure planning more effectively by establishing an infrastructure planning benchmark for each local government planning scheme.⁴

A key feature of this local area planning process is that it co-ordinates and integrates the land use and infrastructure planning processes at a local and regional level.

There is an iterative relationship between land use planning and infrastructure planning. Initial land use intentions were formulated through previous planning for the Plan area. This work formed the basis of infrastructure planning which included the identification of service networks, capacity and size of infrastructure elements and location of corridors. Council then revised its draft infrastructure plans based on land use proposals emerging from the planning process. The final Local Area Plans for the NGC have, in turn, provided the basis for assumptions about the type, scale, location and timing of land uses that have underpinned the design of trunk infrastructure networks.

The establishment cost of trunk infrastructure to service proposed developments and the balance of each Plan area, plus maintenance and operation costs, will form the basis of infrastructure agreements required for the development of land within the Plan areas.

Preparation of this Local Area Plan has been supported by the following infrastructure planning activities:

- Detailed planning for water supply and sewerage (including calculation of developer contributions) and a 15 year Capital Works Program for Water and Sewerage incorporating some key components of the infrastructure necessary to service the NGC plan area;
- Catchment Management Plans including calculation of developer contributions for trunk infrastructure required to mitigate the adverse stormwater quality and quantity impacts of development;
- Revised flood studies for all waterways and the Bramble Bay/Hays Inlet/Pine River storm surge effect;
- Analysis of the road system down to “collector street” level, determination of developer contributions, and detailed traffic analysis in some key areas;
- Parks and community facilities land planning including calculation of developer contributions and identification of locations for major open space, and sports and recreation facilities;
- Benchmarking of required social and community facilities and determination of developer contributions; and

Council has also had regard to the South East Queensland Infrastructure Plan and Program (SEQIPP) adopted by the State Government in April 2005. In particular, attention has been paid to key infrastructure proposals for the NGC plan area (i.e. the North-South Urban Arterial, public transport measures). The SEQIPP may require proponents of new development in greenfield areas to enter into State Infrastructure Agreements for private contributions towards priority State

5.2 Council Infrastructure Delivery Intentions

Each year, Council produces a capital works and construction program to deliver the infrastructure needs deemed necessary for the Shire under the umbrella 15 year Capital Works Program. The capital works and construction program is based on comprehensive studies including:

- the Integrated Local Transport Plan;
- Council’s Draft Priority Infrastructure Plans; and
- the stormwater management contribution policy current at the end of 2004.

The 2005/06 and 2006/07 works program represents years one and two of a greater 15 Year Major Water Supply, Sewerage, Roads and Stormwater Management /Drainage Works Program. It continues on from the previously adopted 2004/5 program of works and is updated annually as the basis for strategic asset planning and delivery.

Council reviews the ranking criteria to ensure that project priority is based on best practice in accordance with a range of quadruple bottom line criteria. It is anticipated that the 15 year program will be flexible enough to permit changes in project priorities with certainty for project delivery in the initial two years.

As already indicated, Council does not intend providing all necessary major development infrastructure works to serve the development areas of the NGC. It is envisaged that the majority of the major development infrastructure within the NGC will be provided by developers under infrastructure agreements, or by way of development approval conditions. Major infrastructure works outside of the NGC, but related to development of the area, will generally be provided by Council.

Social Infrastructure required to serve the NGC will generally be provided by Council and State Agencies from services available within adjacent areas and from new facilities to be located within the NGC. It is Council’s intention to require developers to contribute towards the facilities required to adequately provide for the social infrastructure needs of the new communities within the NGC through infrastructure agreements based on the benchmarks for provision of social infrastructure established by Council during the preparation of this Local Area Plan.

Appropriate infrastructure charges will apply to development in order to fund the major infrastructure required to serve the Northern Growth Corridor.

5.3 Basis of Infrastructure Agreements

For development in the NGC which is outside of Council’s adopted (1995) Water Supply and Sewerage Headworks Area, Council is generally prepared to enter into infrastructure agreements regarding servicing the land (refer Minute Page 03/2125). The infrastructure planning and charges forming an integral part of such agreements will be based on the following:

- Council’s draft Priority Infrastructure Plans (PIP's) prepared pursuant to the provisions of Chapter 5 of the Integrated Planning Act 1997;
- Additional infrastructure to that shown in Council’s PIP's and PSP's resulting from adoption of this Local Area Plan;
- Council’s existing Planning Scheme Policies (PSP's) on Developer Contributions for Trunk Infrastructure;
- JWP report – Ultimate Servicing Strategy for Land External to the Existing Headworks Area, March 2005;
- Cassara Jux report – Social Infrastructure Requirements for the Northern Growth Corridor, June 2005 as well as subsequent policies of Council flowing from the report;
• Bloxsom, Chippindall & Associates report – Priority Infrastructure Plan Land Value Index Report, 8 June 2005; and


The infrastructure agreements will deal with infrastructure charges as well as any infrastructure works (and associated credits) required for the particular development. Works that form part of the infrastructure included in the various charges will be credited against infrastructure contributions due from the development.

Agreement between Council and development proponents on proposed infrastructure charges and related requirements or works for the proposed development is required before a recommendation can be made to the Council for development approval and the subsequent issue of a development approval.

5.4 Variations to Council Policies or Standards Applying in the Local Area Plan Area

Council acknowledges that some variations or departures to selected Council development policies or standards will apply to development within the Plan area. However, such variations or departures are limited to:-

5.4.1 Frontage Access to Residential Streets and Major Urban Roads

In 1993, Council’s Design Manual introduced prohibitions on frontage access to residential lots from roads carrying more than 3,000 vehicles per day or having a catchment of 300 or more Equivalent Dwellings. The stated objective of that restriction is to provide acceptable levels of residential amenity and protection from the impact of traffic, while retaining reasonable user convenience and economy of construction. (These same requirements have been reflected in PSP28 - Civil Infrastructure Design).
The result is that residential lots adjacent to such roads and streets back onto, and are separated from, these roads by a noise or screen fence on the boundary. Safety and surveillance in the Major Urban Roads and higher traffic volume Residential Streets is compromised under the current Design Standards as a consequence.

In order to provide good streetscape amenity and surveillance, and to facilitate business and home based business development, it is proposed under this Plan to require lots to front or face Residential Streets (>5,000 vehicles per day) and Major Urban Roads (up to 12,000 vehicles per day) where Council accepts this is compatible with the function of the road corridor by using:

- battle-axe lots to provide vehicle access from low traffic volume side or rear streets;
- rear lanes/streets to provide vehicle access;
- service roads; or
- combined driveway access for 4 or more (if approved) lots (typically ‘four pack’ developments).

Examples of probable solutions for the above are contained in Liveable Neighbourhoods, Edition 3 (draft), 2004 published by the Western Australian Planning Commission.

For this Plan, Council’s standard street and road cross-sections are intended to be amended accordingly to accommodate the necessary additional elements (e.g. parking lanes/bays, service roads) into the design.

5.4.2 Road Frontage to Parks

Perimeter streets around local and neighbourhood parks will generally be required in order to promote safety of these areas by maximising visual surveillance. Where a street is not provided, it must be demonstrated that other means will be used to ensure overlooking and surveillance from adjoining development (e.g. rear lane housing overlooking the park).

5.4.3 Traffic Noise Amelioration

In 1993, Council’s Design Manual dealt with the issue of traffic noise indicating that noise attenuation may be provided by distance (traffic lane to house), mounding and/or landscaping, fencing or house design (e.g. double glazing, blank walls). The Design Manual then referred the designer to Council’s policy for traffic noise attenuation (originally adopted by Council in November 1992).

Local Planning Policy LP25 – Noise Attenuation on Residential Land which was in force at that time made it clear that the land developer was responsible for providing attenuation measures to reduce traffic noise (at an external receptor point to the façade of the future dwellings) to $63\text{dB(A) }L_{10(18 \text{ hours})}$ assuming standard dwelling design at minimum road setbacks. Those same requirements have been reflected in PSP6 - Traffic Noise Attenuation.

Neither policy addresses those circumstances where practical noise attenuation measures may not facilitate the required level of noise reduction and neither policy allows for the noise attenuation to be fully catered for in the dwelling design. The result is that outdoor private open space could be subject to noise levels of $63\text{dB (A) }L_{10(18 \text{ hours})}$

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8 Refer Council’s Roads and Drainage Design Manual - Volume 1, Book 1, Section 2A.7.6
In this Plan area, Council is permitting dwellings to front Residential Streets and Major Roads with a traffic volume of up to 12,000 vehicles per day (where Council accepts this is compatible with the function of the road corridor) therefore eliminating the opportunity to attenuate noise solely by fences or mounds. The separation distance between dwellings and the edge of the nearest traffic lane in such instances can range between 9.5m and 16.0m depending upon the classification of the road and the minimum dwelling setback.

Separation distance alone will not attenuate the traffic noise to the required level of $63\text{dB}(A)\ L_{10/18\text{hours}}$ for the dwelling. However, by fronting dwellings to the road, and locating outdoor private open space to the rear of the dwelling, the end product could (depending upon the building design) result in traffic noise impacts on the outdoor private open space area being attenuated by the dwelling. Traffic noise impacts on the dwelling in such situations must be attenuated through building design.

Therefore, in this Plan area where Council has approved dwellings fronting roads with traffic volumes exceeding 3,500 vehicle per day, the dwellings must be designed to attenuate traffic noise in order to achieve appropriate internal noise levels. A traffic noise report will be required with each development application to determine predicted noise levels and any specific requirements for dwelling design. A copy of the relevant report will be made available to future owners of the affected properties.