



DRAFT



Left to right: Semi-detached dwellings on small lots, Blacks Beach; Attached dwellings, East Mackay; High-rise apartments, Mackay City Centre.

Cover images (left to right): Detached dwellings on small lots, Walkerston; Attached dwellings, Mt Pleasant; Medium-rise and High-rise apartments, Mackay City Centre.



Mackay Regional Council is creating a new strategic plan and planning scheme for the region. One of the important first steps in this process is to formulate foundation strategies to support initiatives to be incorporated into the new strategic plan and planning scheme.

This Draft Residential Densities Strategy is intended to outline Council's vision for more compact urban areas of the region. This Draft Strategy articulates the need for, and benefits of higher density residential development, identifies key precincts and corridors suitable for higher densities and provides design principles for new development. The region's development and building industries contributed to the formulation of the Draft Strategy by providing highly useful and relevant information at workshops in early 2010.

It is anticipated the Strategy will work hand in hand with Council's emerging Activity Centres Strategy and Mobility and Sustainable Transport Strategy to achieve a more sustainable urban form.

Council looks forward to receiving your comments on the Draft Residential Densities Strategy. I am confident that by working collaboratively with the community, developers and other stakeholders, we can shape an exciting and sustainable vision for our region that responds to environmental, economic and social considerations.

Yours Sincerely,

Cr Diane Hatfield
Planning and Development Portfolio

The Draft Residential Densities Strategy has been produced by Mackay Regional Council.

The Draft Strategy is based on 3 Supporting Documents produced by a team consisting of AECOM, BVN Architecture, Foresight Partners Pty Ltd and Mackay Regional Council.

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Document Control

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The strategy seeks to encourage the delivery of well-designed higher density residential development in appropriate locations and, consequently increase the overall residential density of urban areas.



1. Introduction

Purpose and Scope of the Strategy

Council is committed to managing the challenges associated with high population growth and, at the same time, enhancing the sustainability and liveability of our region. Important to this is the development and implementation of strategies seeking to achieve a more sustainable and consolidated urban form and greater diversity in the region's housing product.

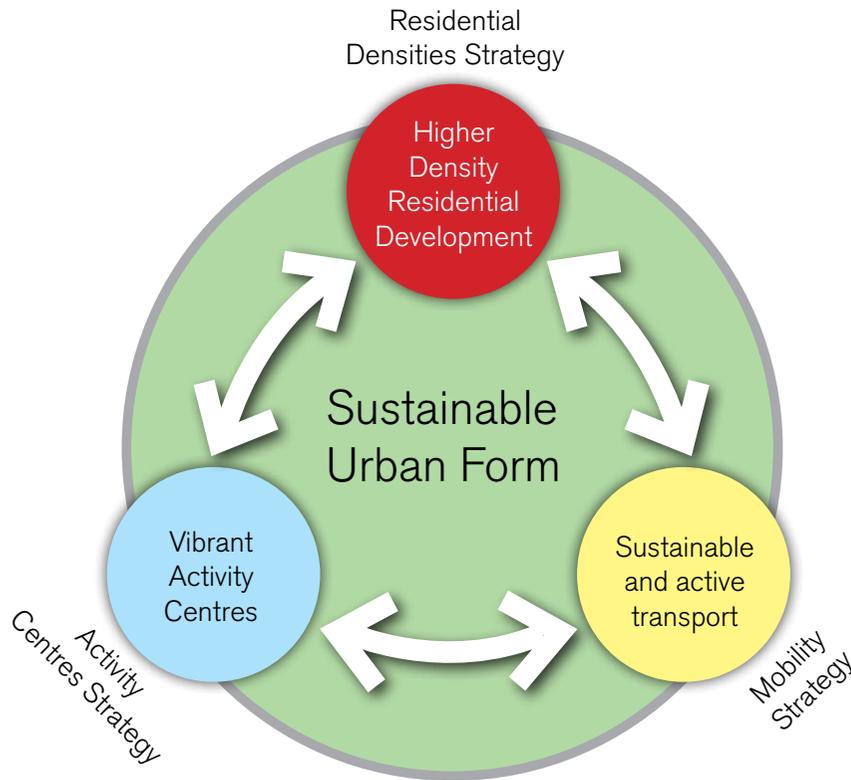
The Residential Densities Strategy seeks to encourage the delivery of well designed higher density residential development in appropriate locations and, consequently, increase the overall average density of residential development in urban areas.

The strategy aims to achieve this by:

- presenting relevant contextual information in order to identify issues and opportunities for providing higher density residential development (Part A);
- articulating the benefits of higher density residential development in the region's urban areas (Part A);
- defining criteria for appropriately locating higher density residential development (Part B);
- defining design principles for higher density residential development (Part B);
- identifying key precincts and corridors considered suitable for higher density residential development (Part C); and
- identifying initiatives to encourage higher density residential development (Part C).

The strategy applies to the five (5) urban areas of the region, namely, Mackay, Sarina, Walkerston, Marian and Mirani. Please refer to Appendix A for the definition of higher density residential development and the levels of density (low, low-medium, medium and high) discussed in this strategy.

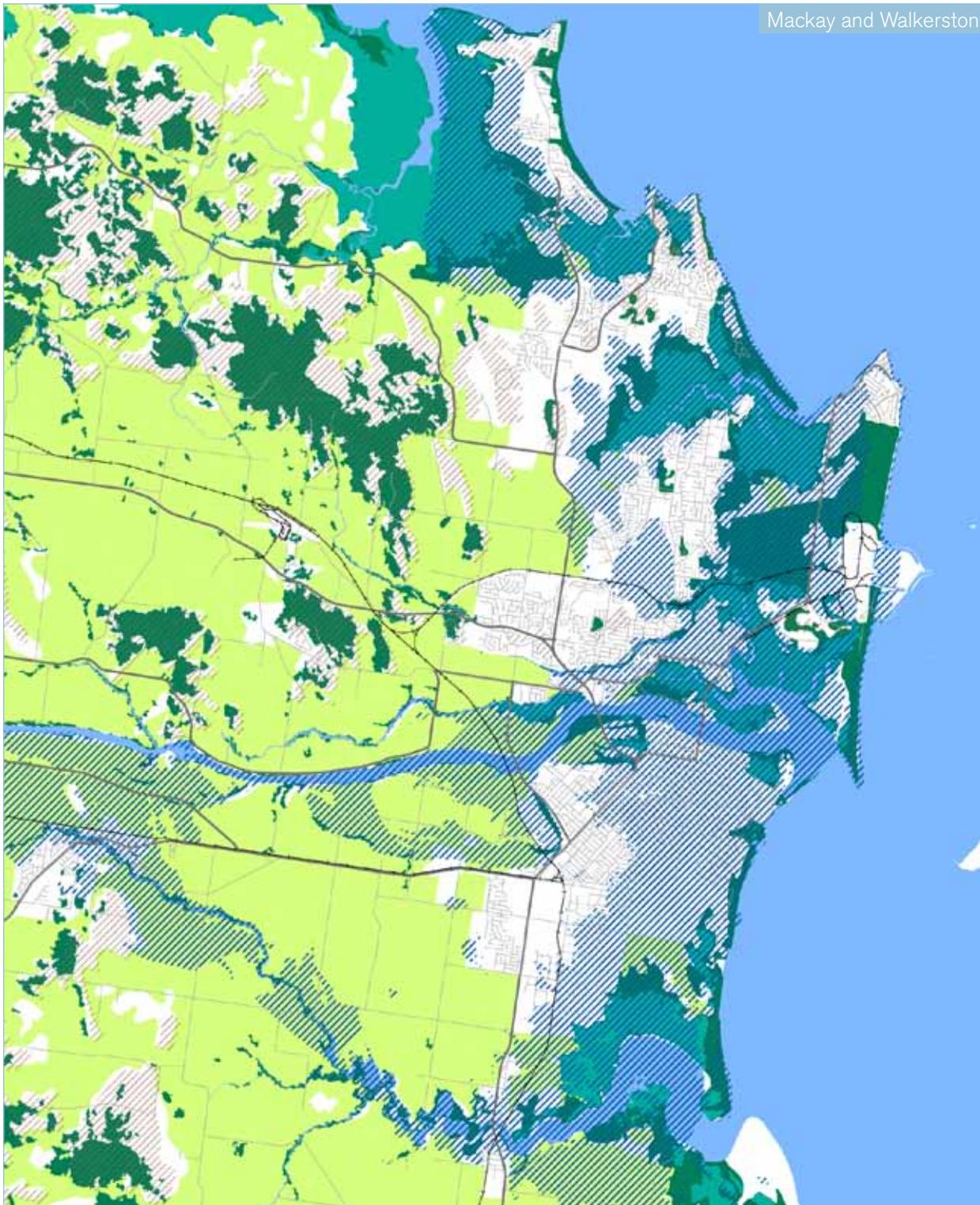
The *Residential Densities Strategy* compliments council's emerging *Activity Centres Strategy* and *Mobility and Sustainable Transport Strategy* in aiming to achieve a more sustainable and consolidated urban form. The strategy is also consistent with a number of Council's other planning policies and initiatives (new development within a defined urban edge; efficient use of land within the urban edge; development and infrastructure provision sequenced in an orderly and economic manner; and functional and robust open space).





Attached dwellings, North Mackay.

Part A ■ a case for higher density residential development



Sarina

PHYSICAL AND ENVIRONMENTAL

-  Land potentially subject to inundation
-  Environmental value - coastal wetlands
-  Environmental value - remnant vegetation
-  Good quality agricultural land
-  Steep land

2. Existing parameters and projected trends



Physical and environmental

Land affected by natural hazards, land containing natural resources and land containing ecological / landscape value is located within and near the urban areas of the region.

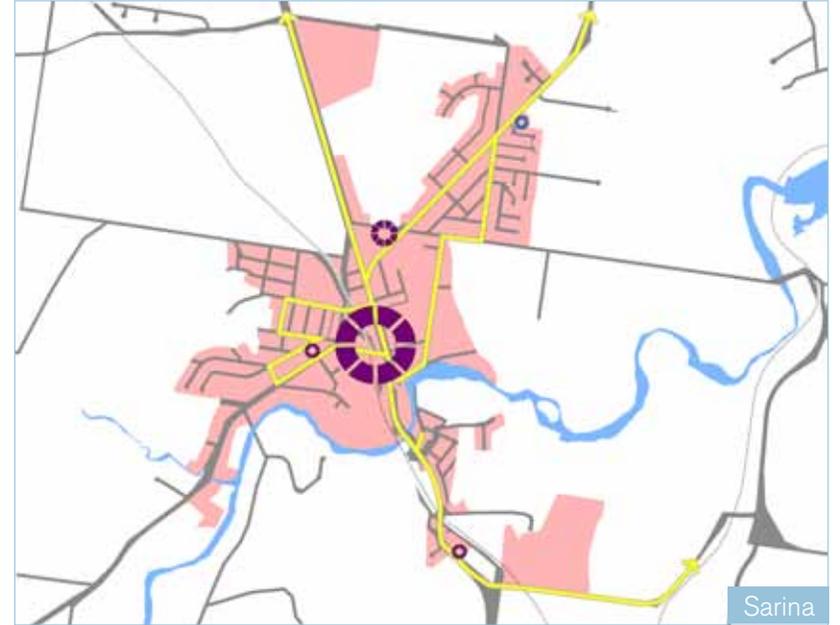
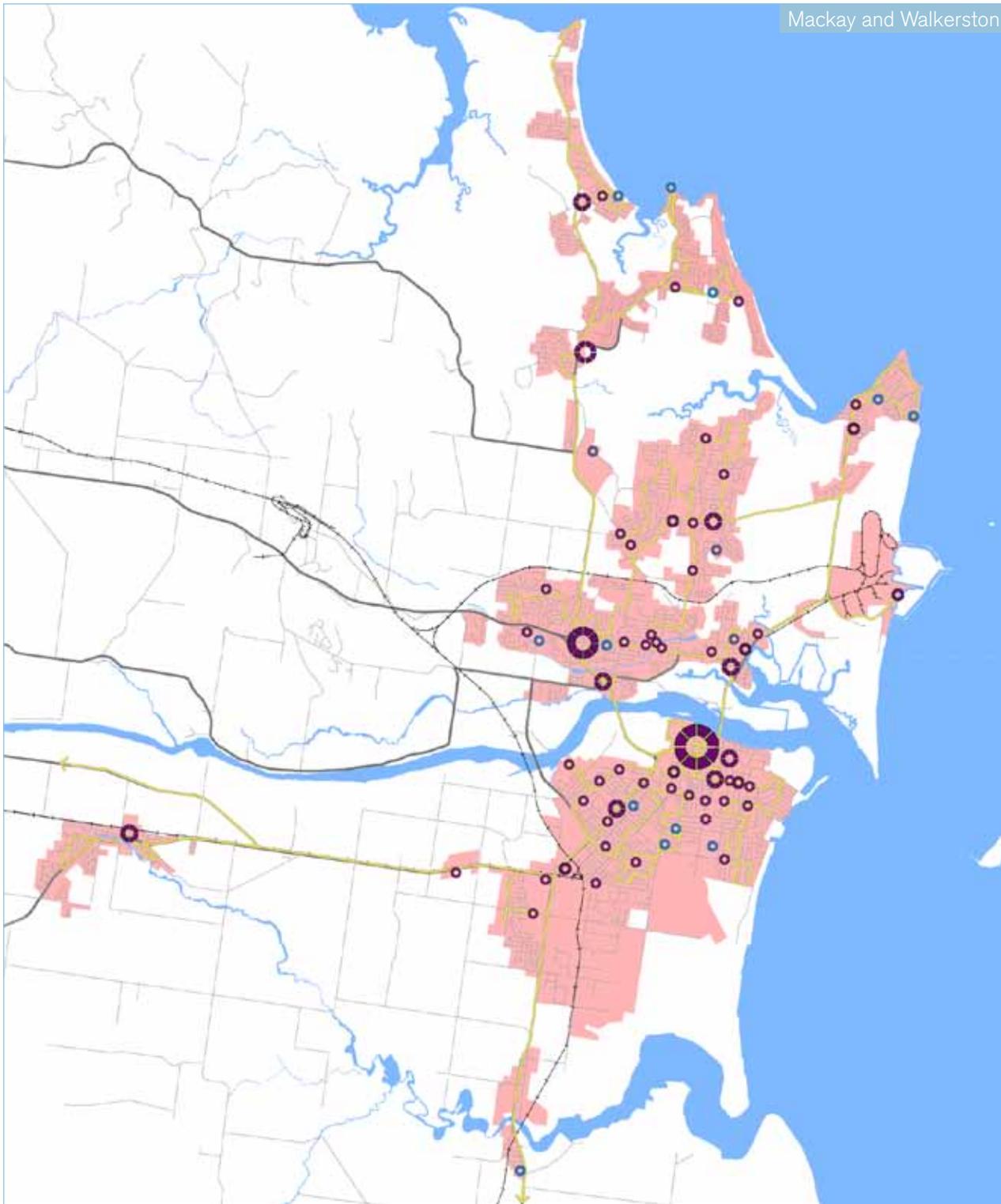
Several parts of the Mackay urban area, especially the inner suburbs, are located on flat, low-lying land potentially subject to inundation as a result of riverine (Pioneer River), localised or storm surge flooding. In addition, the Mackay urban area is surrounded by either:

- productive or potentially productive agricultural land (good quality agricultural land); or
- environmentally sensitive areas / scenic hillsides and ridgelines.

The extent to which Sarina is affected by riverine (Plane Creek) and localised flooding has not been formally analysed. The area directly east of the town centre is generally level however other parts of Sarina are located on undulating or hilly land. Good quality agricultural land is located to the immediate north and east of the urban area. Vegetated ranges are located to the south and west of the urban area and isolated vegetated hills are located to the north and east.

In the Walkerston urban area, land immediately adjoining and to the north of the Bakers Creek corridor is subject to inundation as a result of riverine flooding (Pioneer River break-out). With the exception of vegetated hills to the south, Walkerston is surrounded by good quality agricultural land.

The extent to which Marian and Mirani is affected by riverine (Pioneer River) and localised flooding has not been formally analysed. Marian and Mirani are located on generally level land. With the exception of the Pioneer River corridor, Marian and Mirani are completely surrounded by good quality agricultural land.



URBAN FORM AND MOBILITY

- Urban areas
- Centre (retail commercial)
- Centre (licenced premises only/vacant retail building only)
- Public transport network
- Street network



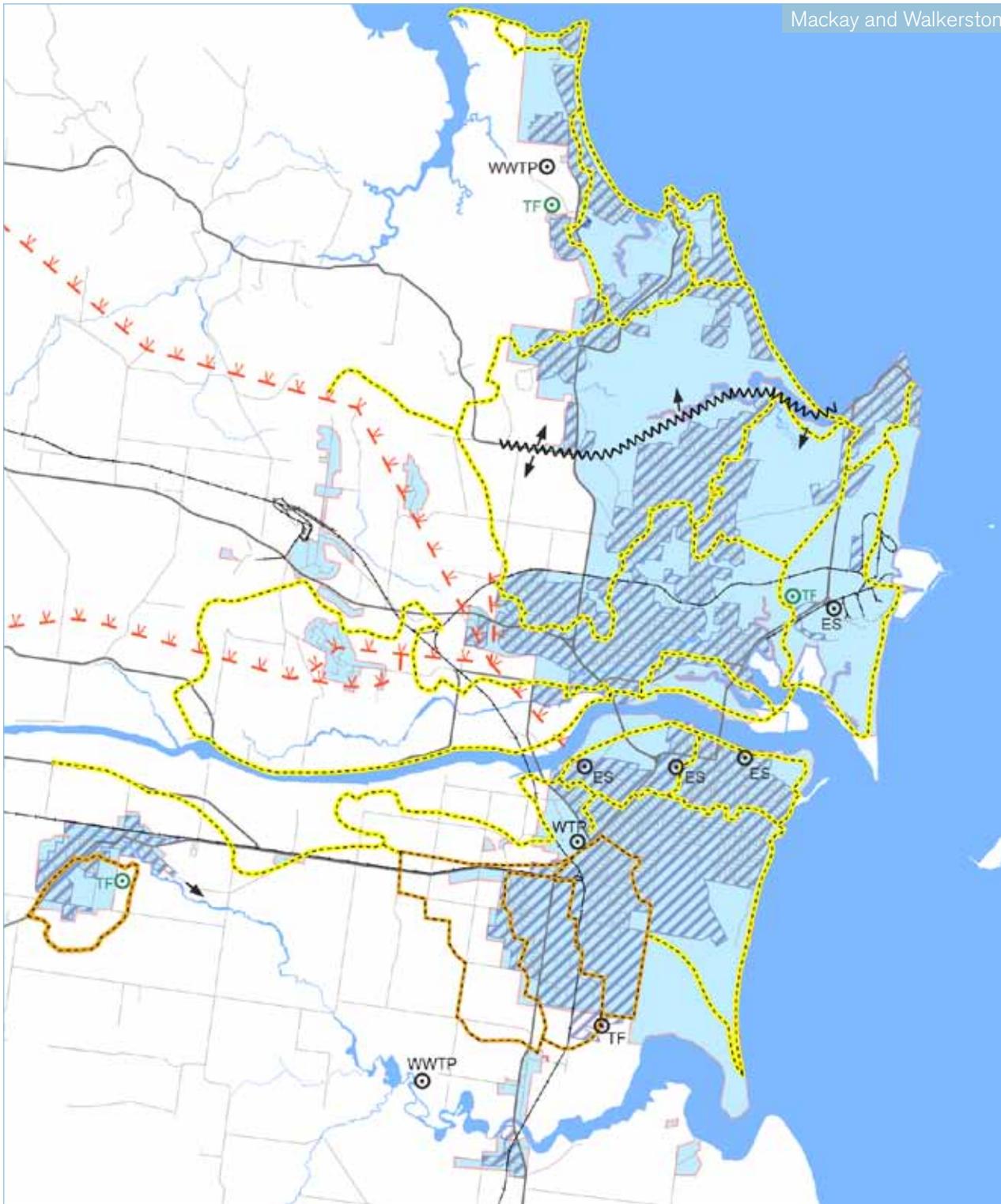
Urban form and mobility

The Pioneer River not only divides the Mackay urban area, it forms a boundary between urban areas with distinct form characteristics. This is summarised as follows:

	South of the Pioneer River	North of the Pioneer River
Urban form	Cohesive	Historically scattered villages increasingly linked by sprawling residential neighbourhoods
Street layout	Predominantly grid based	Predominantly curvilinear and cul-de-sac based; grid based in older areas
Land uses	Mixed - residential neighbourhoods, regionally important employment, services and transportation hubs (City Centre, Paget, Airport, Railway facilities)	Predominantly residential, sub-regional employment and services hubs and a regionally important transportation facility (Port of Mackay)
Residential densities	Variety – especially close to and within City Centre	Predominantly low density

The urban areas of Sarina and Walkerston are fragmented by watercourses while Marian is currently fragmented by undeveloped land. Mirani has a cohesive urban form. On a smaller scale, these towns are also characterised by precincts with differing urban form characteristics. The older, central parts of these towns have a predominantly grid based street layout, a mix of land uses and a small number of higher density residential developments. More recently established neighbourhoods on the edge of these towns are almost exclusively residential and low density.

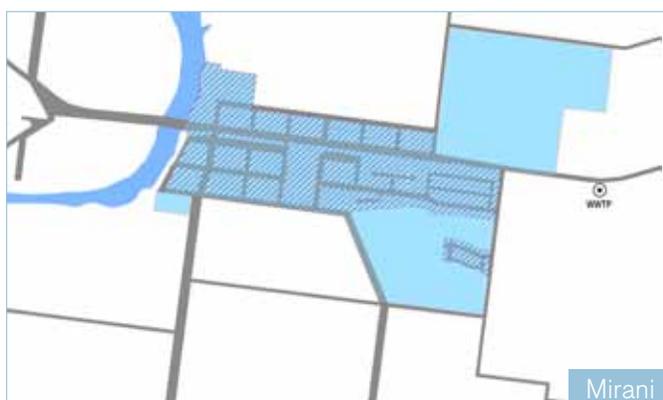
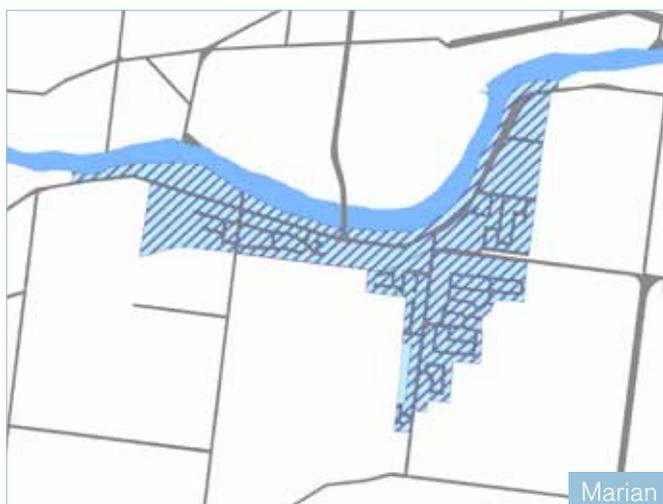
Most trips in the urban areas of the region are undertaken by private car due to urban form characteristics, relative convenience and cost and lack of alternate modes. Regular public transport services are provided to and within the Mackay, Sarina and Walkerston urban areas (approximately 950 services each week on 11 routes). Services are highest in number and frequency on routes in the inner areas of Mackay. Bus services to Marian and Mirani are very limited.



Sarina

URBAN UTILITY INFRASTRUCTURE

- | | |
|--|--|
| Reticulated water service area | Stormwater catchments subject to infrastructure charges schedule |
| Water treatment plant | High-voltage transmission lines |
| Area currently serviced by reticulated sewer | Electricity sub-station |
| Wastewater treatment plant | Transfer facility - general |
| Wastewater treatment plant boundary | Transfer facility - green waste only |
| Stormwater catchment boundaries | |



Infrastructure

Most of the region's urban areas are currently serviced by the full range of urban infrastructure however the potential for existing networks to service significant new development is generally limited. Detailed network analysis to identify capacity issues and necessary upgrades will be required in the planning of new higher density residential development areas.

- **Water** is currently sourced from Dumbleton Weir (for Mackay and Walkerston), Middle Creek Dam and Marwood Borefield (for Sarina) and Borefields near Marian and Mirani. A pipeline connecting the Mackay and Sarina water supply systems has recently been completed and approval to source water from the Pioneer River for Marian and Mirani has recently been issued. Given that the Pioneer River is expected to provide adequate supply to 2050 (minimum)¹, it is not considered that water supply will constrain growth in this period.

Upgrades are planned for water reservoirs at Shoal Point and Slade Point. Future upgrade options for high lift pumps serving the Mackay City Centre and southern suburbs are being investigated.

- **Sewerage** treatment plants (WWTPs) are currently located at Bakers Creek (serves Mackay (south of McCreadys Creek) and Walkerston), Bucasia (Mackay (north of McCreadys Creek)), Sarina and Mirani (Marian and Mirani). In 2009, the total equivalent population in Mackay and Walkerston accounted for approximately 81% of the total capacity available in the Bakers Creek and Bucasia WWTPs². These WWTPs are expected to reach capacity as early as 2013 and 2017 respectively². The Sarina WWTP has already reached capacity³. Council is currently investigating strategic augmentation options.

On all networks, several key pump stations and pipelines are at or nearing capacity.

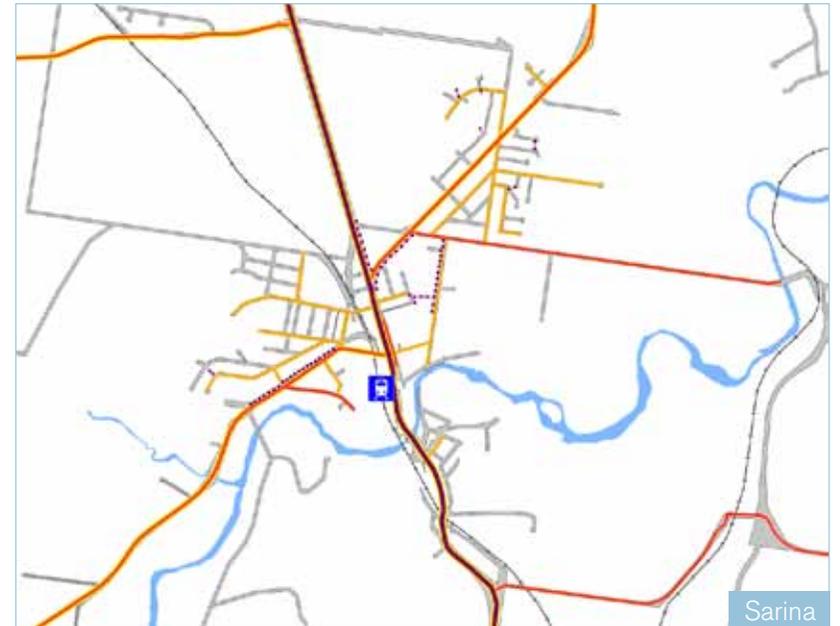
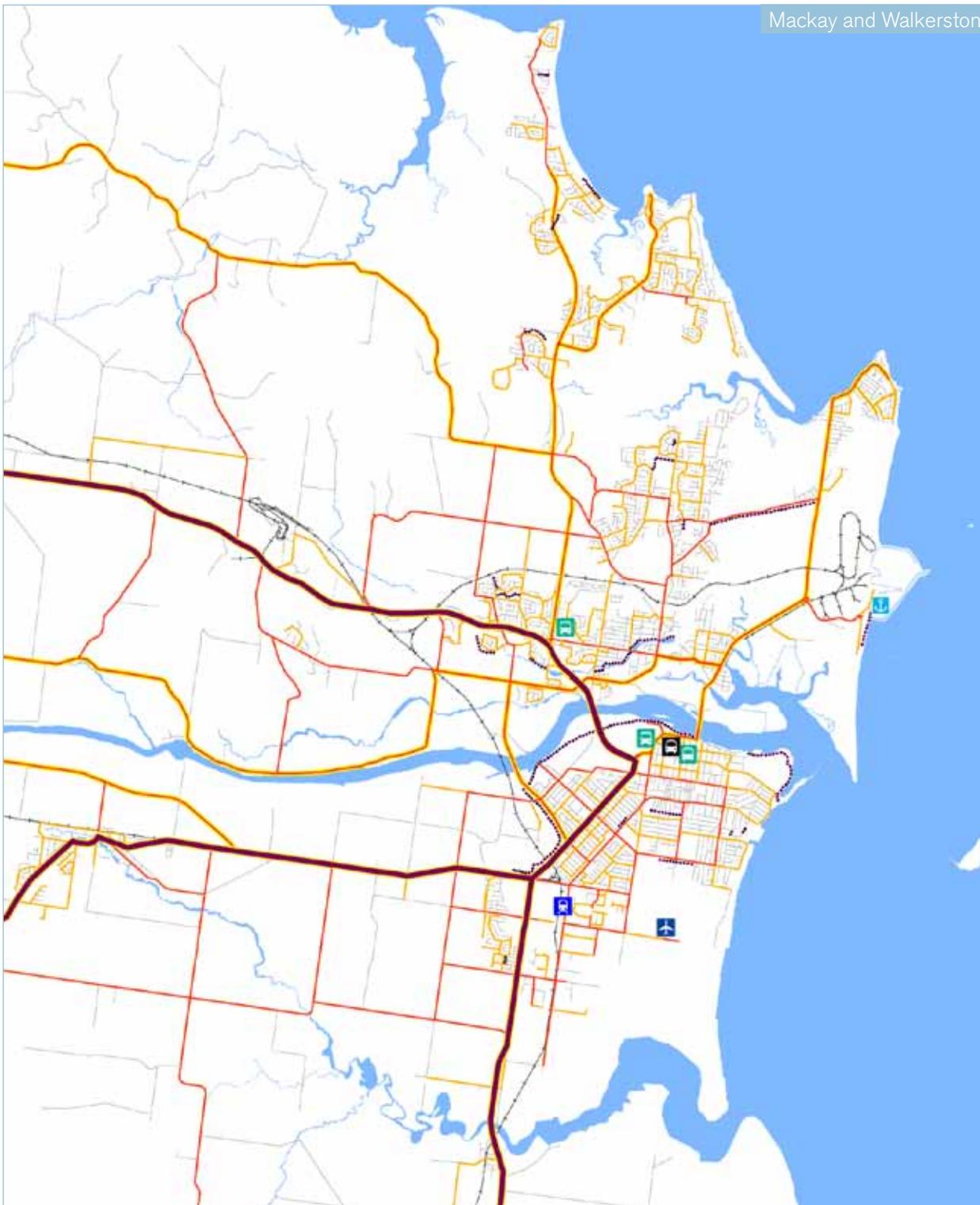
- **Stormwater** infrastructure is provided throughout the Mackay and Walkerston urban areas (in newer areas, pipe work and other covered infrastructure is generally designed to handle Q_5 flows, while open

Water supply infrastructure information

	Total length of mains	Reservoirs / towers	Pumping stations
Mackay	650 kms	13	12
Sarina	42 kms	2	5
Walkerston	30 kms	2	2
Marian	11 kms	2	1
Mirani	12 kms	2	1

Sewerage infrastructure information

	Total length of mains	Pumping stations
Mackay	645 kms	127
Sarina	40 kms	13
Walkerston	50 kms	11
Marian	12 kms	11
Mirani	10 kms	8



ACCESS INFRASTRUCTURE

- | | |
|---|--|
|  State controlled roads |  Airport |
|  Highway |  Railway Station |
|  Arterial road |  Long distance bus terminal |
|  Collector road |  Major public transport interchange |
|  Access street |  Ferry services |
|  Off-road pedestrian/
cycle way | |



Road infrastructure information

	Total length of roads	Total area of roads
Mackay	565 kms	480 ha
Sarina	78 kms	60 ha
Walkerston	31 kms	21 ha
Marian	30 kms	18 ha
Mirani	27 kms	16 ha

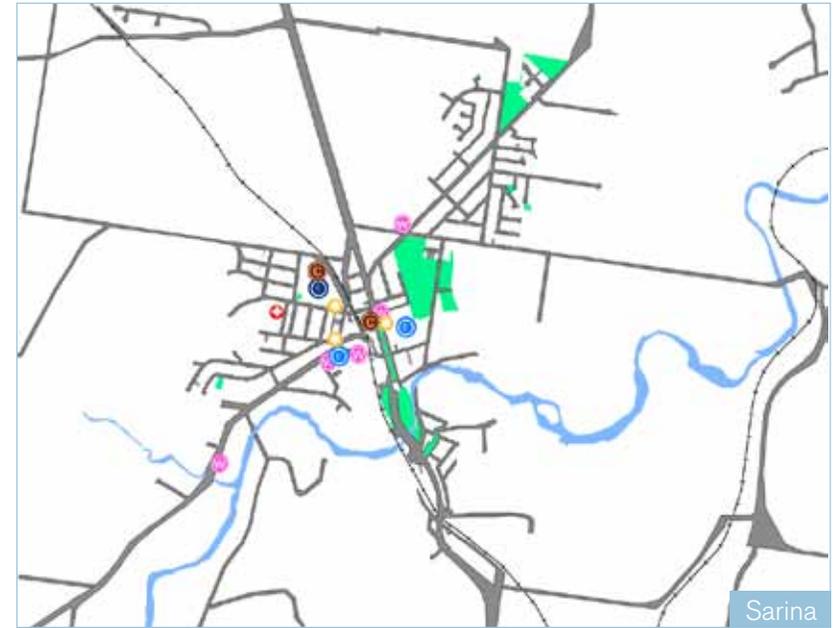
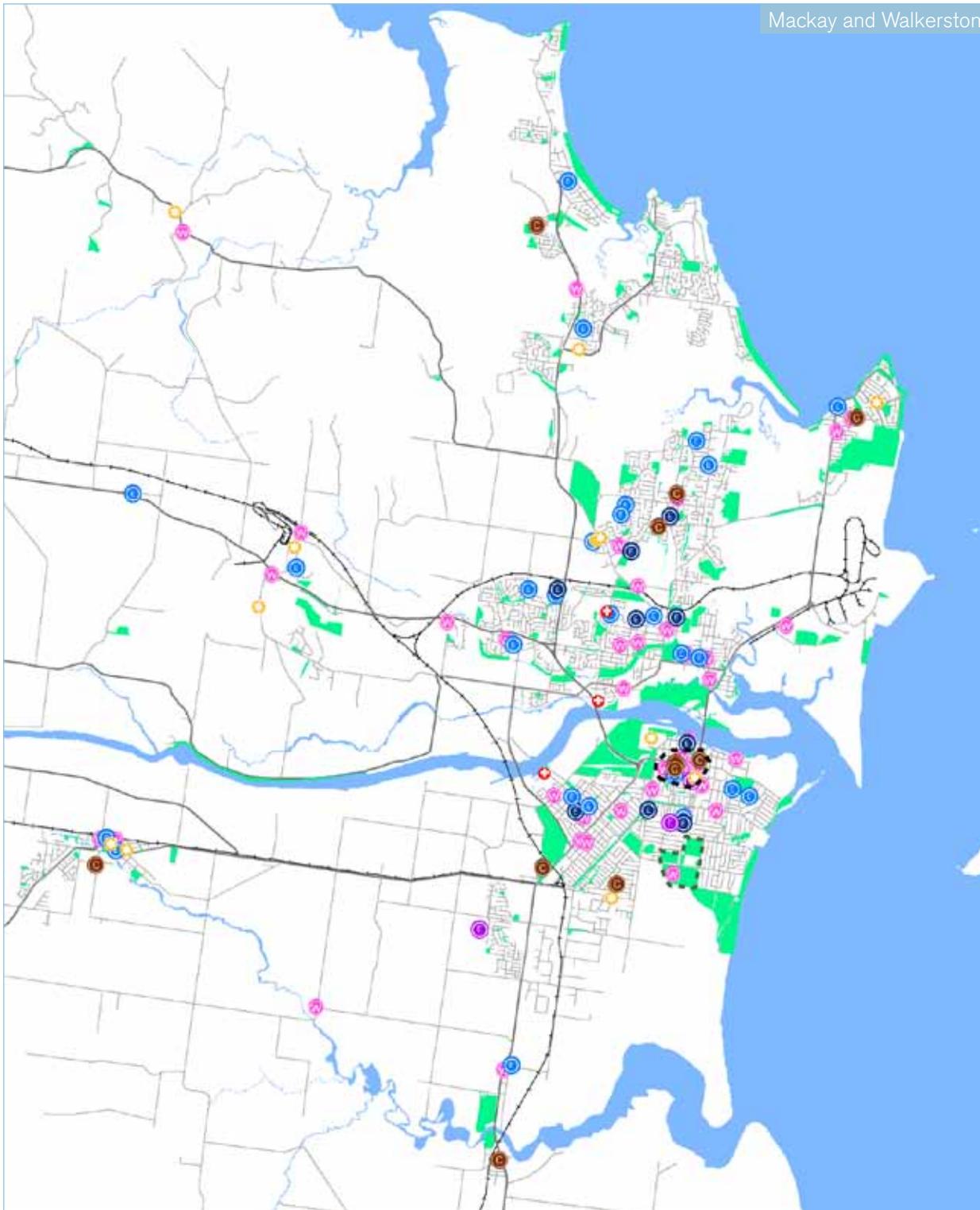
drains, streets and other open drainage elements are generally designed to handle Q_{100} flows). Council has limited information on existing infrastructure in the Mackay City Centre. Necessary trunk infrastructure works have been identified for 4 (four) Bakers Creek sub-catchments (refer to map on Page 11). Council is currently undertaking flood studies over the Pioneer River (part), Goosepond Creek and McCreadys Creek (south) catchments. These studies may identify future infrastructure required in these catchments.

Council has limited information on existing stormwater infrastructure in the Sarina urban area. Stormwater infrastructure in the Marian and Mirani urban areas is limited.

- **Electricity** supply infrastructure is controlled by Ergon Energy. Substations are currently located in: Mackay (West Mackay, Mackay City Centre, Glenella, Andergrove, Rural View and Mackay Harbour), Sarina, Pleystowe (serves Walkerston), Marian and Mirani.

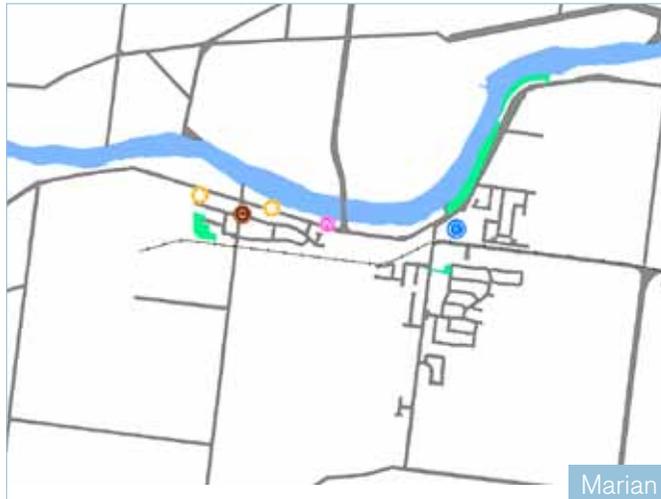
Increased development or electrical load triggers a review and reinforcement of the network. Future substations (connecting to high voltage transmission lines) are being planned for Ooralea and Marian (short to medium term) and Bucasia and Walkerston (medium to long term) based on predicted growth.

- **Roads:** The region's dispersed urban form and reliance on private vehicles for mobility is serviced by an extensive hierarchical network of DTMR and Council controlled roads. DTMR's Roads Implementation Program 2009/10–2013/14 and Council's 20 year Capital Works Program identify a number of upgrade projects relevant to residential areas.
- **Public transport** infrastructure is jointly funded by DTMR and council. Linemarked bus stopping zones, seating, signage and shelter is provided at Gregory Street (Mackay City Centre), Canelands Shopping Centre and Mount Pleasant Shopping Centre. It is anticipated that upgraded facilities will be provided at Canelands, Mount Pleasant and Northern Beaches Central (Rural View) as part of future shopping centre extension works.



COMMUNITY FACILITIES AND PARKS

-  Hospital
-  Other emergency services
-  Tertiary education facilities
-  Secondary education facilities
-  Primary education facilities
-  Regional civic precinct
-  Council facilities and community centres
-  Place of worship
-  Regional sporting precinct
-  Sub-regional sporting precinct
-  Parkland



Marian



Mirani

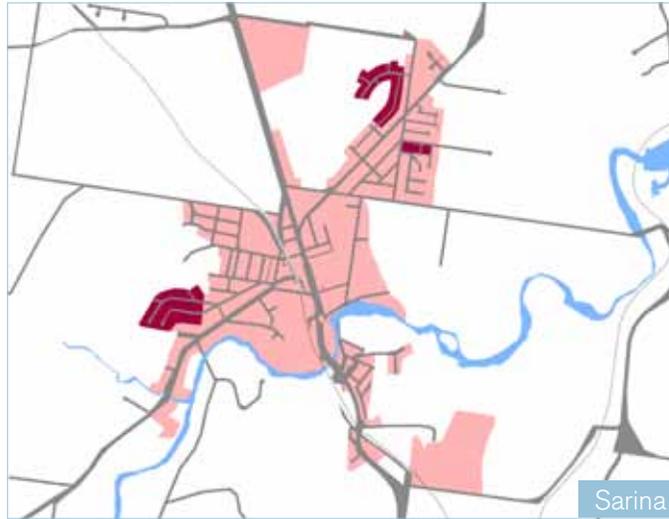
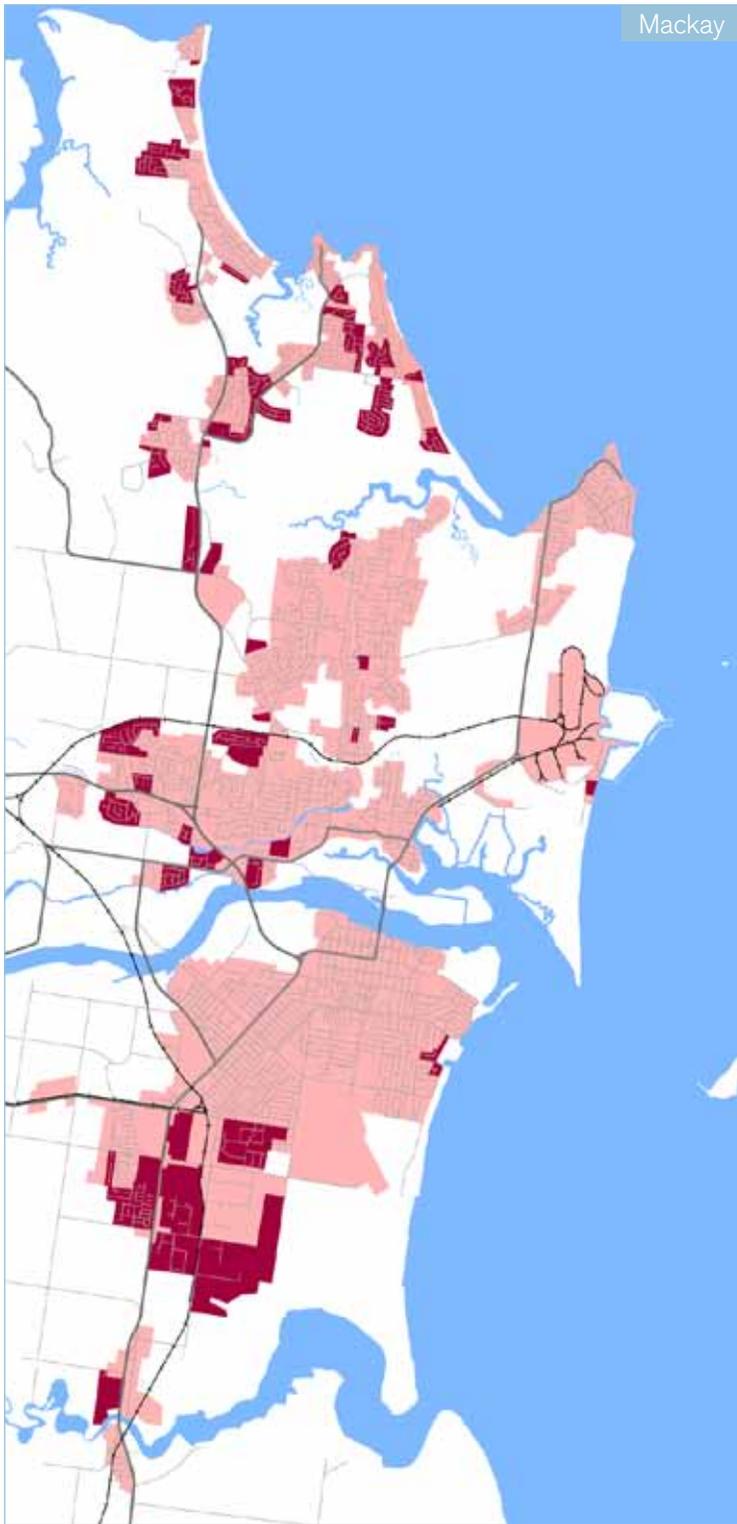
Approximately 130 designated bus stops (60 shelters and 70 concrete pads and signs or just signs) are provided elsewhere on the network. The installation of new public transport infrastructure is currently undertaken by Council according to plans/advice from the DTMR. At this stage, it is understood that no strategic plan exists for public transport infrastructure improvements.

- **Community facilities** are provided by various government, private and community agencies/organisations on a needs basis. The region's urban areas are serviced by 4 hospitals, 2 university campuses, a TAFE college, 10 secondary schools and an array of other facilities such as primary schools, child care facilities, places of worship, community halls and sports/social clubs. A recent scalogram analysis found that most social and economic functions are concentrated in Mackay (score – 822), followed by Sarina (232), Mirani (151), Walkerston (135) and Marian (88).
- **Open spaces** throughout the urban areas of the region perform various roles and are at various sizes. Current regionally important facilities in urban areas are noted as follows:

Parks and recreation facilities/precincts	<ul style="list-style-type: none"> ▪ Mackay: City Centre riverfront (including Bluewater Lagoon, Bluewater Quay and Bluewater Trail), Regional Botanic Gardens, John Breen Park/Gooseponds precinct, Mulherin Park and Queens Park.
Sporting and event facilities/precincts	<ul style="list-style-type: none"> ▪ Mackay: South Mackay regional sporting precinct, Showgrounds, Ooralea Racecourse, Beaconsfield–North Mackay precinct and Golf Course ▪ Sarina: Brewers Park sub-regional sporting precinct, Showgrounds and Golf Course
Natural recreation areas	<ul style="list-style-type: none"> ▪ Mackay: Beaches and Slade Point Nature Reserve ▪ Marian: Riverfront

Smaller parks, sporting facilities and natural recreation areas are located throughout the region's urban areas. In recent times, new parks in the Mackay and Walkerston urban area have generally been provided in accordance with Council's Parks Contributions Policy. This will be managed by Council's Priority Infrastructure Plan upon its adoption.

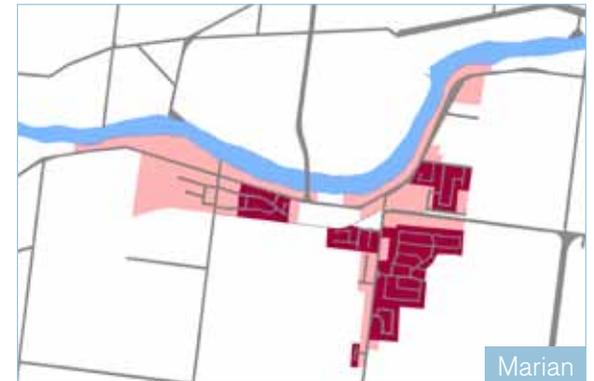
Mackay



Sarina



Walkerston



Marian



Mirani

RECENT DEVELOPMENT AREAS

- Recent development areas (since 2001)
- Existing urban areas

Recent population growth⁴

	2001 population	2009 population	Average annual growth	Average annual growth rate	Prop. of reg. growth
Mackay	60,154	77,438	2,161	3.6%	69.0%
Sarina	3,141	3,448	42	1.2%	1.2%
Walkerston	2,060	3,052	124	6.0%	4.0%
Marian	787	1,915	141	17.9%	4.5%
Mirani	755	932	22	2.9%	0.7%
Mackay (r)	91,084	116,123	3,075	3.4%	

Projected population growth

2031 population projections

	2031 Population	Average annual growth	Average annual growth rate	Prop. of reg. growth
Mackay	140,000	2,720	3.5%	65.5%
Sarina	7,200	163	4.7%	3.9%
Walkerston	5,000	85	2.8%	2.0%
Marian	3,600	73	3.8%	1.8%
Mirani	3,100	94	10.1%	2.3%
Mackay (r)	211,600	4,151	3.6%	

Population Growth and demographic characteristics

The Mackay region sustained strong population growth in recent times, particularly since 2001. The Mackay urban area accommodated the majority (almost 70%) of this growth.

Between 2001 and 2007, migration accounted for almost 76% of regional population growth while natural increase accounted for just over 24%⁵. Migration has been primarily driven by employment opportunities and economic flow-ons generated by the booming mining industry.

Strong population growth is forecast to continue in the short to medium term at least. Queensland Treasury currently forecasts that the region will have a population of between 159,878 and 189,497 by 2031⁶. However, these projections factor in a significant decrease in growth rates (below the Queensland average) from 2021 to 2031. Council is basing its strategic planning on a potential regional population of at least 200,000 by 2031.

The recent and projected growth has and will continue to help shape the region's demographic profile. The region's economic opportunities have generated migration by a high number nuclear families. Subsequently, in comparison to Queensland figures, the region has⁵:

- high proportions of children, young adults and couple with children households and high average household income; and
- low median age and low proportions of middle aged and aged persons and single parent, lone person and group households.

Despite this, the following is forecast to continue in the region in line with state and national trends⁵:

- increasing median age and increases in the proportion of couple with no children and lone person households to increase; and
- decreasing average household size and decreases in the proportion of couple with children households to decrease.

Refer to Appendix C - Key Demographic Trends.

These trends will accelerate housing demand (on top of growth generated demand) and produce a higher number of dwellings per capita.

Median size of new urban residential lots

comparison of cities⁷

	1999	2009
Brisbane	600m ²	519m ²
Sunshine Coast	721m ²	631m ²
Gold Coast	672m ²	637m ²
Townsville	699m ²	639m ²
Cairns	704m ²	694m ²
Rockhampton	819m ²	707m ²
Toowoomba	679m ²	736m ²
Gladstone	879m ²	740m ²
Mackay	802m ²	800m ²
Fraser Coast	812m ²	800m ²
Bundaberg	736m ²	898m ²

This list is intended to provide a sample of Queensland cities and is not an exhaustive list

Current Dwelling Stock⁵ 2009 figures

	Low density		Low-medium density		Medium density		High density	
	No.	Prop.	No.	Prop.	No.	Prop.	No.	Prop.
Mackay	20,992	83.4%	1,677	6.7%	2,142	8.5%	348	1.4%
Sarina	1,212	90.8%	66	4.9%	–	–	–	–
Walkerston	928	97.1%	28	2.9%	–	–	–	–
Marian	543	99.1%	5	0.9%	–	–	–	–
Mirani	272	98.2%	4	1.8%	–	–	–	–

Household size and dwelling demand to 2031

	Mackay	Sarina	Walkerston	Marian	Mirani
Household size	2.57	2.57	2.57	2.57	2.57
Dwellings required	23,301	1,397	726	628	807
Avg. dwellings required per year	1,013	61	32	27	35
Prop. of new dwellings in region	65.5%	3.9%	2.0%	1.8%	2.3%

Dwelling stock and demand

High levels of lot creation and dwelling approvals reflected strong population growth between 2001 and 2009. During this period an average of almost 640 conventional lots were registered on average throughout the region each year⁵. In the period between 2005 and 2009, an average of almost 979 dwellings were approved throughout the region each year⁵.

Of all lots created throughout the region in 2009, only 8%⁵ were provided at a size constituting higher densities⁵ (500m² or smaller). The median size of new urban residential lots across the region in 2009 was 800m² ⁷. This provides a site density of 12.5 dwellings per hectare (based on 1 dwelling occupying each lot) and is less dense than most other significant cities in Queensland ⁷.

In 2009, dwellings at low densities accounted for 83% of all stock in Mackay, 91% in Sarina and almost 100% in Walkerston, Marian and Mirani⁵. Conversely, dwellings at higher densities accounted for only 17% of all stock in Mackay and 5% in Sarina. Higher density dwelling stock in Walkerston, Marian and Mirani is nominal. Of the 1,045 dwellings approved across the region between June 2009 and June 2010, 92.5% were for detached dwellings⁵.

Demand for new dwellings will increase in coming years with continued strong population growth and decreasing household size. Based on council's population and household size projections, it is estimated that the following will be required by 2031:

- **Mackay:** 23,301 new dwellings at an average of 1,013 dwellings per year;
- **Sarina:** 1,397 new dwellings at an average of 61 dwellings per year;
- **Walkerston:** 726 new dwellings at an average of 32 dwellings per year;
- **Marian:** 628 new dwellings at an average of 27 dwellings per year; and
- **Mirani:** 807 new dwellings at an average of 35 dwellings per year.



Top: Marketing for new residential development, Marian.
Middle and bottom: High density residential lifestyle, Mackay City Centre.

Market characteristics

Demand for low density residential development in the region will predominate into the foreseeable future, driven by the desire and financial ability to comfortably accommodate families, leisure goods and other goods.

However, it is widely agreed that demographic and lifestyle trends will generate an increase in proportionate demand for higher density residential development. Demand for higher density products is anticipated to come from three main sources⁵:

- **Young adults** seeking to purchase their first property and enjoy the lifestyle and convenience provided by vibrant urban neighbourhoods;
- **Older adults** around the peri-retirement age seeking to downsize and enjoy the lifestyle and convenience provided by vibrant urban neighbourhoods. Although the 'leading edge' of the baby-boom generation has already reached retirement age, the momentum of this generation is not expected to peak until 2015-2020⁵; and
- **Dissolved families** where the displaced partner seeks to downsize.

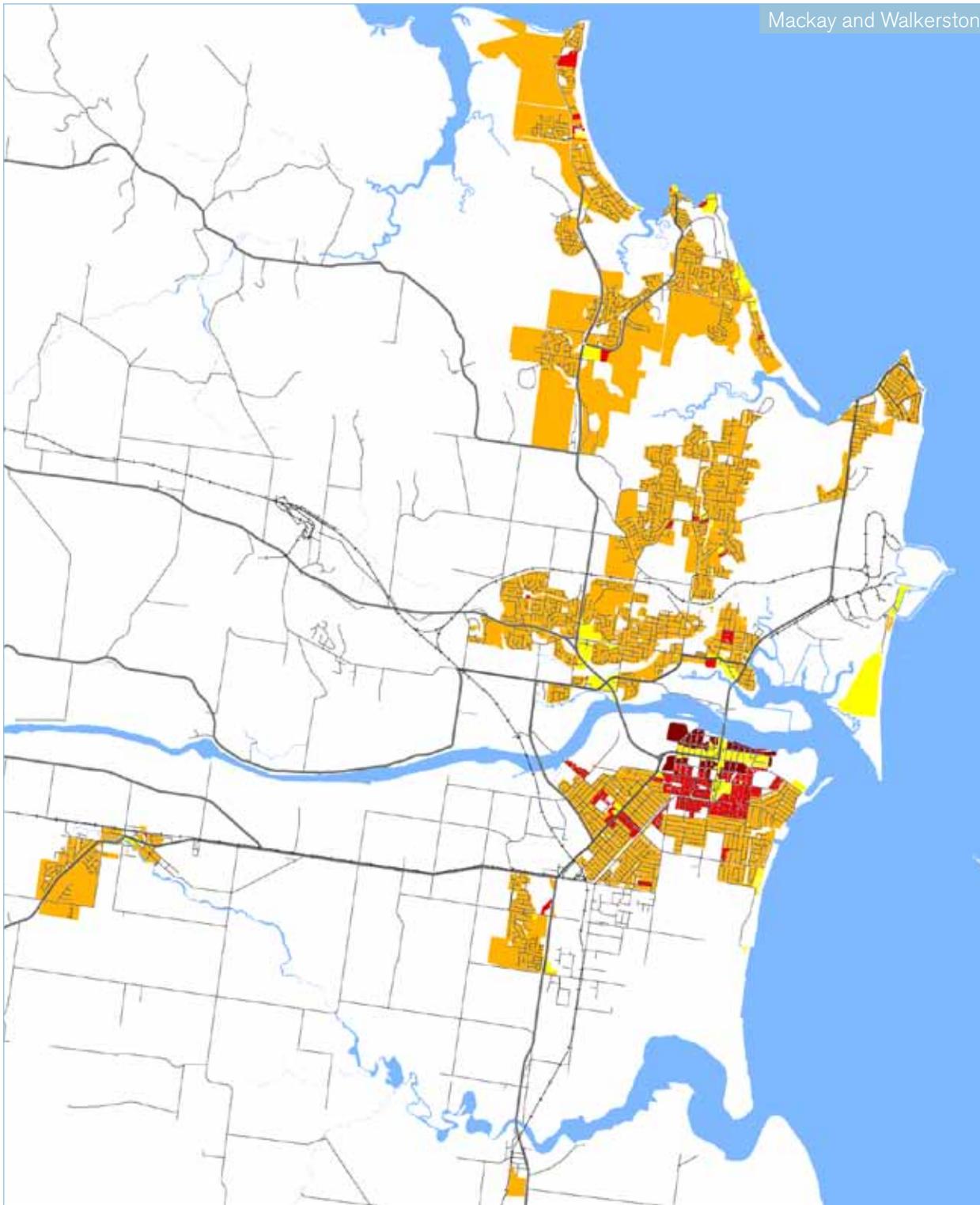
In the period between 2000 and 2009, higher density dwellings accounted for approximately 17% of all residential sales (including vacant land). This figure reached a high of approximately 30% in 2006⁵.

In 2009, the median price points for each level of density in the Mackay urban area were⁵:

- Low density dwellings: \$390,000
- Low-medium density dwellings: \$308,000
- Medium density dwellings: \$256,000
- High density dwellings: \$604,000

It is evident that some forms of higher density residential development can provide affordable housing options. However, recently constructed high density developments are provided in 'premium amenity' locations and at premium prices. As such, current high density stock is well out of reach financially for most young adults, many broken families and some older adults.

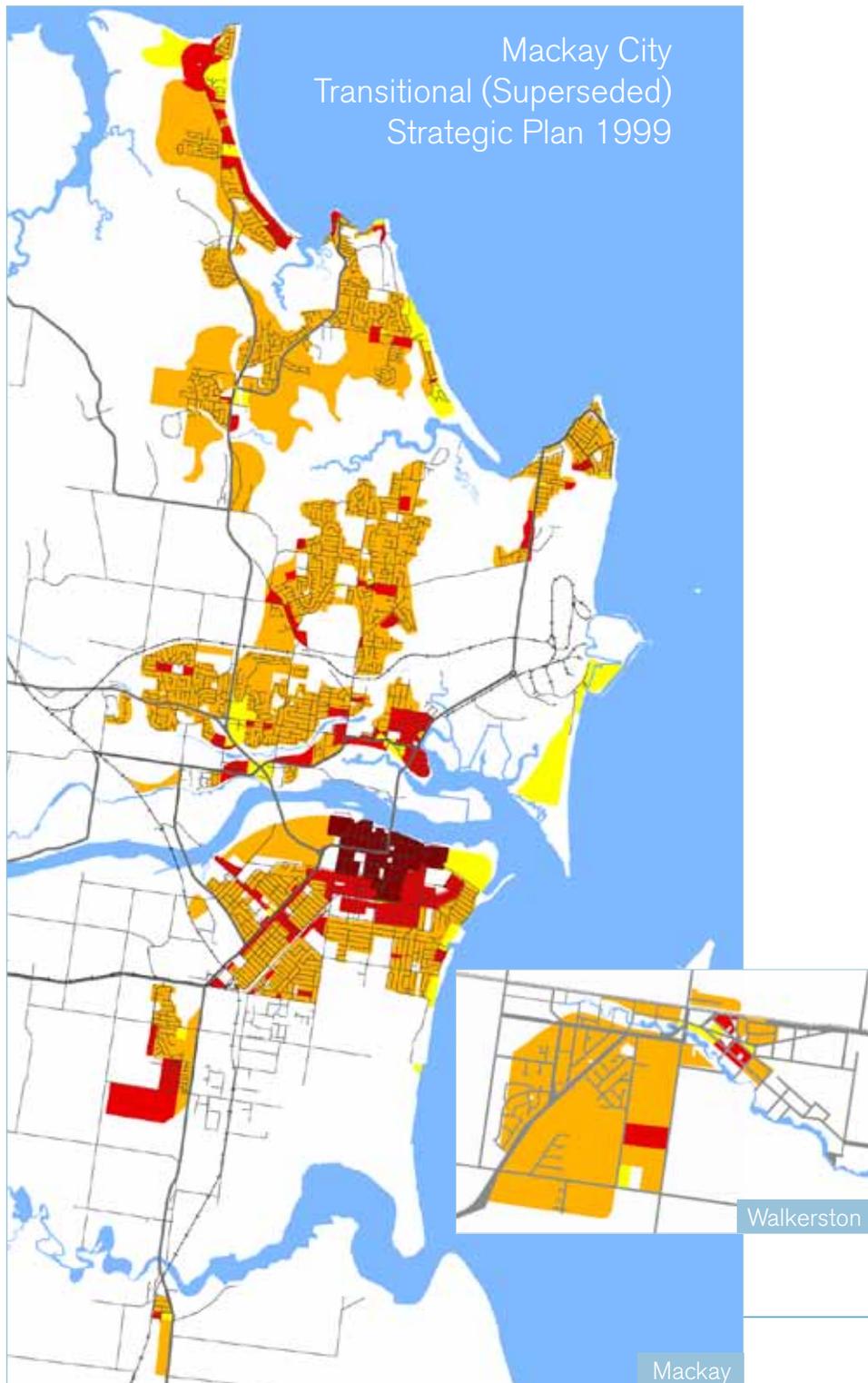
Mackay City Planning Scheme 2006



OPPORTUNITIES FOR HIGHER DENSITY RESIDENTIAL

- Significant - up to high density
- Significant - up to medium density
- Significant - up to low-medium density
- Limited
- None

Mackay City
Transitional (Superseded)
Strategic Plan 1999



Planning scheme provisions

The extent to which higher density residential development is provided for by the *Mackay City Planning Scheme*, *Sarina Shire Council Planning Scheme* and the *Mirani Shire Plan* varies significantly.

The *Mackay City Planning Scheme* contains eight (8) zones considered to provide a 'significant' opportunity for higher density residential development. These are as follows:

Locality	Zone	Maximum possible density
City Centre	City Residential	High density
	Mixed Use	High density
	Waterfront	Medium density
	Commercial (Main Street)	Medium density
	Higher Density Residential	Medium density
Frame and Hinterland	Higher Density Residential	Medium density
	Urban Residential	Low-medium density
	Urban Expansion	Subject to master planning

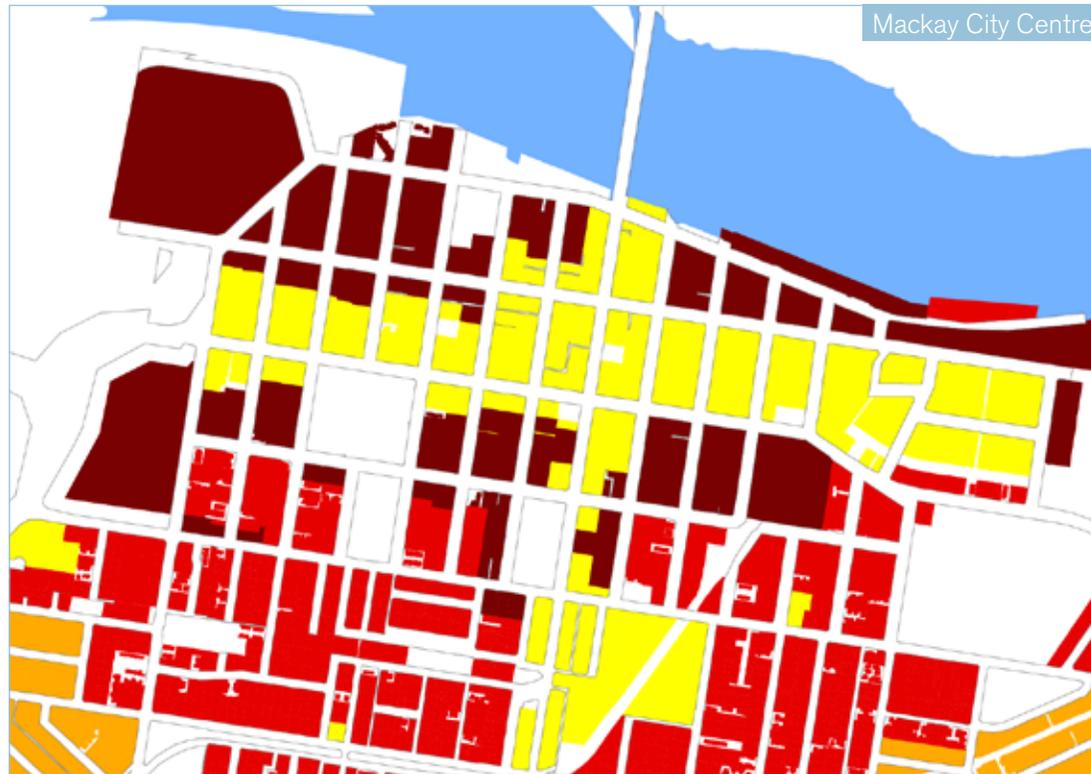
(please refer to Appendix C for more detail)

The total area of land under the above zones is almost 3,400 hectares. Of this, zones offering potential for medium or high density residential development account for 250 hectares.

Interestingly, the *Transitional (Superseded) Strategic Plan* for Mackay City, identified almost 900 hectares as "Higher Density Residential PDLU". This PDLU provided for high density residential development in the CBD Frame and future medium density residential development elsewhere. However it should be noted that large areas identified were located outside urban areas and/or affected by significant infrastructure and environmental issues. It should also be noted that PDLUs extend over roads (planning scheme zones do not).

High density residential development was also considered favourably in the City Centre area under the "Commercial PDLU" in conjunction with the *Transitional (Superseded) Planning Scheme's* Central Business zone. Approximately 135 hectares in the City Centre was designated as "Commercial PDLU".

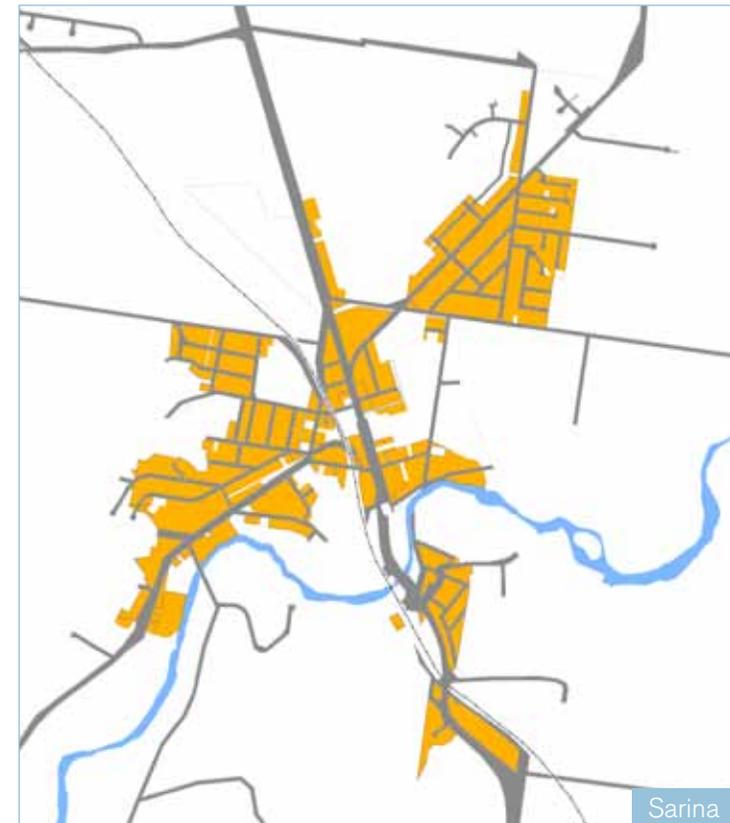
Mackay City Planning Scheme 2006



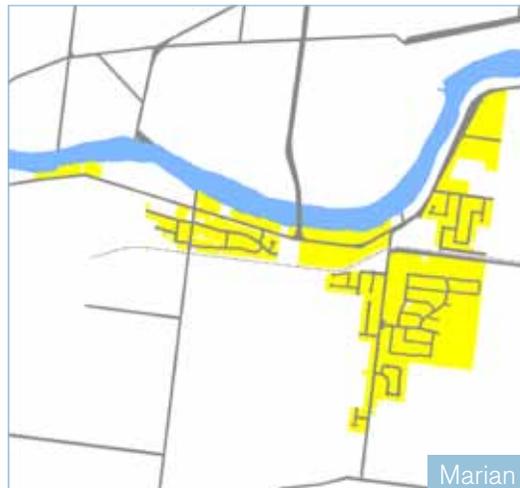
OPPORTUNITIES FOR HIGHER DENSITY RESIDENTIAL PROVIDED BY PLANNING SCHEMES

- Significant - up to high density
- Significant - up to medium density
- Significant - up to low-medium density
- Limited
- None

Sarina Shire Council Planning Scheme 2005



Mirani Shire Plan 2007



The *Sarina Shire Council Planning Scheme* contains two (2) Town Zone precincts considered to provide a 'significant' opportunity for higher density residential development. These are as follows:

Town Zone Precinct	Maximum possible density
Residential (Sarina town only)	Low-medium density
Commercial	Low-medium density

(please refer to Appendix D for more detail)

The total area of land under the above precincts is almost 195 hectares.

The *Mirani Shire Plan* does not contain zones considered to provide a 'significant' opportunity for higher density residential development. The scheme intends that "predominantly low density forms of housing (up to 15 dwellings per hectare)" is intended for the Urban Residential zone and that low-medium density residential development is limited to locations near transport and community facilities. The total area of land zoned Urban Residential is almost 260 hectares.

The provision of higher density residential development is made difficult by certain provisions in the *Sarina Shire Council Planning Scheme* and particularly, the *Mirani Shire Plan*. Specifically, the following is noted:

	Mackay City Planning Scheme	Sarina Shire Planning Scheme	Mirani Shire Plan
Minimum lot size for new residential lots	300m ²	450m ²	700m ²
Level of assessment – new lots	Code	Impact if under 600m ²	Code
Level of assessment – Dual Occupancy developments	Code in Urban Residential zone	Impact in all zones	Impact in all zones
Lot size triggers development application for House	NA	NA	700m ² or less
Maximum density for multiple dwelling units	1 dwelling per 200m ² in HDR zone. 1 dwelling per 400m ² in UR zone.	NA	1 dwelling per 450m ²

New residential development amongst the canefields, Ooralea.



3. Benefits of higher densities and residential diversity

A proportionate increase in the provision of well designed higher density residential development in appropriate locations will increase overall average residential densities and the diversity of dwelling product available. This is expected to deliver the following benefits:

- **Reduce land consumption:** Based on an extrapolation of the current mix of dwelling stock, the land area required to accommodate residential development to 2031 would be approximately 1660 hectares in Mackay, 115 hectares in Sarina, 60 hectares in Walkerston, 55 hectares in Marian and 70 hectares in Mirani. This does not include land required for commercial uses, industrial uses, community uses, regional roads and other transport corridors, regional parks, public utilities and other urban land uses.

For comparative purposes, a scenario with new dwellings provided at increased densities, as follows, is also considered.

	Low density		Low-medium density		Medium density		High density	
	%	ASD	%	ASD	%	ASD	%	ASD
Mackay	70%	12.5	15%	25	10%	50	5%	135
Sarina	80%	12.5	15%	25	5%	50	-	-
Walkerston	80%	12.5	15%	25	5%	50	-	-
Marian	85%	10	15%	25	-	-	-	-
Mirani	85%	10	15%	25	-	-	-	-

% – Proportion of total new dwellings; ASD – Average site density

The area of land required to accommodate new residential development to 2031 based on the above increased densities would be approximately 1500 hectares in Mackay, 100 hectares in Sarina, 50 hectares in Walkerston, 45 hectares in Marian and 60 hectares in Mirani. This would result in approximately 205 hectares less land required for development across the region's urban areas. It is evident that increasing densities can result in significantly less land consumed for new residential development. This is an important consideration given that the region's urban areas are surrounded by land that is agriculturally productive, environmentally sensitive, subject to inundation or has landscape character value.

Detached houses on small lots, Semi-detached dwellings and Attached dwellings near an activity centre, Andergrove.



▪ **Meet demand generated by demographic and market trends:**

As the median age of the region's urban areas increases, so too will the proportion of one and two person households. Many small households do not require the space, nor wish for the maintenance that comes with the region's predominating housing typology – detached dwellings on conventional lots.

This will combine with the emerging lifestyle desire for walkable convenience to vibrant recreation and employment precincts, to accelerate demand for more but smaller dwellings⁹. As such, encouraging higher density residential development will provide greater diversity in dwelling product and meet demand generated by smaller households comprising young adults, peri-retirees, retirees, displaced partners and other household compositions.

▪ **Contribute to improved housing affordability:**

There is much evidence from other cities indicating that density alone does not correlate with improved affordability. Recently constructed high density residential developments in the Mackay urban area are not affordable, however, it should be noted that these developments have only been provided at 'premium amenity' locations (adjacent to the Mackay Marina and the Pioneer River in the City Centre) so far. In addition, dwellings at low-medium and particularly medium densities currently offer relatively affordable alternatives to low density product.

The ULDA have demonstrated that quality higher density residential product can be delivered below median price points⁹. If nothing else, higher density residential development can contribute to improving housing affordability by:

- producing high dwelling yields and increasing overall supply; and
- increasing dwelling product diversity and long term price variety.



Public transport, cycling and walking - Mackay City Centre.
(Cycling photo courtesy of Mackay Cycling Club)

▪ **Encourage increased use of, and improvements in, sustainable (public and active) transport:**

Higher density residential development is an important element required to support public transport⁹. Efficient public transport systems generally require the following minimum net densities and neighbourhood layout to be viable⁹:

- 25 dwellings per hectare immediately surrounding centres;
- 15 dwellings per hectare across residential areas generally; and
- 90% of potential passengers living within 400 metres of a potential bus stop.

Land use mix, highly connective and safe street and pathway networks, and reliable, safe, efficient, frequent, affordable and comfortable public transport services are also important elements that encourage increased use of public transport.

It is likely that increasing residential densities in the urban areas of the region will generate more use of, and improvements in, the public transport system. This would provide the following benefits:

- provide for more equitable access by increasing the mobility of the young, elderly and other people without a drivers license and/or access to a private vehicle;
- decreasing the use of private vehicles would result in reduced traffic volumes, congestion and 'wear and tear' on roads and reduced greenhouse emissions and noise pollution.

Higher density residential development is also an important contributing element supporting active transport (usually cycling or walking) – see *Active and healthy communities* section below.



Local centres and 400m walkable catchments , low densities and cul-de-sac based street network, Andergrove and Beaconsfield.



Local centres and 400m walkable catchments , higher densities and permeable street network, Mackay inner southern suburbs.

- **Encourage active and healthy communities:**

There is strong national and international evidence that well-designed urban neighbourhoods can encourage people to adopt and maintain healthier lifestyles¹⁰. It has been shown that higher density residential development, along with other elements such as highly connective and safe street and pathway networks, land use mix and available open space and recreation facilities, can increase physical activity by 161%¹⁰. Well-designed urban neighbourhoods encourage active transport (usually cycling or walking) and recreation in high quality parkland, natural areas and other recreation facilities¹⁰.

- **Enhance economic vitality of activity centres:**

Higher density residential development can enhance the economic viability of existing, proposed and potential activity centres of various scales (especially small neighbourhood centres) by providing a higher resident population in the activity centre's immediate surrounds. Higher densities can also encourage the establishment and ongoing viability of small, diverse and human scale retail facilities servicing walkable catchments.

- **Efficient provision and ongoing utilisation of infrastructure:**

Higher density residential development can provide economies of scale regarding the provision and ongoing utilisation of infrastructure¹¹, particularly in greenfield growth areas. Specifically, the per capita cost of servicing higher density residential areas is less than lower density areas. Increasing overall residential densities across the region will allow for more efficient use of infrastructure¹².



High-rise apartment interior, Mackay City Centre (photo courtesy of Lanai Apartments)



Semi-detached dwellings, Mount Pleasant.



Semi-detached and Attached dwellings, Mackay Harbour.

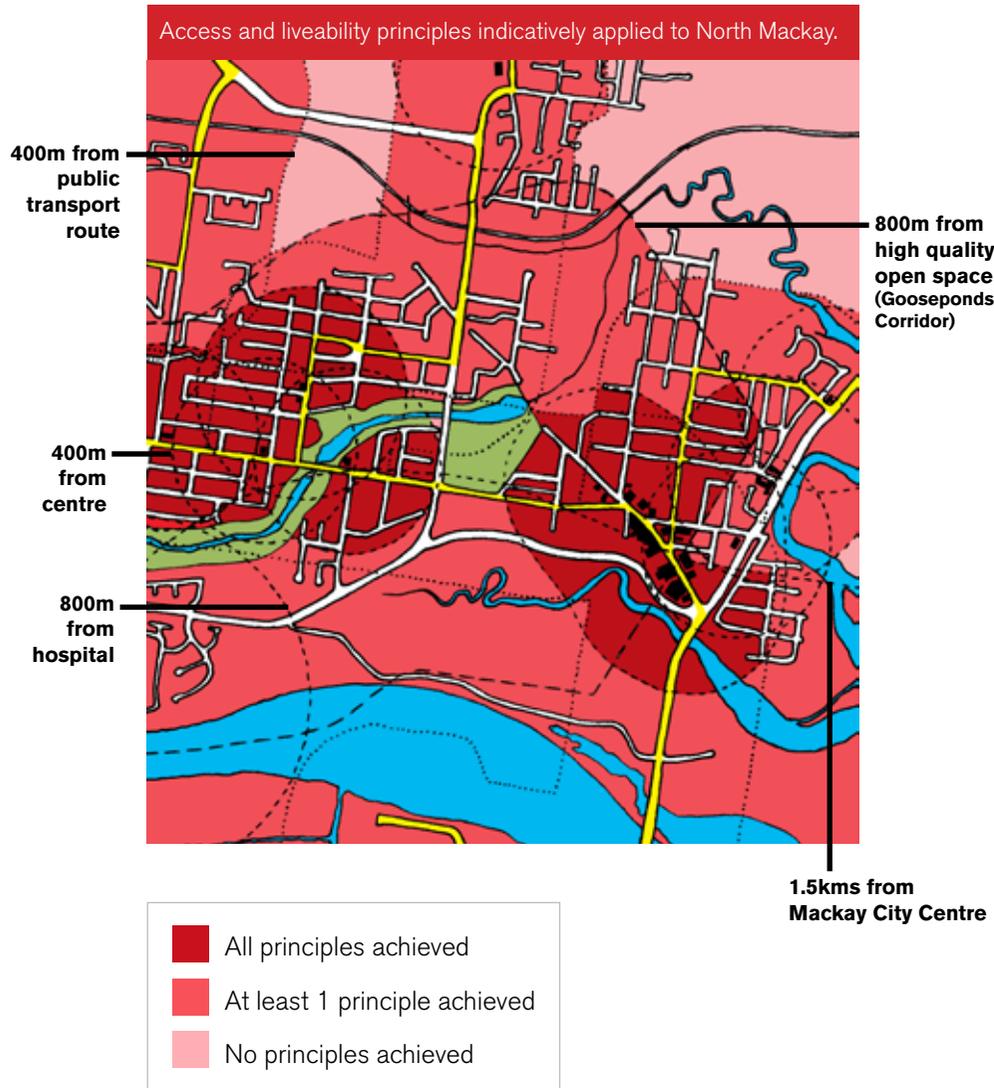


Part B ■ location and design principles

The region's urban areas are highly liveable due to proximity to activity centres and high amenity elements. West Mackay looking towards Mackay City Centre.



4. Location principles



This strategy seeks to encourage the delivery of well designed higher density residential development in 'appropriate locations'. The following section defines characteristics of 'appropriate locations' by identifying:

- Principles: important location attributes higher density residential development sites should possess. Some principles are noted as "critically important" and, accordingly, may severely restrict development potential if not addressed; and
- Other relevant considerations: if present on a prospective development site, these issues will likely require management/remediation strategies and/or design/construction responses. These issues may also affect development potential.

All principals and relevant considerations should be considered collectively. Not complying with certain principals could be offset by alternate solutions and/or effectively achieving more important principals.

Access and liveability

Principles

- Subject land is within the specified distance of *one* of the following elements:
 - 1.5 kilometres of the Mackay City Centre;
 - 800 metres of an existing/emerging sub-regional centre (Mount Pleasant, Rural View, Sarina);
 - 800 metres of publicly accessible and useable coastline / riverfront;
 - 800 metres of high quality open space / parkland;
 - 800 metres of the CQ University campus; or
 - 800 metres of the Base Hospital or Mater Hospital.
- Subject land is in close proximity to *all* of the following elements:
 - Existing or future public transport route (400 metres);
 - Existing or proposed open space usable for active recreation (400 metres) (metropolitan, public sport and recreation facility, multi-use park, district sport park, district parkland or usable beach); and
 - Existing or proposed commercial development (400 metres)



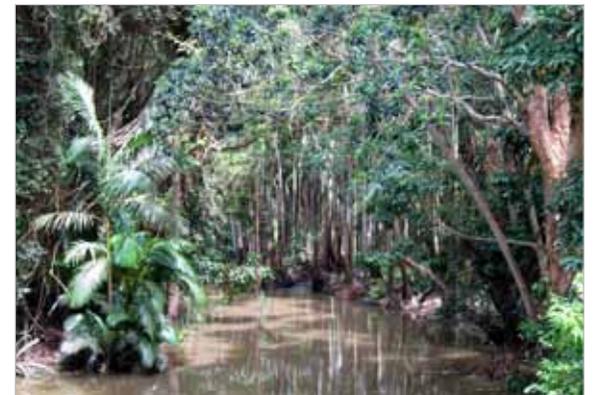
Good quality agricultural land, Racecourse.



Remnant vegetation, Rural View.



Remnant vegetation, Slade Point.



Remnant vegetation, Erakala.

Physical and environmental

Principles

3. Subject land not identified as being at risk of significant inundation from any of the following*:

- Riverine flooding;
- Storm surge flooding; and
- Localised flooding / stormwater drainage issues.

4. Subject land not identified as containing any high value ecological elements*:

- Remnant vegetation; and
- Wetlands.

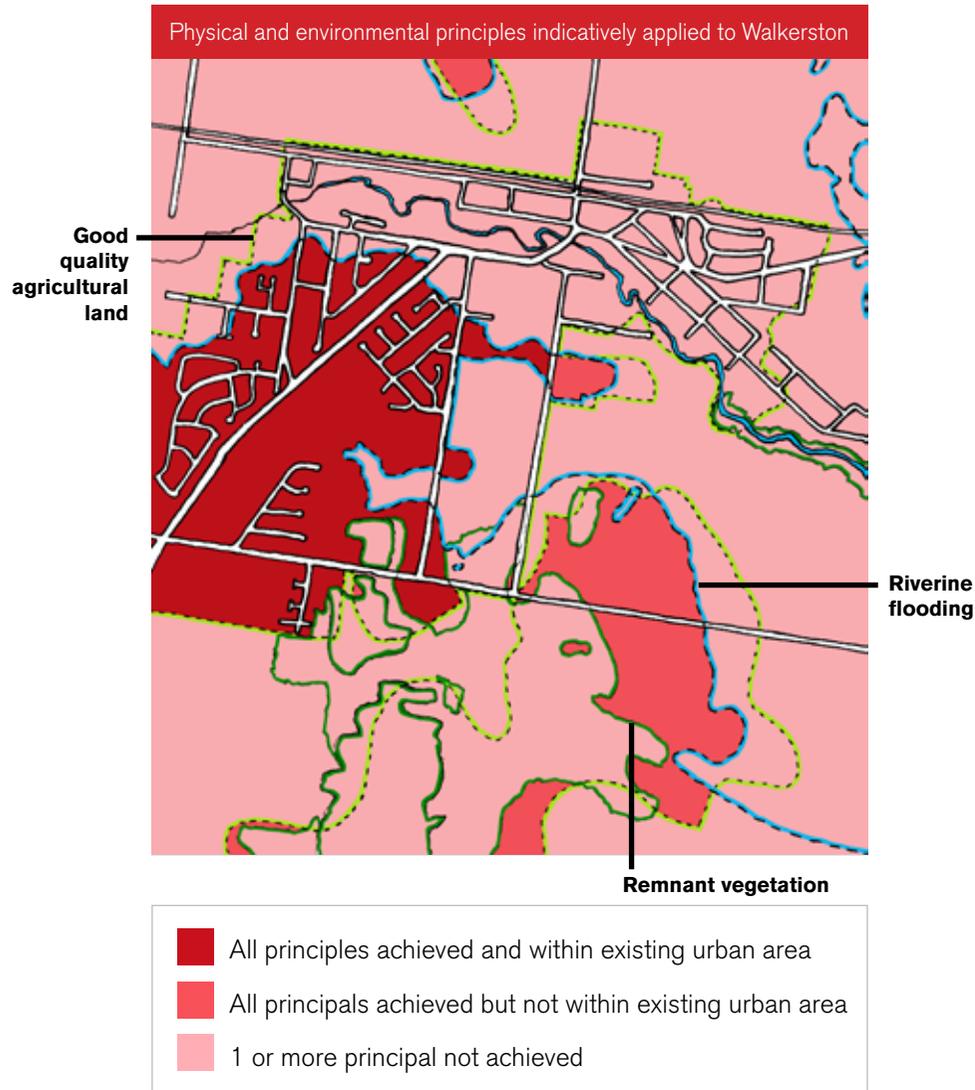
5. Subject land not identified as being subject to high bushfire risk.

6. Subject land not identified as being Good Quality Agricultural Land.

Other relevant considerations:

- > Acid sulfate soils (management strategies);
- > Contaminated land (remediation strategies); and
- > Steep land (design/construction response).

* Critically important principle





Water supply infrastructure, Mount Pleasant.



Sewerage infrastructure, Beaconsfield.



Access infrastructure.



Stormwater infrastructure, Ooralea.



Community infrastructure, Mount Pleasant.



Electricity infrastructure, West Mackay.

Infrastructure and high impact activities

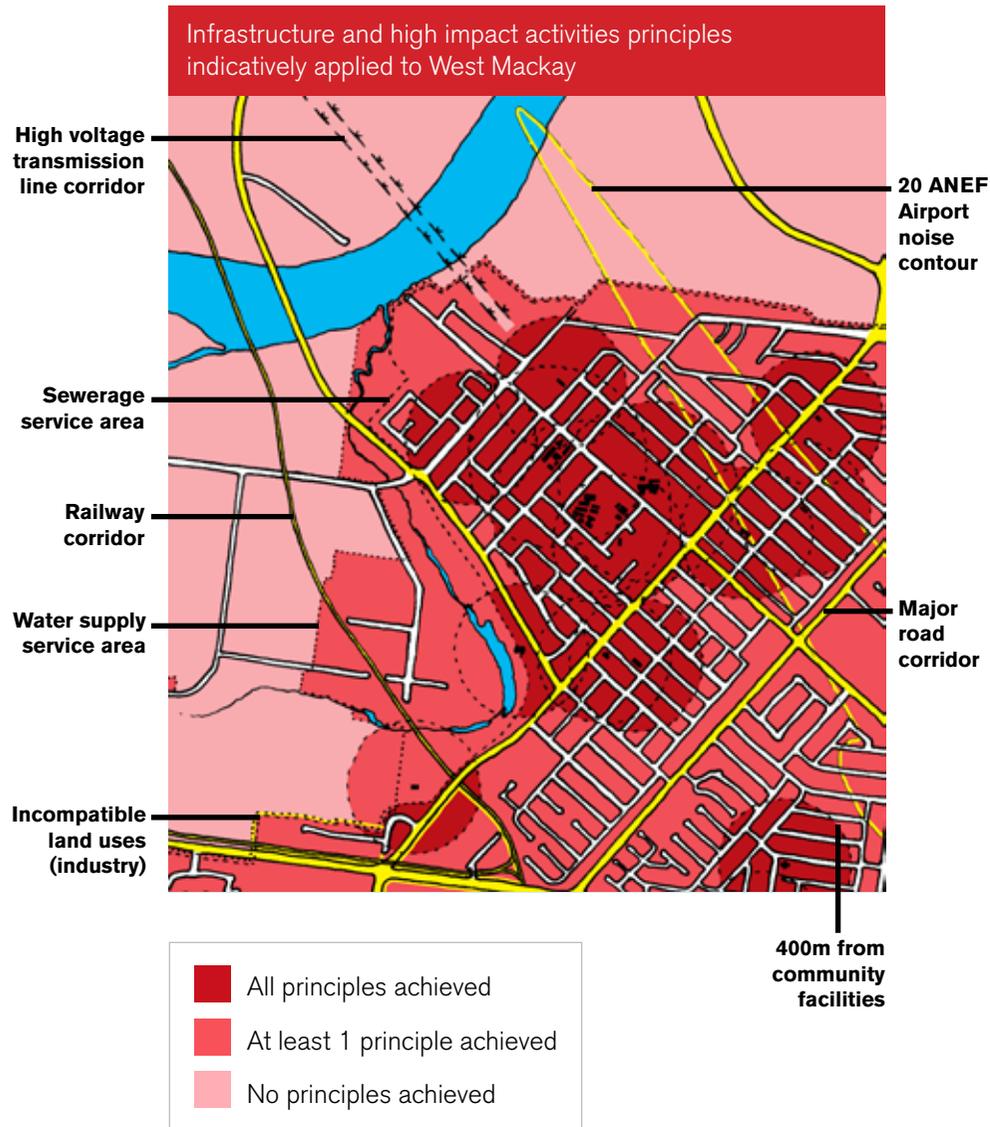
Principles

7. Development on the subject land can be serviced by all of the following infrastructure networks (existing or proposed)*:
 - Water supply;
 - Sewerage;
 - Roads; and
 - Stormwater.
8. Subject land is in close proximity (400 metres) to existing or planned community facilities.
9. Subject land is not within an area affected by the following major infrastructure corridors and high impact activities:
 - High voltage transmission line corridors*;
 - High impact activities;
 - Key resource areas; and
 - Airport safety zone or Aviation Facilities buffer.

Other relevant considerations:

- > Proximity to major road, railway and tramway corridors (design/construction response);
- > Proximity to incompatible land uses such as industry (design/construction response); and
- > Within the 20 ANEF Noise Exposure contour - surrounding Mackay Airport (design/construction response) .

* Critically important principle

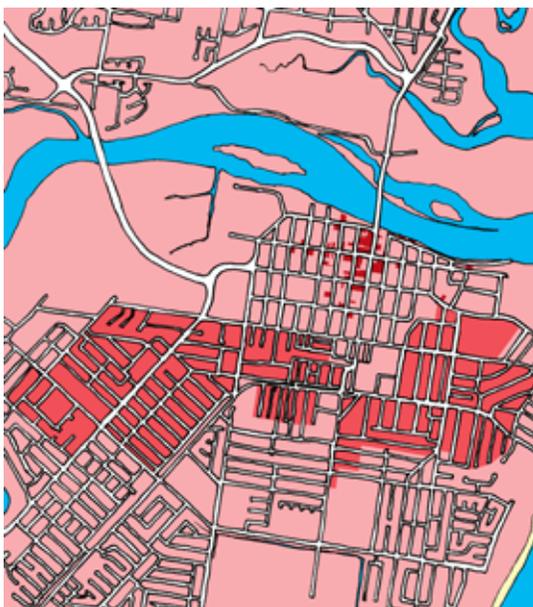




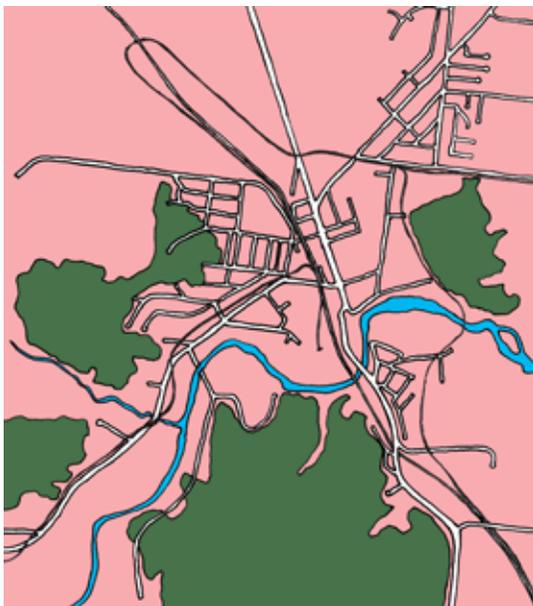
Traditional building character, West Mackay.



Landscape character areas (vegetated hillsides) provide green backdrop to urban area, Sarina.



Built character considerations, Mackay City Centre and inner southern suburbs.



Landscape character considerations, Sarina.

Built and landscape character

Principles

Principles are not relevant to built and landscape character matters.

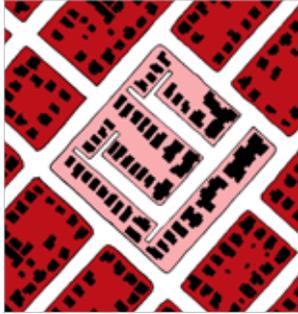
Relevant considerations:

- > Items listed on the *Heritage Register* (development suitability and design/construction response);
- > *Residential Character Areas* (design/construction response); and
- > *Landscape Character Areas* (development suitability and design/construction response).

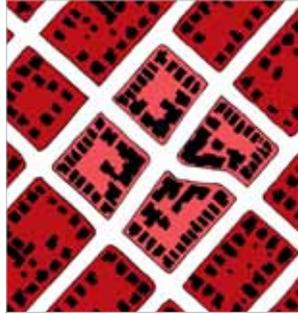
Existing



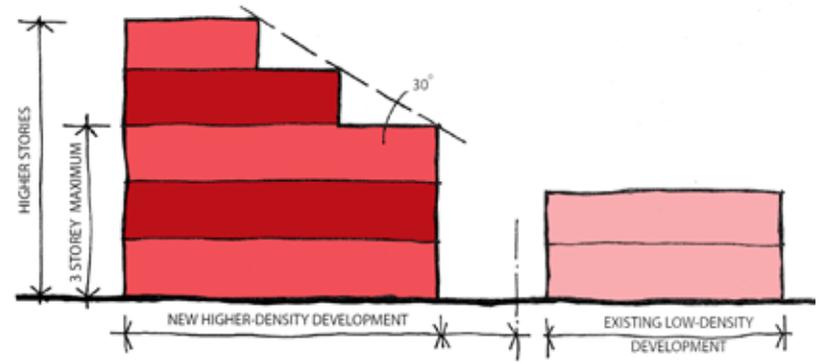
Undesirable



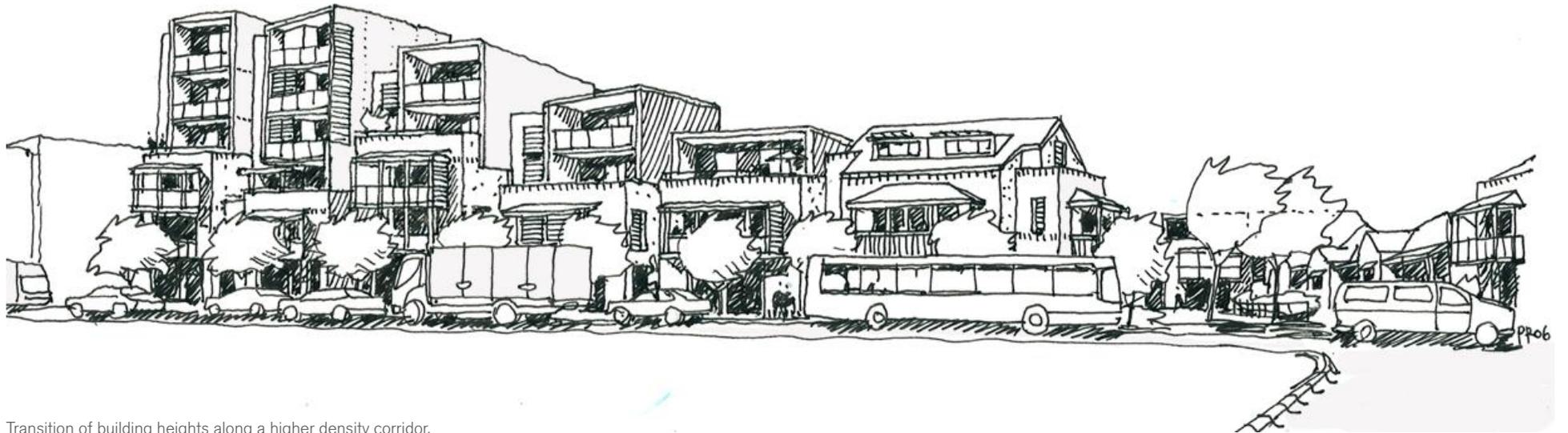
Desirable



Integration of large new development into surrounding urban fabric.



Building height guidelines where new higher density development adjoins existing low density development.



Transition of building heights along a higher density corridor.

5. Design principles



Street setbacks - small enough to enable relationship between building and street, large enough to enable significant vegetation.

This strategy seeks to encourage the delivery of 'well designed' higher density residential development in appropriate locations.

Higher density residential development is well designed if it:

- stands proudly in, but respects and engages with (has 'good manners' to) its neighbourhood, site and street context;
- is responsive to our humid sub-tropical climate and exhibits a richness in design; and
- enables occupants to embrace our relaxed outdoor lifestyle.

New development should borrow meaningful techniques from traditional vernacular but also employ innovative, sophisticated and contemporary designs reflecting our values and climate¹³.

Good manners to the neighbourhood, neighbours and streets

- 1. Layout:** In large developments, vehicle access points correlate with the established surrounding access network.
- 2. Height:** The architectural quality and prominence of buildings is celebrated however building height and materials integrate with surrounding built and landscape character.
- 3. Street setbacks:** Street setbacks are small enough to provide for a connection between building and street but large enough to accommodate lush sub-tropical vegetation and outdoor lifestyle opportunities.

Good manners to the neighbourhood, neighbours and street.

The need to draw natural light into the dwelling is balanced with the need to maintain privacy with privacy screens.

Building height and materials integrate with surrounding built and landscape character.

Building addresses and provides opportunities to interact with the street.

Site cover and rear setbacks facilitate air movement and privacy between buildings.

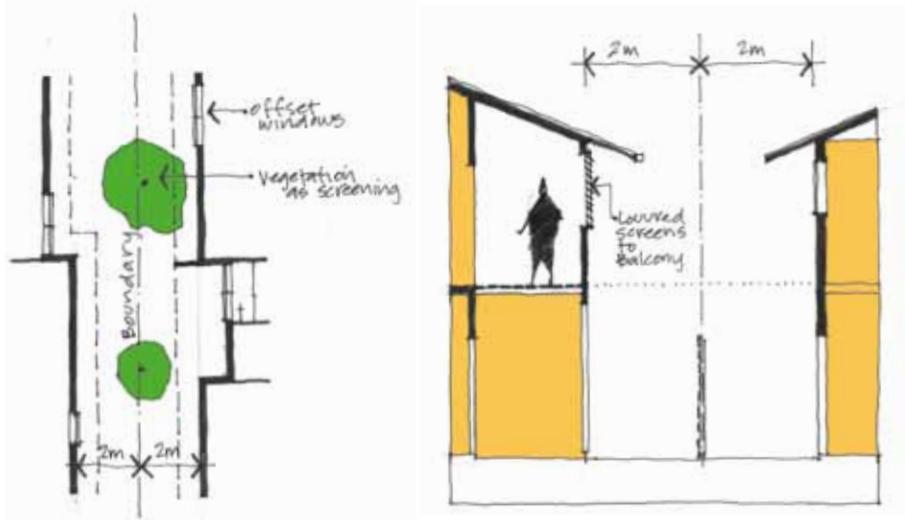
Street setback is small enough to enable relationship between building and street but big enough to enable significant vegetation and outdoor lifestyle opportunities.

Vehicle access ways and accommodation is integrated into the overall building design and does not visually dominate the street elevation.





Buildings address and provide opportunities to interact with the street.



Privacy achieved through building layout, design and screening devices.

4. **Street relationship:** Buildings address and provide opportunities to interact with the street. This is complemented by the design of adjoining outdoor recreation space and the design and height of front fences.
5. **Vehicle access and accommodation:** Vehicle access ways and accommodation is compatible with the overall building design and does not dominate the appearance of the building as viewed from the street.
6. **Site cover and side / rear setbacks:** Site cover and side and rear setbacks facilitate air movement and privacy between buildings and outdoor lifestyle opportunities.
7. **Privacy:** Building layout design avoids direct overlooking. Where overlooking is unavoidable, the need to draw natural light into new dwellings is balanced with the need to maintain the privacy of existing dwellings with privacy screens.

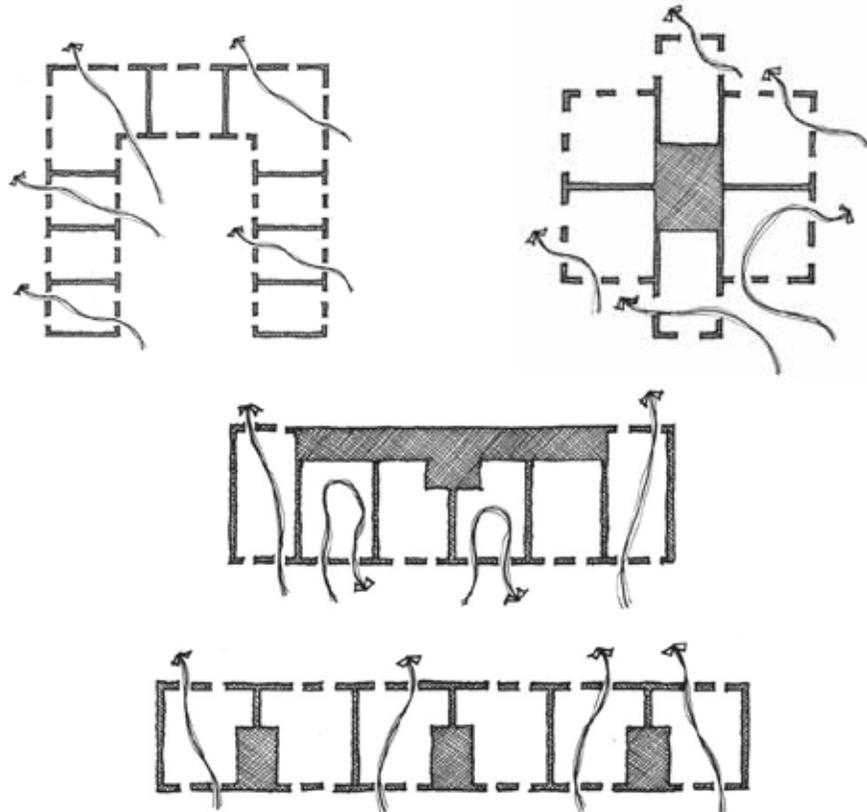
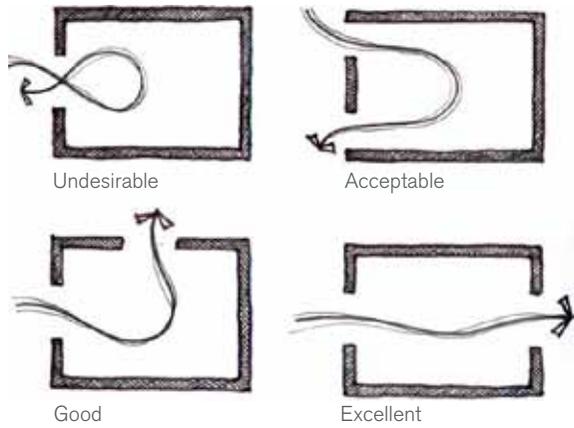
Specific building envelope guidelines

Low-medium density	Medium density	High density
Maximum building height		
3 storeys	8 storeys	To be considered based on the outcomes of the Mackay City Centre Local Area Plan
Minimum street setbacks		
4.5 metres, 6.0 metres for car accommodation.	0 metres for commercial podium. Otherwise 4.5 metres for the first 3 stories, 6 metres thereafter	0 metres for commercial podium. Otherwise 4.5 metres for the first 3 stories, 6 metres thereafter
Minimum side and rear setbacks		
NA – see building legislation	NA for 1, 2 and 3 story buildings – see building legislation 6 metres for higher stories* 0 metres for commercial podium	NA for 1, 2 and 3 story buildings – see building legislation 6 metres for higher stories* 0 metres for commercial podium
Maximum site cover		
60% of site area	75% of site area Up to 100% of site area for commercial podium	75% of site area Up to 100% of site area for commercial podium

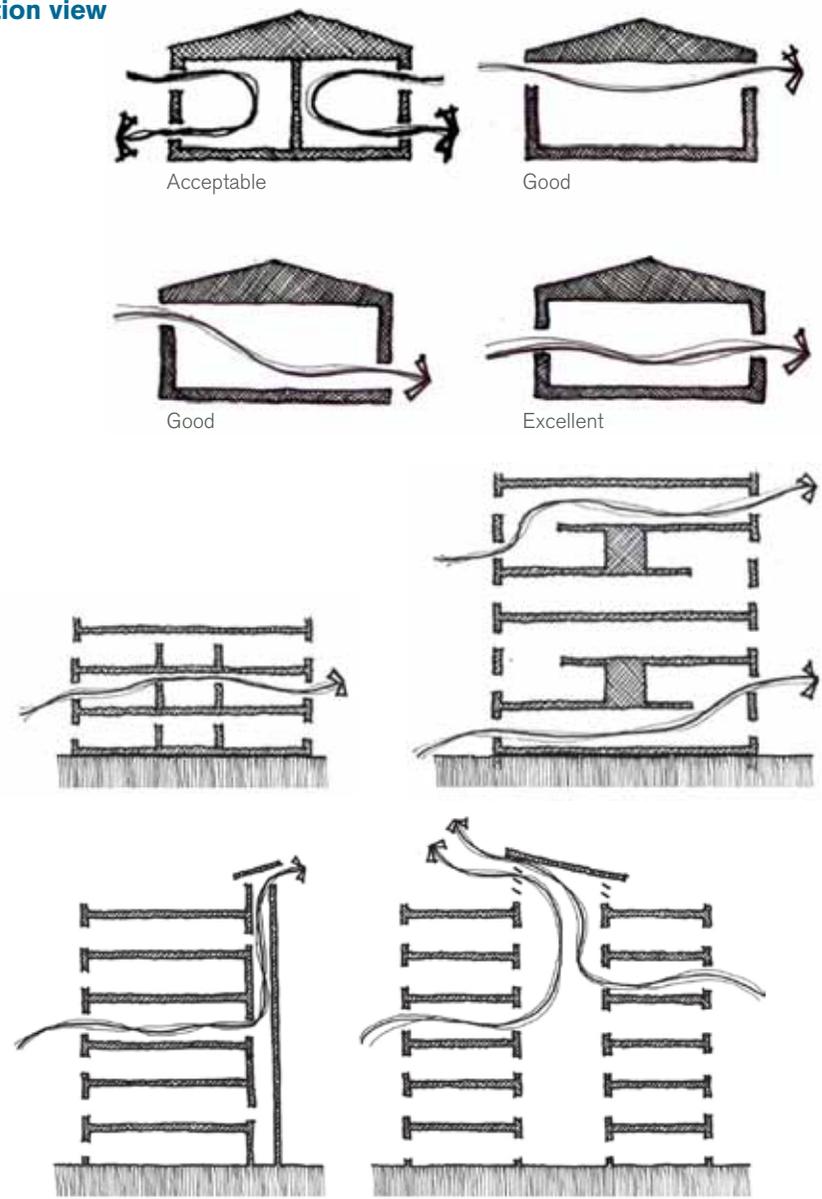
* Refer also to diagram on Page 41

achieving good ventilation

Plan view



Section view



Stack ventilation

Source of images: DPZ Pacific and Seth Harry and Associates Inc., 2010⁽¹⁴⁾



Overhangs and vegetation reduce heat loading and glare on walls, South Mackay.

Responsiveness and richness in design

8. Orientation: Buildings have a narrow rectangular profile with the long edges primarily oriented to the north and south to minimise exposure to the morning and afternoon sun and maximise exposure to prevailing breezes

9. Ventilation: Large openings on north and south facing walls, and openings on east facing walls capture, circulate and exhale prevailing breezes. Limited openings are provided on west facing walls.

A stack ventilation system enables air circulation in buildings where cross ventilation is unavailable¹⁴. Within dwellings, air circulation is facilitated by large open areas and permeable floor plans.

10. Shading: Shading devices, overhangs, vegetation, materials and colours reduce heat loading and glare on walls, windows, entrances and balconies but also maintains a good level of natural light into the building. Reflective surfaces or uncovered paved areas are located away from windows and other openings.

11. Treating hard surfaces: Trees and other vegetation are used to visually soften and lower the temperature of blank walls and paved areas (such as open car parks and courtyards). In open car parking areas, trees are provided at a rate of 1 tree per every 6 car parking spaces.

Responsiveness and richness in design





Use of roof profile features and different wall materials and colours, Mount Pleasant.



Building articulation, Mackay City Centre.

12. Roof design: Roof profiles are visible, varied and extend well beyond the external walls. Podiums and other overlooked roofs are considered the 'fifth elevation' with high quality design outcomes and non-reflective finishes applied accordingly.

13. Building articulation: Lengthy publicly visible building faces (over 10 metres in length) are articulated by a combination of architectural features such as:

- roofed balconies/verandahs;
- openings (entry thresholds, doors, large windows);
- shade structures and screens;
- building line projections/recessions;
- different wall materials; and
- different colours.

14. Materials: Materials used for roofs, walls, shading devices and other built form elements are contemporary, reference vernacular characteristics, use recycled materials where possible and achieve a high level of thermal performance.

15. Safety and comfort: In public areas, built form elements and garden design provide a safe and comfortable environment by adhering to CPTED principles and providing protection from harsh sun and rain.



Outdoor living area, East Mackay.



Open plan area seamlessly transitions to outdoor living area.



Variety of endemic species in gardens adjoining High-rise apartments, Mackay City Centre.



Gardens provide rich sensory experience.

Embracing our relaxed outdoor lifestyle

- 16. Indoor–outdoor transition:** Open plan living areas seamlessly transition to large robust outdoor living areas.
- 17. Outdoor living areas:** Outdoor living areas and low-wide open courtyards are provided on the south elevation or on the eastern and northern elevations if protected by shading devices. Building / garden layout funnels summer breezes through outdoor living areas.
- 18. Total open space area:** A substantial portion of the development site is used for open recreation space and gardens, with at least 5% provided for deep planting.
- 19. Gardens:** Gardens comprise endemic species and arrangements and provide a rich sensory experience (framed vistas, colour, foliage diversity, fragrances, edible plants, soundscape (wildlife, wind, rain)). Appropriate existing trees are retained.

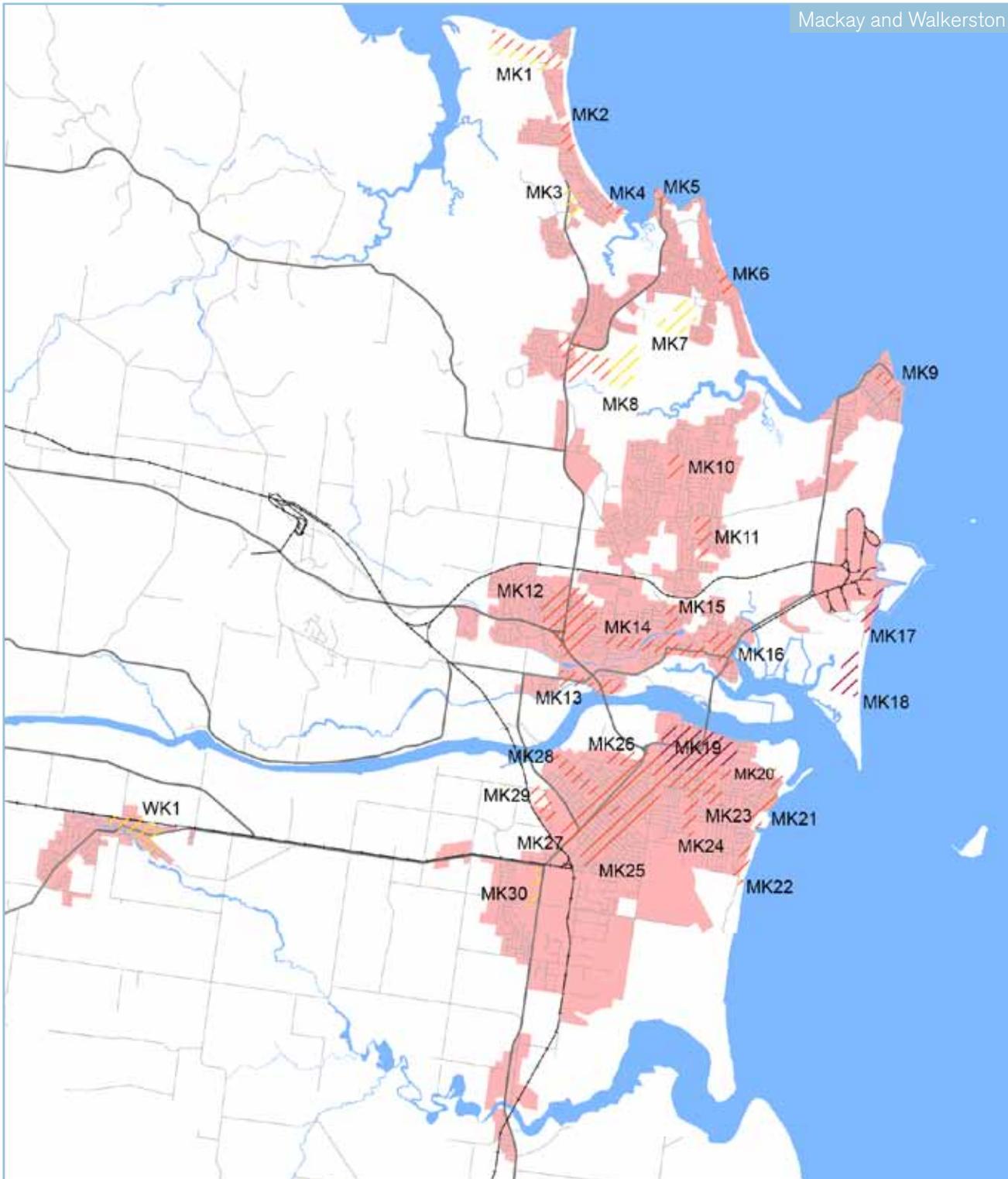
Gardens provide opportunities for community involvement and interaction. Children's play spaces and facilities are provided.

Gardens and recreation areas provide a comfortable microclimate by capturing and/or minimising the effects of sunlight, wind and rainfall. Tall spreading trees provide shade and filter, not block, breezes.

- 20. Water sensitive design:** WSUD and other water re-use strategies reduce stormwater runoff and support verdant garden settings. If availability of re-used water is limited, drought tolerant species are used.



Part C ■ making it happen –
key precincts, corridors and
initiatives



KEY PRECINCTS AND CORRIDORS

-  Key precincts - up to high density
-  Key precincts - up to medium density
-  Key precincts - up to low-medium density
-  Existing urban areas

6. Key precincts and corridors



Mackay City activity centre (MK19)



North Mackay activity centre (MK16)



Nebo Road corridor (MK27)



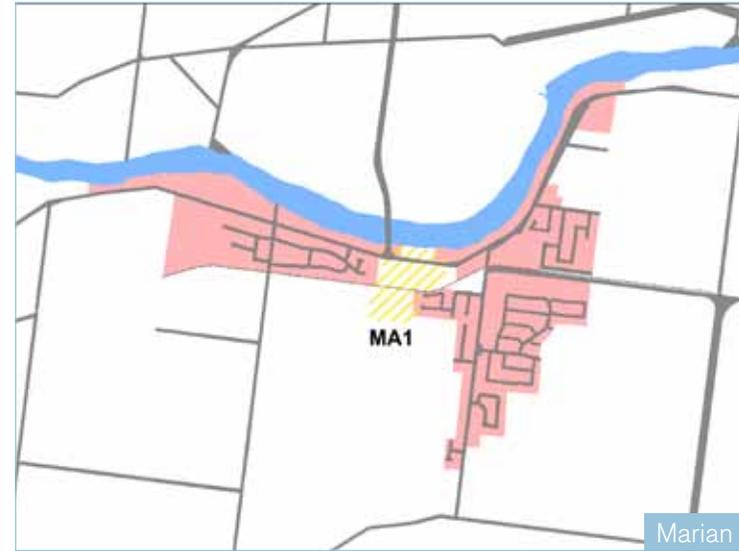
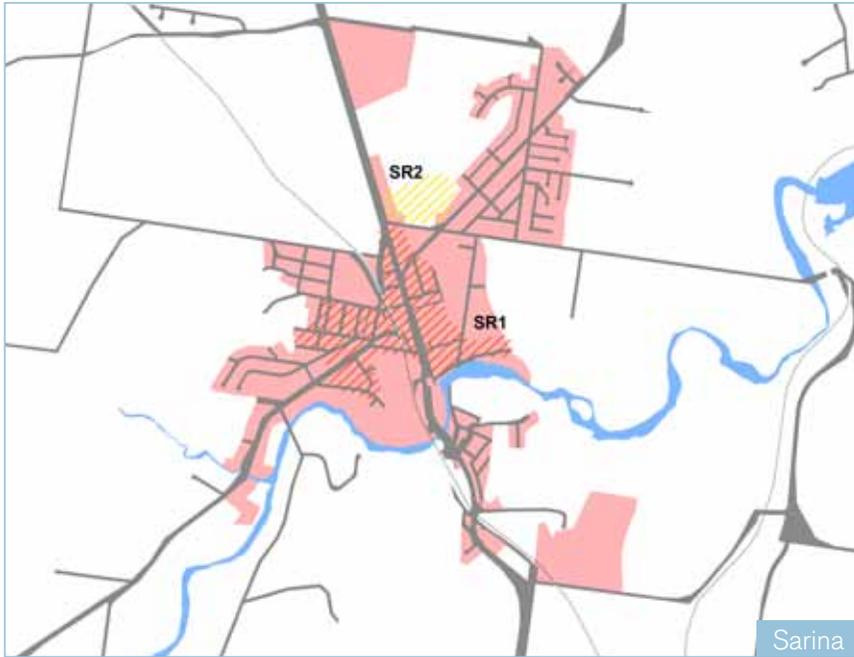
Rural View activity centre (MK7)

Upon analysis of opportunities and constraints provided by the existing situation (Section 2), and consideration of the location principles (Section 4), a number of key precincts and corridors emerge as being suitable for new higher density residential development.

It is not intended that the precincts and corridors will be the only location that higher density residential development can be provided. Rather, it is likely that the new planning scheme will contain assertive provisions to ensure appropriate density levels are achieved in these precincts and corridors.

The key precincts and corridors are as follows:

No.	Name	Type	Potentially suitable for
MK1	Shoal Point	Precinct	Medium density
MK2	Bucasia Beach	Precinct	Medium density
MK3	Bucasia Activity Centre	Precinct	Low-medium density
MK4	Bucasia Creekfront	Precinct	Medium density
MK5	Eimeo Headland	Precinct	Medium density
MK6	Blacks Beach	Precinct	Medium density
MK7	Blacks Beach Road	Precinct	Low-medium density
MK8	Rural View Activity Centre	Precinct	Medium density
MK9	Slade Point	Precinct	Medium density
MK10	Andergrove Depot	Precinct	Medium density
MK11	Andergrove Activity Centre	Precinct	Medium density
MK12	Mount Pleasant Activity Centre	Precinct	Medium density
MK13	Rockleigh	Precinct	Medium density
MK14	Malcomson Street	Corridor	Medium density
MK15	Glenpark Street	Corridor	Medium density
MK16	North Mackay Activity Centre	Precinct	Medium density
MK17	Mackay Marina East Point	Precinct	High density
MK18	East Point	Precinct	High density
MK19	Mackay City Activity Centre	Precinct	High density
MK20	Shakespeare Street East	Precinct	Medium density
MK21	Iluka Beach	Precinct	Medium density
MK22	Illawong Beach	Precinct	Medium density



KEY PRECINCTS AND CORRIDORS

-  Key precincts - up to high density
-  Key precincts - up to medium density
-  Key precincts - up to low-medium density
-  Existing urban areas





Sarina activity centre (SR1)



Walkerston activity centre (WK1)



Marian future activity centre (MA1)



Mirani activity centre (MI1)

Mackay urban area (continued)

No.	Name	Type	Potentially suitable for
MK23	South Mackay	Precinct	Medium density
MK24	Juliet Street	Corridor	Medium density
MK25	Paradise Street West	Corridor	Medium density
MK26	Shakespeare Road	Corridor	Medium density
MK27	Nebo Road	Corridor	Medium density
MK28	Bridge Road	Corridor	Medium density
MK29	Botanic Gardens	Precinct	Medium density
MK30	Bruce Highway	Corridor	Low - medium density

Sarina urban area

No.	Name	Type	Potentially suitable for
SR1	Sarina Activity Centre	Precinct	Medium density
SR2	Brooks Road East (Future)	Precinct	Low-medium density

Walkerston urban area

No.	Name	Type	Potentially suitable for
WK1	Walkerston Activity Centre	Precinct	Low-medium density

Marian urban area

No.	Name	Type	Potentially suitable for
MA1	Marian Future Activity Centre	Precinct	Low-medium density

Mirani urban area

No.	Name	Type	Potentially suitable for
MI1	Mirani Activity Centre	Precinct	Low-medium density

Community infrastructure complements high-rise apartments, Mackay City Centre.



7. Initiatives to encourage higher density residential development

The following initiatives are considered important to delivering well designed higher density residential development in appropriate locations and, consequently, increased overall average densities in the region's urban areas.

1. Promotion: For the goals of this strategy to be realised, entrenched perceptions that the region's urban housing markets resist higher density dwelling product will need to be challenged and readjusted. As such, Council must continue to promote that:

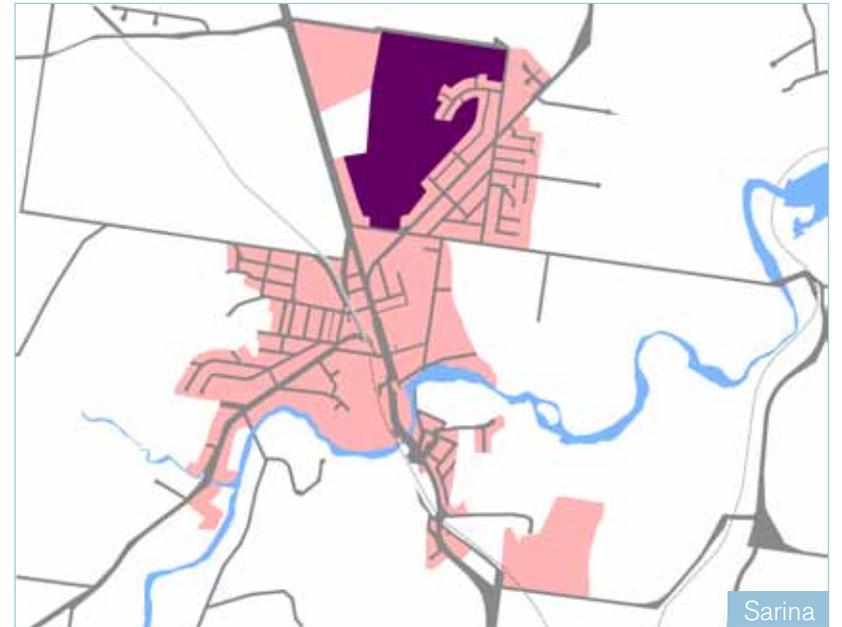
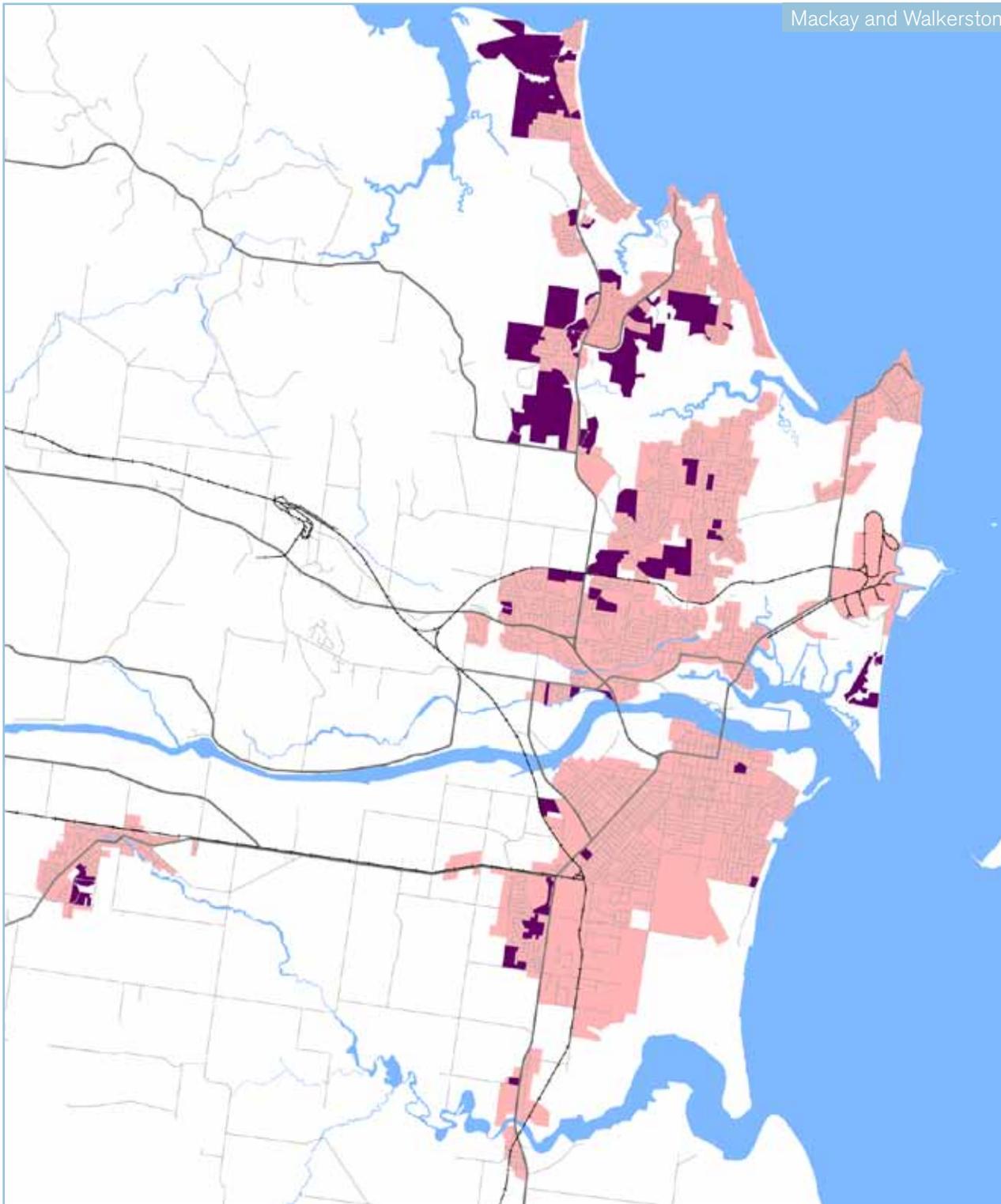
- higher density residential development provides several benefits for residents and the community; and
- demand for higher density product will accelerate into the future.

In addition, the following actions are also considered important:

- collaborate with relevant state agencies, representatives of the development industry and relevant community groups so that the goals of this strategy are also championed by a variety of important stakeholders; and
- focused promotion on the take-up and benefits of key demonstration projects (such as the ULDA's project at Council's Bedford Depot Road site in Andergrove).

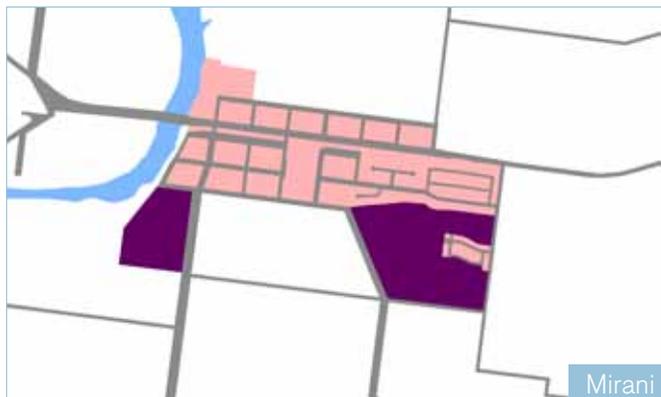
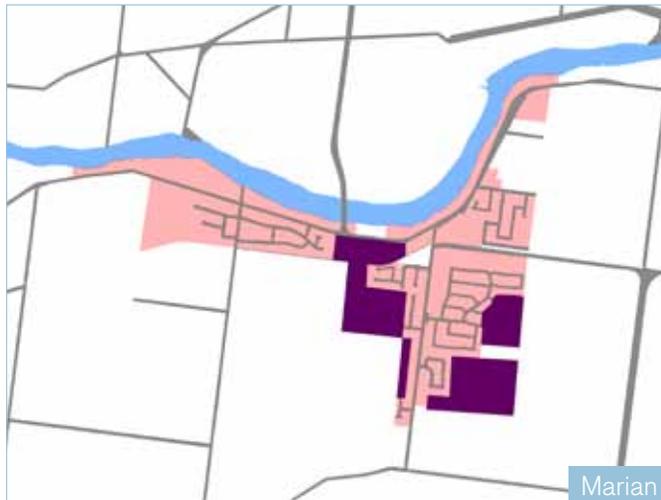
2. Infrastructure: Economically providing the necessary infrastructure (retro-fitted or new networks) is perhaps the greatest challenge associated with providing significant higher density residential development in the region's urban areas. In response to the challenge, Council will need to:

- closely liaise and collaboratively plan with infrastructure providers within Council and other providers such as the DTMR and Ergon;
- ensure that infrastructure planning details:
 - necessary infrastructure based on accurate models; and
 - funding sources/mechanisms; and
- lobby higher levels of government to assist in funding important infrastructure.



CURRENT DEVELOPMENT AREAS

-  Current development areas
-  Existing urban areas



3. Negotiation: Council has approved and is assessing many proposals (approvals and applications) for residential development on greenfield sites, particularly in the Mackay Northern Beaches area. These proposals primarily offer low density residential product.

In order to advance the goals of this strategy, it will be important for Council to negotiate with developers to:

- reduce lot sizes across the proposed development and, therefore, decrease the overall average lot size and increase total lot yield;
- identify locations for new higher density residential development. The location principles (set out in Section 4) should be included in the consideration of potential locations.

In addition, development proposals for commercial development exist over sites in the Mackay urban area identified as key precincts and corridors for higher density residential development. Specifically, retail developments are proposed for 184–194 Malcomson Street, 323–331 Bridge Road and 245 Bridge Road. The inclusion of higher density residential development should be discussed with the prospective developers of these sites.

4. Current planning provisions: The existing planning schemes contain a number of unnecessarily restrictive provisions to be amended as soon as possible. These are summarised as follows:

- *Mackay City Planning Scheme:* removing the intent that new residential lots in the Walkerston are not less than 700m² in area;
- *Sarina Shire Planning Scheme:*
 - removing the requirement that new residential lots under 600m² are impact assessable (all new lots to be code assessable instead);
 - lowering the minimum size for new residential lots in the Sarina urban area to 300m² (rather than 450m²); and
 - introducing a new Dual Occupancy definition and making Dual Occupancies code assessable in the Sarina urban area (currently impact assessable);



Detached dwellings on small lots, Walkerston.



Higher density residential precinct, Mackay Harbour.

- **Mirani Shire Plan:**

- lowering the minimum lot size for new residential lots in the Marian and Mirani urban areas to 300m² (rather than 700m²) and removing unnecessary provisions regarding new residential lots;
- introducing a new Dual Occupancy definition and making Dual Occupancies code assessable in the Marian and Mirani urban areas (currently impact assessable); and
- removing the development application trigger for a Dwelling House on a lot with an area of less than 700m².

5. Future planning provisions: The following should be addressed in the preparation of the new planning scheme for the region:

- Incorporation of zones for new areas providing opportunities for low-medium, medium and high density residential development. The key corridors and precincts identified in Section 6 provide a starting point for these investigations;
- Investigate the incorporation of development controls that assertively seek higher density outcomes, such as:
 - minimum density requirements, for development on sites zoned for higher density residential development;
 - minimum proportion of higher density residential development requirements for greenfield developments;
- The location and design principles (set out in Sections 5 and 6 respectively) provide a starting point for the development of a code/s regarding higher density residential development;
- Investigate lowering the rates determining the number of car parks required for higher density residential development within major activity centres and other locations where car use and ownership can be realistically reduced in the future;
- Investigate increasing building heights in the Mackay City Centre as part of the development of the *Mackay City Centre Local Area Plan*; and
- Investigate enabling permanently occupied dwelling units in areas currently zoned Special Activities (Tourism) under the *Mackay City Planning Scheme*.



Infrastructure provision.

6. Infrastructure planning: The following should be investigated in the preparation of the new priority infrastructure plan and developer contribution policies for the region:

- re-assessing the demand generation rates for higher density residential development with a view to potential reductions in rates for developments that utilise infrastructure efficiently; and
- where appropriate, focus on the provision of robust, high quality infrastructure for high usage - quality over quantity.

7. Development assessment efficiencies: In order to provide higher density residential developments every chance to proceed successfully, the following should be investigated:

- ongoing strategies to simplify planning scheme provisions and assessment processes and, consequently, reduce assessment timeframes; and
- ongoing reviews to keep application fees as low as is necessary.

8. Monitoring: In order to measure the success of the strategy, it is recommended that data illustrating the number and proportions of new lots and dwellings at each level of density is obtained and reported.

In addition, it is intended that this strategy is maintained as a 'living document' with:

- important information such as recent population growth, population and household size projections regularly updated; and
- initiatives celebrated as they are achieved or reviewed as constraining circumstances arise.

9. Implementation of relevant strategies: The success of achieving the goals set out in this strategy relies heavily on the development and successful implementation of Council's emerging Activity Centres and Mobility Strategies. Successful implementation of all three strategies will result in a more sustainable urban form in the region's urban areas.



8. Conclusion

The Residential Densities Strategy forms an important part of Council's commitment to achieve a more sustainable urban form and greater diversity in the region's housing product. Specifically, the strategy seeks to encourage the delivery of well designed higher density residential development in appropriate locations and, consequently, increase the overall average density of residential development in the region's urban areas.

The strategy has:

- articulated the benefits of higher density residential development in the region's urban areas;
- defined principles for the appropriate location of higher density residential development;
- defined design principles for higher density residential development;
- identified key sites and corridors considered suitable for higher density residential development; and
- identified initiatives to encourage higher density residential development.

This strategy, and the further investigations it recommends, will form important foundation information in the formulation of the new planning scheme for the region.

references

- 1 Mackay Infrastructure Alliance, Mackay Regional Council (2009) *Strategic Plan for Water Supply, Year 2009 to Year 2056, City of Mackay*
 - 2 Mackay Infrastructure Alliance, Mackay Regional Council (2009) *Strategic Plan for Sewerage, Year 2009 to Year 2056, City of Mackay*
 - 3 Mackay Infrastructure Alliance, Mackay Regional Council (2009) *Sarina Sewerage Treatment Plant Planning Report*
 - 4 Queensland Government, Office of Economic and Statistical Research (2010) *Estimated Resident Population by Urban Centre and Locality, Queensland, 2001 to 2009p* – <http://www.oestr.qld.gov.au>
 - 5 Information and calculations provided by Foresight Partners (2010)
 - 6 Queensland Government, Office of Economic and Statistical Research (2010) *Population and housing profile - Mackay Regional Council* – <http://www.oestr.qld.gov.au>
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 - 8 Urban Land Development Authority (2010) *Residential 30: Guideline to deliver diversity in new neighbourhood development*, Queensland Government, Brisbane
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 - 12 Queensland Department of Local Government, Planning, Sport and Recreation (2006) *Whitsunday Hinterland and Mackay Regional Plan*, Queensland Government, Brisbane
 - 13 Information provided by BVN Architects
 - 14 DPZ Pacific and Seth Harry and Associates Inc. (2010) *Tropical urbanism, a design approach: Technical Report*, Mount Peter Structure Plan
- Mackay Infrastructure Alliance, Mackay Regional Council (2010) *Strategic Plan for Water Supply, Year 2009 to 2056*, Towns of Marian and Mirani
- Mackay Transit Coaches (Accessed 2010) *Mackay Transit Coaches Website* – <http://www.mackaytransit.com.au>
- Queensland Government, Brisbane City Council and Queensland University of Technology (2010) *Subtropical Design in South East Queensland, A Handbook for Planners, Developers and Decision Makers*
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- Queensland Government - Department of Transport and Main Roads (2009) *Roads Implementation Program 2009/2010 to 2013/2014*

density typologies

10 low density



Marian

Site density: 10 dwlgs/ha

Product: Detached dwellings
(1,000m² lots)

22 low-medium density



Glenella

Site density: 22 dwlgs/ha

Product: Detached dwellings
(450m² lots)

40 medium density



North Mackay

Site density: 40 dwlgs/ha

Product: Semi-detached
dwellings (250m² per dwlg)

132 high density



Mackay Harbour

Site density: 132 dwlgs/ha

Product:
Medium rise apartments

14 low density



Shoal Point

Site density: 14 dwlgs/ha

Product: Detached dwellings
(700m² lots)

25 low-medium density



Sarina

Site density: 25 dwlgs/ha

Product: Semi-detached
dwellings (400m² per dwlg)

50 medium density



East Mackay

Site density: 50 dwlgs/ha

Product: Attached dwellings
(200m² per dwellings)

172 high density



Mackay City Centre

Site density: 172 dwlgs/ha

Product:
High rise apartments

18 low density



Rural View

Site density: 18 dwlgs/ha

Product: Detached dwellings
(550m² lots)

30 low-medium density



Walkerston

Site density: 30 dwlgs/ha

Product: Detached dwellings
(340m² lots)

77 medium density



Mackay Harbour

Site density: 77 dwlgs/ha

Product:
Medium rise apartments

267 high density



Mackay City Centre

Site density: 267 dwlgs/ha

Product:
High rise apartments

appendix A

Defining residential densities and dwelling types

The following density categories and definitions are provided for the purposes of this strategy and future considerations regarding residential densities. The categories are considered relevant to the Mackay context.

	Site density dwellings per ha	Net density dwellings per ha	Lot size*	Typical building form
Low density	Less than 20	Less than 16	Larger than 500m ²	- detached dwellings - semi detached dwellings - attached dwellings
Low-medium density	Between 20-34	Between 17-29	Between 500m ² - 290m ²	- detached dwellings - semi-detached dwellings - attached dwellings
Medium density	Between 35 - 99	Between 30-85	Smaller than 290m ²	- attached dwellings, - semi-detached dwellings - low-rise apartments - medium-rise apartments
High density	100 or more	86 or more	NA	- medium-rise apartments - high-rise apartments

* Based on lots occupied by 1 dwelling

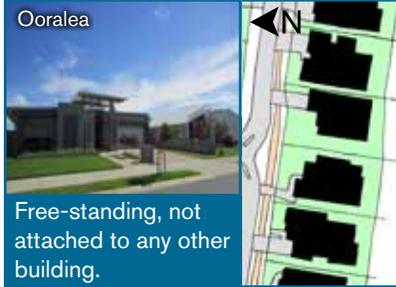
Site density is the number of dwelling units per development site. Net density is the number of dwelling units per area of land including development site, local roads, local parks and local drains.

The term 'higher density residential development' is also used throughout this document. Higher density collectively refers to low-medium density, medium density and high density and, therefore, means anything higher than low density.

dwelling typologies

detached dwellings

Ooralea



Free-standing, not attached to any other building.
Surrounded by private (ground floor) open space.

low-rise apartments

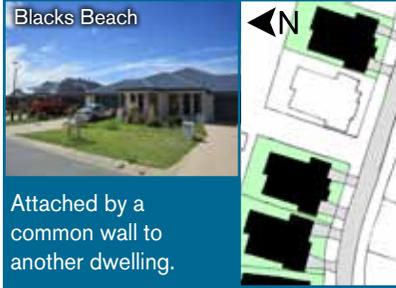
Mackay Harbour



Self-contained dwellings in a 3-5 storey building.
Shared car parking, recreational and utility facilities and lifts can be provided.

semi-detached dwellings

Blacks Beach



Attached by a common wall to another dwelling.
Adjoins private (ground floor) open space. Common forms: dual occupancy.

medium-rise apartments

Mackay City Centre



Self-contained dwellings in a 6-9 storey building.
Shared car parking, recreation and utility facilities and lifts are usually provided.

attached dwellings

Mt Pleasant



Attached by more than one common wall to another dwelling
Adjoins private (ground floor) open space. Common forms: Townhouses, row houses and terrace houses

high-rise apartments

Mackay City Centre



Self-contained dwellings in a 10 storey or higher building.
Shared car parking, recreational and utility facilities and lifts are usually provided.

appendix B

Glossary of other terms and acronyms

Attached dwelling – A dwelling that is attached to another dwelling by more than one common wall and adjoined by private (ground floor) open space. Common forms include 1–3 story townhouses, row houses and terrace houses.

Centre – For the purposes of this strategy, centres identified include retail/commercial services. It is also desirable, however, that parkland, public transport, community facilities, educational establishments, and other facilities/services are located within or near centres. Definitions for centres will be further developed in council's emerging Activity Centres Strategy.

Detached dwellings – A free-standing dwelling that is not attached to any other building and surrounded by private (ground floor) open space.

DERM – Queensland Department of Environment and Resource Management

DIP – Queensland Department of Infrastructure and Planning

DTMR – Queensland Department of Main Roads and Transport

High impact activity – Activities that generate significant amenity impacts, whereby sensitive uses should not be located in close proximity.

High rise apartments – Self-contained dwellings in a building that is 10 stories or higher. Shared facilities such as communal laundries, swimming pools or car parking spaces are usually provided. Motorised vertical transport, such as elevator(s)/lift(s), is usually provided to all floors.

Low rise apartments – Self-contained dwellings in a building that is 3, 4 or 5 storeys in height. Shared facilities such as communal laundries, swimming pools or car parking spaces can be provided.

Medium rise apartments – Self-contained dwellings in a building that is 6, 7, 8 or 9 storeys in height. Shared facilities such as communal laundries, swimming pools or car parking spaces are usually provided. Motorised vertical transport, such as elevator(s)/lift(s), is usually provided to all floors.

OESR – Queensland Office of Economic and Statistical Research

PDLU – Preferred Dominant Land Use (under the Transitional (Superseded) Planning Scheme for Mackay City)

Q5 – Stormwater flows modelled to occur every 5 years

Q100 – Stormwater flows modelled to occur every 100 years

Semi-detached dwellings – A dwelling that is attached to another dwelling by a common wall and adjoined by private (ground floor) open space. Common forms include dual occupancies and single or multi-storey link detached dwellings.

TF – Transfer Facility

ULDA – Urban Land Development Authority

WTP – Water treatment plant

WWTP – Waste water treatment plant

appendix C

Key demographic trends

	Mackay			Sarina			Walkerston			Marian			Mirani			Queensland		
	2001 ^a	2006 ^a	2031 ^b	2001 ^a	2006 ^a	2031 ^b	2001 ^a	2006 ^a	2031 ^b	2001 ^a	2006 ^a	2031 ^b	2001 ^a	2006 ^a	2031 ^b	2001 ^a	2006 ^a	2031
Age																		
0-14	23.1%	21.8%	20.1%	24.2%	22.5%	20.1%	25.1%	26.2%	24.6%	25.3%	26.6%	24.5%	23.7%	22.9%	20.9%	21.3%	20.7%	17.8% ^c
15-24	14.0%	13.9%	12.1%	12.0%	14.0%	11.2%	13.6%	13.1%	11.3%	8.7%	9.1%	8.5%	12.2%	9.0%	9.0%	13.8%	13.8%	12.0% ^c
25-44	29.6%	29.3%	28.7%	27.3%	23.7%	24.1%	32.5%	32.0%	32.0%	29.8%	32.1%	32.2%	25.3%	26.8%	31.7%	28.9%	28.2%	25.5% ^c
45-64	22.0%	24.0%	22.1%	21.3%	25.9%	24.8%	19.0%	20.4%	20.3%	20.7%	23.8%	23.1%	22.9%	25.7%	22.9%	23.2%	25.0%	24.4% ^c
65+	11.3%	11.0%	17.1%	15.2%	13.9%	19.7%	9.8%	8.3%	11.9%	15.5%	8.4%	11.6%	15.9%	5.7%	15.5%	12.4%	12.4%	20.3% ^c
Median	34	35	-	36	36	-	31	31	-	37	34	-	37	38	-	35	36	41 ^d
Household type, size and income																		
Couple with kids	34.7%	35.6%	32.1%	30.3%	31.5%	27.9%	41.1%	42.4%	35.5%	39.6%	41.6%	38.6%	35.9%	39.8%	37.8%	32.6%	31.5%	24.3% ^e
Couple - no kids	25.5%	28.6%	29.2%	25.1%	28.2%	33.8%	27.0%	30.0%	34.5%	26.7%	26.5%	29.8%	26.3%	26.0%	27.3%	27.2%	28.5%	30.3% ^e
Lone parent	12.8%	11.3%	10.6%	14.4%	13.0%	11.9%	10.0%	8.2%	8.4%	12.4%	10.8%	10.6%	12.1%	6.4%	6.6%	11.5%	11.6%	11.1% ^e
Lone person	22.3%	19.8%	24.7%	27.8%	23.7%	23.5%	19.3%	15.4%	18.2%	19.8%	18.0%	19.5%	22.1%	23.8%	26.1%	23.2%	22.8%	25.9% ^e
Group/other	4.7%	4.5%	3.4%	2.4%	3.7%	2.9%	2.6%	4.0%	3.4%	1.5%	3.1%	1.5%	3.6%	4.0%	2.2%	5.6%	5.7%	8.4% ^e
Size	3.3	2.7	-	3.3	2.6	-	3.4	2.9	-	3.4	2.8	-	3.4	2.8	-	2.6	2.6	2.6
Weekly income	-	\$1,139	-	-	\$920	-	-	\$1,226	-	-	\$1,127	-	-	\$1,027	-	-	\$1,033	-

- a ABS – Basic Community Profiles from the 2001 and 2006 Census – <http://www.abs.gov.au>
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- d OESR – Median age by statistical division, Queensland, 2006 to 2031 (medium series) - <http://www.oesr.qld.gov.au> (accessed October 2010)
- e OESR – Household projections by household type by region, 2006 to 2031 - <http://www.oesr.qld.gov.au> (accessed October 2010)

appendix D

Planning scheme designations offering opportunities for higher density residential development

Table 1: Mackay City Planning Scheme zones offering 'significant' opportunities for higher density residential development.

Locality	Zone	Maximum density		Total area zoned
		Scheme provision	Category	
City Centre	City Residential	<ul style="list-style-type: none"> Site cover: up to 50% Building height: up to 30m 	High density	13.2 ha
	Mixed Use	<ul style="list-style-type: none"> Site cover: 75% up to 1st floor, 50% up to 22m, 33% above 22m Building height: up to 28m 	High density	21.4 ha
	Commercial (Main Street)	<ul style="list-style-type: none"> Site cover: 50% above 12m Building height: 22m 	Medium density	4.9 ha
	Waterfront	<ul style="list-style-type: none"> Site cover: 75% up to 1st floor, 50% above 1st floor Building height: up to 20m 	Medium density	12.9 ha
	Higher Density Residential	<ul style="list-style-type: none"> Site cover: 50% up to 10m, 40% above 10m Building height: 20m or 12m 	Medium density	21.8 ha
Frame	Higher Density Residential	<ul style="list-style-type: none"> Density: 1 dwelling per 200m² site area 	Medium density	175.8 ha
	Urban Residential	<ul style="list-style-type: none"> Density: 1 dwelling per 400m² site area or minimum lot size 300m² 	Low-medium density	2,190.8 ha
	Urban Expansion	<ul style="list-style-type: none"> Subject to masterplanning 	–	759.9 ha
Hinterland	Higher Density Residential	<ul style="list-style-type: none"> Density: 1 dwelling per 200m² site area 	Medium density	0.3 ha
	Urban Residential	<ul style="list-style-type: none"> Density: 1 dwelling per 400m² site area or minimum lot size 300m² 	Low-medium density	128.8 ha
	Urban Expansion	<ul style="list-style-type: none"> Subject to masterplanning 	–	66.3 ha
Offshore Islands	–	–	–	–
				3,396.1 ha

appendix D (continued)

Table 2: Transitional (Superseded) Strategic Plan PDLUs offering 'significant' opportunities for higher density residential development

Preferred Dominant Land Use (PDLU)	Maximum density		Total area zoned
	Scheme provision	Category	
Commerical PDLU in CBD area	▪ Density: up to 1 dwelling per 50m ² in the CBD*	High density	136.7 ha
Higher Density Residential PDLU in the CBD Frame	▪ 1 dwelling per 100m ²	High density	26.8 ha
Higher Density Residential PDLU	▪ 1 dwelling per 200m ²	Medium density	894.4 ha
Urban Residential PDLU	▪ 1 dwelling per 400m ² site area or minimum lot size 300m ²	Low-medium density	3,608.1 ha
Future Urban PDLU	▪ Subject to future masterplanning	Medium density	798.2 ha
			5,434.2 ha

* The Commercial PDLU does not explicitly aim to achieve higher density residential development. The Central Business Zone under the Transitional (Superseded) Planning Scheme, however, specifically aims to achieve higher density residential development at a density of up to 1 dwelling per 50m²

Table 3: Sarina Shire Planning Scheme precincts offering 'significant' opportunities for higher density residential development

Preferred Dominant Land Use (PDLU)	Maximum density		Total area zoned
	Scheme provision	Category	
Town Zone – Residential Precinct (Sarina town only)	▪ Site Cover: 60% ▪ Minimum lot size: 450m ²	Low-medium Density	185.4 ha
Town Zone – Commercial Precinct	▪ Site Cover: 60% ▪ Minimum lot size: 500m ²	Low-medium Density	8.7 ha
			194.4 ha

Table 4: Mirani Shire Plan zones offering 'limited' opportunities for higher density residential development

Preferred Dominant Land Use (PDLU)	Maximum density		Total area zoned
	Scheme provision	Category	
Urban Residential	▪ Density: 1 dwelling per 450m ² (limited) ▪ Minimum lot size: 700m ²	Low-medium Density	259.4 ha

