

Granville and Maryborough North Further Investigation Areas

Strategic Planning Review
and
Structure Plan Concepts

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Executive Summary

Role of the Report

This Strategic Planning Review and Structure Plan Concepts Report has considered the suitability of and issues associated with urban development occurring in two identified Further Investigation Areas on the eastern and northern outskirts of Maryborough (at Granville and Maryborough North).

The review has outlined the strategic context for urban growth within the Fraser Coast Region and has summarised the State, regional and local planning frameworks currently applicable to development within the Granville and Maryborough North Further Investigations Areas.

The review has also summarised the existing characteristics of the FIAs and has identified a number of possible settlement pattern scenarios.

Report Conclusions

The key conclusions of the Strategic Planning Review and Structure Plan Concepts Report are as follows:-

The Preferred Pattern of Settlement and Opportunities for Urban Growth

- (a) There is no compelling or overriding need to make further urban land available in Maryborough at this time. The low level of current population growth does not create demand for substantial expansion of current urban boundaries.
- (b) The Department of Infrastructure and Planning's Broadhectare Study 2007 for Maryborough identifies that there is sufficient land currently available for residential development to accommodate between 27 and 38 years of population growth (based on high series and low series growth projections respectively). Although the Broadhectare Study has not been interrogated as part of this study (this was not within the scope of work and it was only made available towards the end of the process), it appears unlikely that a more detailed assessment of land supply based on market availability (i.e. the quantum of land actually available in the market place) would result in a substantially different finding.
- (c) When the importance of Maryborough is considered in a broader context and arguments about regional patterns of settlement and the desirability of locating a greater proportion of population in close proximity to major employment, transport and community facilities is considered there may be a case to contemplate expansion of the existing urban boundaries of Maryborough. This would take advantage of and support the existing economic, transport and social infrastructure that is already established in Maryborough as well as relatively higher levels of affordability. Maryborough also displays many of the characteristics that are now being sought after in the development of major new urban communities. Consolidating an existing settlement that displays these characteristics may well be a preferable and more efficient model of urban growth than one that is based upon the replication of similar characteristics elsewhere.
- (d) A scenario where a higher proportion of population growth is attracted to locate at Maryborough on the basis of its existing infrastructure and locational attributes is one element of a legitimate regional planning strategy. The rationale for this scenario is based around providing an attractive land supply for the growth of Maryborough to serve to

reduce some of the pressure that is currently being experienced for housing in Hervey Bay. Although, these areas currently serve different housing markets, evidence from other coastal regions suggest that there can be an overlap between coastal and hinterland markets once certain price points are achieved.

- (e) Decisions about expansion of the urban boundaries of Maryborough should however be made in the context of a broader discussion about the preferred pattern of settlement for the region. In this context, inclusion of the FIAs within the urban footprint should be tested as part of the Alternative Patterns of Development being prepared as part of the Regional Plan review process and/or as part of the Fraser Coast Land Use Strategy which is intended to commence in the near future. The possibility of opening up other areas for urban expansion should also be explored as part of a broader Fraser Coast Land Use Strategy. For example, should aviation operations cease at Maryborough Airport, due to the creation of a new regional airport in an alternative location, then the Airport land could be a highly suitable and preferable location for urban development. The Airport land is well located adjacent to the existing urban area of Maryborough and may be largely free from environmental and infrastructure constraints. The suitability of the Airport land for urban development compares favourably to the suitability of the Granville and Maryborough North FIAs. The consolidation or expansion of development opportunities in Tinana should also be explored.
- (f) Further, at a fundamental statutory level, development of the FIAs at this time would appear to be substantially in conflict with the Wide Bay Burnett Regional Plan and with elements of State Planning Policy 1/92, State Planning Policy 1/03, and the State Coastal Management Plan. Overriding need for urban development, which is required to address the conflict with the state planning policies, should be addressed by a broader assessment of need and demand as part of the Regional Plan review process and/or as part of the Fraser Coast Land Use Strategy.

FIA Features, Opportunities and Constraints

- (a) There are a range of important social, environmental, economic and infrastructure characteristics of each of the FIAs that need to be addressed when considering the future development of the Granville and Maryborough North FIAs.
- (b) The major constraints applying to the FIAs can be summarised as follows:-

Characteristic	Granville Further Investigation Area	Maryborough North Further Investigation Area
Waterways	Adjacent to the Mary River (100 metre buffer required) Contains some smaller waterways (30 metre buffer required)	Adjacent to Saltwater Creek (100 metre buffer required) Contains some smaller waterways (30 metre buffer required)
Wetlands	Contains local wetland systems (100 metre buffer required)	Contains local wetland systems (100 metre buffer required)
Flooding	Large portion is flood prone land	Large portion is flood prone land
Vegetation and Ecology	Network of remnant vegetation and ecological value to be protected and buffered	Network of remnant vegetation and ecological value to be protected and buffered

Characteristic	Granville Further Investigation Area	Maryborough North Further Investigation Area
Good Quality Agricultural Land	Majority of land is Good Quality Agricultural Land	Majority of land is Good Quality Agricultural Land
Road Infrastructure	Additional crossing of the Mary River, or a new road link across Tinana Creek, is required Future state-controlled road network is to be considered	Upgrade of Maryborough – Hervey Bay Road to 4 lanes may be required Future state-controlled road network is to be considered
Physical Infrastructure	Capability exists for connection to the existing infrastructure networks, although upgrades will be required	Capability exists for connection to the existing infrastructure networks, although upgrades will be required A large portion is subject of an effluent re-use irrigation area
Community Infrastructure	Additional community infrastructure required. No additional schools required.	No additional schools required.

- (c) Both of the FIAs are significantly constrained by valuable environmental features and the need for substantial infrastructure expansion to accommodate urban development. The Granville FIA has 218 hectares of unconstrained land (37% of the FIA). The Maryborough North FIA has only 181 hectares of unconstrained land (22% of the FIA). These unconstrained areas are typically fragmented throughout the FIAs. The ability of the unconstrained land to be developed needs to be considered in conjunction with the need for substantial infrastructure expansion and protection of valuable site features.

FIA Settlement Pattern Scenarios and Infrastructure Implications

- (a) Four settlement pattern scenarios have been developed to demonstrate different ways that the Granville and Maryborough North FIAs could be developed. Each scenario envisages varying development intensity, which is achieved through a greater or lesser modification of the FIA's valuable characteristics and constraints.
- (b) Scenario 1 for each FIA adopts a position of avoiding any urban development within the boundaries of the FIA, beyond that currently envisaged by the Maryborough City Plan.
- (c) Scenario 2 for each FIA recognises that each FIA is significantly constrained, and aims to restrict the impacts on valuable characteristics while allowing for only consolidated urban expansion to occur.
- (d) Scenario 3 for each FIA also recognises that each FIA is significantly constrained, but accepts that for urban development to occur limited modification of particular constraints must be allowed. Scenario 3 envisages substantial urban development of the FIA while bound by certain absolute constraints.
- (e) Scenario 4 for each FIA significantly modifies the constrained land in each FIA to allow extensive urban development to occur.
- (f) The key details of the four settlement pattern scenarios for each FIA are as follows:-

	Additional Urban Land, Dwellings and Population	Modification of Primary Constraints	Major Infrastructure Requirements
Granville Further Investigation Area			
Scenario 1	0 hectares 0 dwellings 0 people 0 years of supply ¹	Not Applicable	Not Applicable
Scenario 2	47 hectares 470 dwellings 1,220 persons 4.4 years of supply ¹	<ul style="list-style-type: none"> Nature conservation network (minor) Good Quality Agricultural Land (minor) 	<ul style="list-style-type: none"> New crossing of Mary River Minor physical infrastructure upgrades
Scenario 3	207 hectares 2,070 dwellings 5,382 persons 17.2 years of supply ¹	<ul style="list-style-type: none"> Nature conservation network (minor) Flood prone land (minor) Good Quality Agricultural Land (substantial) 	<ul style="list-style-type: none"> New crossing of Mary River; upgrade of Walkers Point Road Significant physical infrastructure upgrades
Scenario 4	320 hectares 3,200 dwellings 8,320 persons 29.6 years of supply ¹	<ul style="list-style-type: none"> Nature conservation network (minor) Flood prone land (substantial) Good Quality Agricultural Land (substantial) 	<ul style="list-style-type: none"> New crossing of Mary River; upgrade of Walkers Point Road Significant physical infrastructure upgrades
Maryborough North Further Investigation Area			
Scenario 1	0 hectares 0 dwellings 0 people 0 years of supply ¹	Not Applicable	Not Applicable
Scenario 2	45 hectares 450 dwellings 1,170 persons 4.2 years of supply ¹	<ul style="list-style-type: none"> Nature conservation network (minor) Flood prone land (minor) 	<ul style="list-style-type: none"> Upgrade of Boys Avenue; some intersection grading Minor physical infrastructure upgrades
Scenario 3	170 hectares 1,700 dwellings 4,420 persons 15.7 years of supply ¹	<ul style="list-style-type: none"> Nature conservation network (minor) Flood prone land (minor) Effluent re-use irrigation area (substantial) 	<ul style="list-style-type: none"> Upgrade of Boys Avenue; some intersection grading Upgrade of Maryborough – Hervey Bay Road to 4

¹ The 'years of supply' value is based on a take-up of land of 108 dwellings per year, which reflects the medium trend household production scenario in the Maryborough City Broadhectare Study 2007. Years of supply is calculated for the dwellings stated per scenario per FIA, and does not consider dwelling take-up in addition to the FIA scenario-specific figure. This value does not recognise that residential land is likely to be developed simultaneously elsewhere in Maryborough City (including, potentially, in the other FIA).

		<ul style="list-style-type: none"> • Good Quality Agricultural Land (substantial) 	<ul style="list-style-type: none"> lanes • Significant physical infrastructure upgrades
Scenario 4	265 hectares 2,650 dwellings 6,890 persons 24.5 years of supply ¹	<ul style="list-style-type: none"> • Nature conservation network (minor) • Flood prone land (substantial) • Effluent re-use irrigation area (substantial) • Good Quality Agricultural Land (substantial) 	<ul style="list-style-type: none"> • Upgrade of Boys Avenue; some intersection grading • Upgrade of Maryborough – Hervey Bay Road to 4 lanes • Significant physical infrastructure upgrades

- (g) Consolidated urban development of each of the FIAs can be realised with only limited modification to the FIA's valuable features and constraints. More intensive levels of urban development of each of the FIAs can only be achieved with extensive modification to the FIA's valuable features and constraints. Any modification of constraints, be it minor or extensive, will require justification, including demonstration of overriding need, for why urban development should be located in these areas.
- (h) Any scenario that envisages some intensification of urban development in the FIAs will require significant infrastructure creation and/or augmentation to adequately cater for future population growth.
- (i) Given the greater infrastructure commitment required to establish urban development in the Granville FIA than in the Maryborough North FIA, primarily due to the need for creation of a new river crossing, it is reasonable to conclude that development of the Maryborough North FIA is a more realistic opportunity to be contemplated at this stage.
- (j) Overall, it is possible to accommodate urban expansion into each of the FIAs but to do so requires a rationalisation of the valuable features that characterise that land and significant investments in infrastructure, the extent of which varies depending on the degree of urban expansion proposed. When a need for urban expansion is established, and considered in relation to the development of the whole of the Fraser Coast Region, scenario 2 could present an acceptable form of urban development. The adoption of Scenario 4, and to a lesser extent Scenario 3, in either of the Further Investigations Areas is considered unwise and contrary to the principles of good planning practice. In particular, allowing development to occur in areas subject to significant flooding constraints, which are accentuated when sea level rise is contemplated, is now widely accepted to be undesirable.

Key Findings and Recommendation

There is no evidence of need or other compelling case that warrants allowing expansion of the urban boundaries of Maryborough at this time.

Although it is acknowledged that a comprehensive and long term regional planning strategy may provide for the significant expansion of Maryborough in the future, such a strategy should look at a broader range of factors and consider the preferred future model of urban development for the whole of the Fraser Coast Region.

Although it would be possible (and potentially feasible) to develop either one or both of the Further Investigation Areas, there are significant risks and infrastructure costs associated with those scenarios that provide for comprehensive development. When a need for urban expansion is established, and considered in relation to the development of the whole of the Fraser Coast Region, scenario 2 could present an acceptable form of urban development. Scenario 4, and to a lesser extent Scenario 3, for both Further Investigation Areas are considered unwise and contrary to the principles of good planning practice.

If the partial or comprehensive development of the Granville Further Investigation Area and/or Maryborough North Further Investigation Area is ultimately a position supported by Fraser Coast Regional Council, such development should be undertaken in a strategic manner that recognises the opportunities presented by Maryborough as a major regional centre and acknowledges the key elements of Maryborough that contribute to its existing character and amenity. This report provides guidance in this regard.

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1. Introduction

1.1 Introduction and Purpose

This Report has been prepared for the Fraser Coast Regional Council by Humphreys Reynolds Perkins Planning Consultants in conjunction with Chenoweth Environmental Planning and Landscape Architecture (CEPLA), Holland Traffic Consulting and Opus Qantec McWilliam Engineers.

Consideration of strategic and structure planning issues for the Granville and Maryborough North Further Investigation Areas (the FIAs) has been necessitated by the recent lodgement of a number of development applications for extensive urban development on land outside the boundaries of the existing Maryborough urban area and the desire of Council to be proactive in considering the ongoing development of Maryborough as a major regional centre.

The purpose of this Report is to:-

- (a) determine whether there is a demonstrated need for the provision of new urban growth areas at Maryborough;
- (b) undertake a strategic planning assessment of the two FIAs and identify land that is potentially suitable for urban development;
- (c) develop and compare settlement pattern scenarios to determine how development in one or both of the Further Investigation Areas might be successfully integrated with the existing urban fabric of Maryborough.

It is anticipated that the Report will assist Council in refining its strategic planning and infrastructure frameworks for the Maryborough area and provide important information relevant to the Council's Land Use Strategy that is due to commence in the near future.

1.2 Identification of Further Investigation Areas

As described above, this Report relates to two Further Investigation Areas located immediately to the north and east of the existing Maryborough urban area.

The boundaries of the FIAs have been determined having regard to the existing strategic planning framework for Maryborough, identified communities of interest and the location of recent development applications received by Council, as well as other known proposals.

The location of the Further Investigation Areas within the context of the Fraser Coast Region and the Maryborough area is depicted on **Figure 1.1**.

1.3 Current Development Applications and Known Proposals

The Council is currently in receipt of 4 development applications and 1 pre-lodgement enquiry for major urban development within the Maryborough North and Granville Further Investigation Areas.

These development applications and enquiries all relate to proposals to establish moderate to large residential estates with associated local shopping, community and/or other facilities.

It is Council's position that not all of the development applications received have been 'properly made' pursuant to the requirements of the *Integrated Planning Act 1997* (IPA).

Table 1.1 (below) provides an overview of each of these development proposals while **Figure 1.3** depicts the land subject to each proposal.

In addition to these formal proposals, Council has also been approached by a number of parties with an interest in other land holdings within the two Further Investigation Areas. These 'informal' proposals are not described or shown on **Table 1.1** or **Figure 1.3**.

The high level of application activity and preliminary enquiry serves to highlight the extent of recent speculative interest in Maryborough as a regional development opportunity.

Table 1.1 Summary of Development Applications and Pre-lodgement Enquiries

Site Description (& Project Name)	Development Application Composition	Current IDAS Stage	Reference on Figure 1.3
Walkers Point Road, Granville (Della Vista Lakes)	Preliminary Approval for Material Change of Use of Premises (s3.1.6 of IPA) for residential development and Reconfiguring of a Lot to create two lots being Stage 1 and balance future stages.	Decision Stage (Applicant has granted extension of time until December 2008).	1
Walkers Point Road, Granville (Mary Harbour)	Preliminary Approval for Material Change of Use of Premises (s3.1.6 of IPA) for mixed use development and Development Permit for Operational Works to create artificial waterway	Application not properly made.	2
Boongoola Road, North Maryborough	Preliminary Approval for Material Change of Use of Premises (s3.1.6 of IPA)	Pre-lodgement proposal only.	3.

Site Description (& Project Name)	Development Application Composition	Current IDAS Stage	Reference on Figure 1.3
(Unnamed)	for park residential development (293 lots), gated lifestyle village and park		
Fazio Road, North Maryborough (Unnamed)	Development Permit for Material Change of Use of Premises for rural residential development and farm stay and Development Permit for Reconfiguring a Lot to create 27 lots.	Information and Referral Stage.	4.
Hibiscus Street and Maryborough – Hervey Bay Road (Hibiscus Gardens village)	Preliminary Approval for Material Change of Use of Premises for mixed use development comprising of lifestyle village, commercial activities A&B and Industry A and including 84 cluster housing lots, 187 small housing lots, 32 detached housing lots, 3 communal areas, manager's accommodation, residents storage facilities, community convenience store and a highway frontage commercial lot.	Information and Referral Stage.	5.

1.4 Project Approach and Methodology

This Report considers a range of different planning and technical issues to determine if and how development should be allowed to proceed in one or both of the FIAs.

The approach is based upon application of the following fundamental methodology:-

- (a) describing the context for urban growth management in the Fraser Coast and Maryborough areas and the applicable State, regional and local planning framework;
- (b) determining whether there is a demonstrated community need or other planning grounds to make available additional urban growth areas in Maryborough at this time or at some time in the foreseeable future;
- (c) identifying the interests of relevant state government agencies;

- (d) describing the environmental, economic and social characteristics of each of the FIAs to determine the areas of land that may be considered suitable for urban development; and
- (e) identifying and comparing a select number of future settlement pattern scenarios that would provide for the appropriate integration of urban development with the existing urban fabric and infrastructure capacities of Maryborough.

1.5 Key Deliverables

The key deliverables for this project are:-

- (a) recommendations about the level of need for new urban development areas at Maryborough;
- (b) recommendations about the suitability of the FIAs to support future urban development;
- (c) presentation of a number of possible models of urban settlement if one or both of the FIAs is identified as being suitable for urban development; and
- (d) recommendations about the essential urban infrastructure required to support urban development in the FIAs.

2. Strategic Context for Urban Growth

2.1 Introduction

This Chapter places the FIAs into strategic context and describes the historic and recent patterns of urban growth that have shaped the Fraser Coast sub-region.

It also describes the rationale for undertaking a specific planning project to consider the FIAs as possible extensions to the Maryborough urban area.

Understanding the drivers for urban development and the role that Maryborough serves as a key centre within the Region is fundamental to determining the function that the FIAs might serve in the future growth and development of Maryborough (and the sub-region) into the future.

This Chapter also describes the distinctive characteristics of Maryborough as a historic city and considers whether there is a need to apply specific planning and design criteria to protect the character of the City, should one or both of FIAs be considered suitable for development.

Finally, this Chapter describes structure planning as a process and its role in effective urban growth management.

2.2 The Fraser Coast

The Fraser Coast Regional Council was created in March 2008 as a result of implementation of recommendations by the Local Government Reform Commission released in July 2007.

The Regional Council area includes the entirety of three former local government areas (City of Hervey Bay, City of Maryborough and Shire of Woocoo) as well as Divisions 1 and 2 of what was previously the Shire of Tiaro.

The Fraser Coast Region covers an area of approximately 7,125 square kilometres and in 2007 had an estimated resident population of 92,389 persons.

It is currently the 13th largest local government area in Queensland (by population) and has experienced an average annual growth rate of 3.4% since 2001, making it one of the fastest growing local government areas outside of South East Queensland.

The Fraser Coast Regional Council includes the larger urban settlements of Hervey Bay and Maryborough as well as the smaller towns and settlements of Aldershot, Antigua, Aramara, Bauple, Burrum Heads, Brooweena, Dundathu, Eurong, Glenwood, Howard, Poona, Tiaro, Tinana, Tinnabar, Toogoom, Torbanlea and Tuan.

Medium series projections from the Queensland Department of Infrastructure and Planning indicate that the estimated resident population of the Fraser Coast is likely to increase to 139,960 by 2026. This represents a net increase of approximately 47,500 people at an average annual growth rate of approximately 1.7%.

The Fraser Coast has a diverse and developing economic base with industries including agriculture, manufacturing, tourism, commerce and building. The area also supports major road, rail, air and sea transport infrastructure as well as major retail facilities.

The Fraser Coast is characterised by a wide range of environmental settings and is an attractive place to live and visit and a region of increasing economic importance.

2.3 Hervey Bay

Hervey Bay is the largest urban settlement within the Fraser Coast Region and the area that has experienced the highest level of recent population growth. Since 2001, Hervey Bay has experienced an average annual population growth rate of 3.9%.

Population projections undertaken by the Australian Bureau of Statistics², which envisage greater population growth than DIP's projections, have identified that based on current growth rates and historical patterns and trends Hervey Bay's 2007 population of 57,914 is estimated to increase to 112,883 by 2027.

A major tourist destination and gateway to Fraser Island and the southern part of the Great Barrier Reef, Hervey Bay offers an affordable coastal lifestyle in a sub-tropical setting that is particularly attractive to retirees and families.

As with many of Queensland's coastal urban areas that have borne the brunt of the 'sea change phenomenon', Hervey Bay is experiencing the development and infrastructure pressures arising from rapid population growth and increasing popularity as a major coastal resort and residential destination.

2.4 Maryborough

Maryborough is located approximately 30 kilometres to the south-west of Hervey Bay and is the traditional regional centre for the Fraser Coast area. The second largest urban settlement within the Region, Maryborough has experienced a comparatively low level of recent population growth. Since 2001, Maryborough has experienced an average annual population growth rate of 0.6%.

Population projections undertaken by the Australian Bureau of Statistics¹, which envisage greater population growth than DIP's projections, have identified that based on current growth rates and historical patterns and trends Maryborough's 2007 population of 27,276 is estimated to increase to only 30,384 by 2027.

Despite Maryborough's low population growth, building approvals, leading to dwelling commencement, has historically been relatively high. Between 1997 and 2004, the population increased by 754 persons while 854 new dwelling approvals were issued. While the reason for high building approvals needs to be further scrutinised, there may be a position to make some additional urban land available

² Australian Bureau of Statistics on behalf of the Commonwealth of Australia (Department of Health and Ageing), 2008, "Statistical Local Area Population Projections 2007 to 2027 Revised", www.health.gov.au.

in Maryborough based on demand for new dwelling construction, despite limited population growth.

Although Maryborough has not experienced the same population growth pressures as Hervey Bay it has benefited indirectly from the popularity of its sister City. Accommodating regional offices of government and major manufacturing and rural service industries, Maryborough provides a significant proportion of the administrative and business functions necessary to support a growing regional economy.

Maryborough is home to EDI Rail, formerly Walkers Limited, a heavy engineering business which has built much of the rolling stock and locomotives for Queensland Rail. It also accommodates a number of other manufacturing industry headquarters including Hyne and Son, one of the largest producers of natural timber products for Australia.

Tourism also plays a significant role in the local economy with Maryborough recognised as one of Queensland's most notable heritage cities. The City has successfully invested in this brand and in recent years has successfully completed a number of heritage and cultural projects that have further reinforced its credentials. The existence of a large stock of traditional Queensland housing in the neighbourhoods surrounding the City centre, much of which has been retained or renovated, has also reinforced the integrity of the City's character.

A number of other projects planned for Maryborough that may have further contributed to its role as a regional employment centre, have been discontinued or are facing uncertainty. These include the proposed Maryborough Marine Industry Precinct, whose potential for success is currently under scrutiny, and the proposed Queensland Flight Training Centre to be located at Maryborough Airport, which has recently been abandoned. The uncertain future of these major economic stimulus proposals may affect the impetus for significant population growth in Maryborough.

Another important consideration in the context of urban growth is the future operation of the Maryborough Airport. With the recent amalgamation of former Hervey Bay City Council and former Maryborough City Council, the new Fraser Coast Regional Council is understood to be investigating the need to maintain two regional airports. It is understood that investigation into the rationalisation of aviation facilities might occur, with the consolidation of a single airport, or creation of a new separate facility, likely to form a critical part of that investigation. The future use of potentially obsolete Maryborough Airport land is an important consideration in the context for the growth of Maryborough.

2.5 Historic Patterns of Urban Growth

The Fraser Coast was first settled by Europeans in the early to mid 19th century.

Maryborough was the first settlement to be established in the Region when European settlers were drawn to the rich alluvial plains and the deep natural harbour offered by the Mary River. It quickly became one of Australia's most significant ports for the export of wool, cotton, timber, sugar (and then gold) and the major urban settlement in Queensland.

Hervey Bay became a favourite holiday destination for residents of Maryborough and surrounding areas and a number of villages (Point Vernon, Pialba, Scarness, Torquay and Urangan) were established along the coastline in the latter part of the 19th century.

In 1896 a railway line was constructed from Maryborough to Pialba. The line was extended to Urangan in 1913 and the Urangan Pier was built in 1917 to facilitate the export of sugar and later coal.

By the 1920's the Hervey Bay area was rapidly expanding due to continued growth in primary industries and investments in transport infrastructure.

Regular air services from Brisbane commenced in 1930. The 1930's also saw the completion of a fully constructed bitumen road connecting Maryborough and Urangan.

As population growth and development pressure continued to increase in the 1950's and 1960's, the coastal townships of Pialba, Scarness, Torquay and Urangan began to merge into a single urban area – Hervey Bay.

Despite periodic cyclical declines in the 1980's and 90's, Hervey Bay has grown rapidly over the last 30 years to become a major tourist destination. Over the same period, Maryborough has experienced relatively minor increases in population with some periods of static population or population decline.

Although Hervey Bay now attracts the majority of the Region's population growth, Maryborough retains many of the regional administrative, cultural and employment activities required to support a regional economy.

There is a strong and mostly complementary association between these two major urban areas.

2.6 Current Urban Growth Fronts

The most significant greenfield urban growth areas within the Region are currently located in and around Hervey Bay:-

- (a) at Doolong Flats/Ghost Hill Ridge on the southern outskirts of the existing Hervey Bay Urban Area; and
- (b) at Eli Waters/Dundowran on the western outskirts of the existing Hervey Urban Area.

There are also a number of smaller sites within the fabric of the existing Hervey Bay urban area that are subject to active development applications, have current approvals or for which urban structure planning concepts have been prepared. These areas are located at:-

- (a) Point Vernon South;
- (b) Eli South;
- (c) Urraween West;
- (d) Kuwungan North East;

- (e) Torquay;
- (f) Urangan Wedge; and
- (g) Highfields East.

In addition to these greenfield areas, Hervey Bay has also experienced significant infill growth on sites in the traditional coastal urban villages of Scarness, Torquay, Urangan and Pialba.

The only existing urban greenfield area in Maryborough that is currently experiencing ongoing urban development is Tinana located to the south of the Mary River at the southern entrance to Maryborough. Tinana is estimated to provide a majority of Maryborough's greenfield urban land stock under the existing planning scheme. Urban development in other parts of Maryborough generally occurs on existing infill lots or on small greenfield sites within the urban fabric.

Within the other towns and villages of the Fraser Coast Region there are only limited opportunities for future urban development.

2.7 Opportunities for Urban Expansion

In Maryborough there exist apparent opportunities for urban growth within the existing urban fabric. The Broadhectare Study 2007 for the Wide Bay Burnett Region, prepared by the Planning Information and Forecasting Unit of the Department of Infrastructure and Planning, has measured the land supply of Maryborough within the planning scheme for future residential development and its capacity to house resident population. All land identified possesses the characteristics of being suitable and potentially available for residential development due to appropriate zoning in the current planning scheme.

The Broadhectare Study 2007 identifies that in Maryborough there exists 568 hectares of broadhectare land available for residential development. Of that land 196 hectares is suitable for urban residential development and 372 hectares is suitable for lower density residential development (with an average lot size greater than 4,000sqm, generally defined as a rural residential allotment). The study advises that broadhectare land currently available can potentially yield 2,877 dwellings.

The dwelling yield and timeframes for development of that land are presented in **Table 2.1** below.

Table 2.1 Maryborough City Broadhectare Stock Dwelling Yields

Dwellings per hectare	Total stock (ha)	Dwelling Yield					Total dwelling yield
		0-2 years	2-5 years	5-10 years	10+ years	Not Specified	
Low Density Residential (being Rural Residential)	372	289	60	194	1	181	725

Urban Residential	196	619	163	347	0	1,023	2,152
Total	568	908	223	541	1	1,204	2,877

Further, the Broadhectare Study 2007 identifies that there are also 498 lots of existing vacant land stock (as compared to broadhectare land) in Maryborough, as at May 2007.

Overall, broadhectare land and existing vacant land stock can yield approximately 3,375 lots that can be potentially utilised for dwelling construction.

The average household size for occupied private dwellings in the area of the former Maryborough City at the time of the 2001 census was 2.6 and 1.4 persons for houses and attached dwellings respectively. The average household size across all dwelling types was 2.4 persons per household. A review of the 2006 census data revealed that average dwelling sizes have not changed in Maryborough since 2001.

Based on the average dwelling size the available land for residential development identified by the Broadhectare Study 2007 (broadhectare land and existing vacant land stock) could accommodate over 8,000 people.

Based on population projections released by the Department of Infrastructure and Planning in 2006, the area of the former Maryborough City was projected to have between 26,300 (low series) and 27,100 (high series) people by 2016. This represents a population growth over the 2006-2016 period of between 430 (low series) and 1,150 (high series).

The Broadhectare Study states that to determine whether there is an adequate supply of residential land to meet expected demand requires an assessment of future demand. The Broadhectare Study recognises that one method to determine future demand for residential land and dwellings is linked to household projections. Three scenarios of household projections have been used based on the Department of Infrastructure and Planning's population projection series – low, medium and high. An allowance has been made for a continual but gradual decline in average size into the future. Based on these scenarios the Broadhectare Study advises that the amount of land supply in terms of years remaining is:

- low series scenario equates to 38 years supply;
- medium series scenario equates to 31 years supply; and
- high series scenario equates to 27 years supply.

The outcomes of the Broadhectare Study 2007 for Maryborough have not been interrogated as part of this project (this was not within the scope of work). It is recognised that some of the assumptions in the Broadhectare Study, particularly relating to the extrapolation of trends for population projections, do not consider deliberate planning strategies for redirecting growth to Maryborough. It is also recognised that while land might be identified by the Broadhectare Study as available for and capable of future development, in reality, for any number of reasons, the land might not be brought to market. These issues need to be further

explored in Council's Land Use Strategy that applies to the whole Regional Council area. However, although the Broadhectare Study has not been scrutinised as part of this study it is unlikely that a more detailed assessment of land supply based on market availability (i.e. the quantum of land actually available in the market place) would result in a substantially different finding.

The Broadhectare Study 2007 identifies the locations where vacant, appropriately allocated land is available for future residential development. These areas are primarily located at Tinana, Maryborough West, Oakhurst, Baddow and Bell Hilltop (south), as well as infill locations in the existing urban area. The Broadhectare Study 2007 map for Maryborough City has been included in **Figure 2.1**.

There are alternative locations not considered by the Broadhectare Study that may also be suitable for residential development at some stage in the future, including:

- Maryborough Airport – If the aviation operations at Maryborough Airport were to cease then it would potentially release for urban development a large area adjacent to the existing urban area of Maryborough and with only limited environmental and infrastructure constraints; and
- Bell Hilltop (north) – Fraser Coast Regional Council (formerly Maryborough City Council) commenced an investigation in 2005 into the suitability of the Bell Hilltop area for urban residential development. While the southern part of the Bell Hilltop study area has been included in the Broadhectare Study 2007 the northern part of the study area, which was identified as being suitable, in part, for urban development, has not been included. It is understood that the masterplanning exercise being undertaken for Bell Hilltop has been put on hold by Fraser Coast Regional Council and that there is no intention to move forward on development in the short term. Notwithstanding, the Bell Hilltop area remains an area of land that is potentially suitable for urban development. The Bell Hilltop area has been included in the Maryborough North FIA.

2.8 Rationale for Considering New Urban Areas

The presence of one or more development applications in any particular area does not in itself establish the justification for the approval of major new growth in that area. A conventional projected population growth based need assessment model also does not establish a case for the release of large areas of new urban land in Maryborough. As described earlier in this report, Maryborough has only experienced relatively low levels of population growth over the last decade and there is no empirical evidence that demand for housing is currently unmet. In fact, the results of the Department of Infrastructure and Planning's Broadhectare Study 2007 for Maryborough reveal that there is extensive land available for residential growth in areas already allocated for urban development.

However, in this case there is a broader planning rationale that justifies investigations into the two FIAs. In particular, it is noted that:-

- (a) The current Fraser Coast (Maryborough City) Planning Scheme was developed in the late 1990's and gazetted in April 2000. Much of the data upon which the planning scheme is based was prepared even earlier than

this (1997). Since this time there have been significant changes in the characteristics of the region and local area but the existing planning framework has not been reviewed to confirm its continuing relevance;

- (b) Maryborough is a major administrative and employment centre within the Fraser Coast Region and it is important that sufficient urban land supply be provided to support its ongoing growth and development. Although population growth for Maryborough has been comparatively low in recent years there is a strong case for any additional urban land supply to be provided close to this major regional centre where tertiary employers are located, higher order goods and services are available and any new population within the catchment can serve to reinforce the sustainability of business and employment activities;
- (c) Despite Maryborough's low population growth, building approvals, leading to dwelling commencement, has historically been relatively high. There may be a position to provide additional urban land in Maryborough based on demand for new dwelling construction and despite limited population growth;
- (d) The existing Maryborough urban land supply is generally characterised by smaller land holdings that can fulfil only a certain market demand. There are currently limited opportunities for the establishment of larger master planned urban communities which may be seen to serve a legitimate role in the housing market and which may provide a more efficient basis for the provision of urban infrastructure;
- (e) A preliminary assessment of the development applications lodged with Council has identified that there are a number of unresolved and uncertain issues. These are major development proposals with significant implications for the future urban form of Maryborough. Although the development applications themselves may provide some technical information about their localised effects, there is no framework by which to assess the merits of the development applications having regard to strategic planning and long term infrastructure considerations. Such a framework can only be established by undertaking an informed planning study for the identified areas of interest.

2.9 Principles for Development in New Urban Areas

It is now generally acknowledged that the most sustainable urban communities demonstrate the following characteristics:-

- (a) compact urban forms that minimise impacts on natural resources and environmental values;
- (b) low levels of water and energy consumption and waste generation, and high levels of reuse of natural resources and waste products;
- (c) minimal physical, chemical, waste and nutrient impacts on the natural environment;

- (d) buildings that are designed and oriented to maximise climatic benefits and reduce the demand for energy;
- (e) a well protected system of wildlife habitats and open space;
- (f) well-designed activity centres focused around public transport hubs;
- (g) efficient infrastructure;
- (h) well-utilised public transport;
- (i) high levels of accessibility to activities and services through transport and communication systems;
- (j) vibrant communities with a strong sense of place and local identity;
- (k) healthy, safe communities and high levels of physical activity;
- (l) respect for diversity and cultural heritage; and
- (m) a diversified and dynamic economy providing local employment opportunities.

In addition to these more general characteristics, it is recognised that Maryborough has a number of local attributes that should also be taken into account when considering planning for future growth areas.

As described earlier, Maryborough has a strong association with its riverfront setting and its history as one of Queensland's oldest cities. The existing pattern of streets and the prevailing built form are also reflective of this history and establish a rich character that distinguishes Maryborough from most other regional centres in Queensland.

The local community values this history and is proud of the significant effort that has been made to preserve and re-use its heritage. Council itself has undertaken a number of revitalisation projects and has been proactive in supporting other projects that have reinforced and added to the character and identity of the City.

The vision for Maryborough as articulated through the current planning scheme is for *'Maryborough to be a dynamic, attractive and economically viable regional centre, combining its 19th century charm with modern cultural and recreational facilities and services, for both the community and tourists'*.

This vision provides a useful reference for considering the planning and design principles that should be applied to the planning of the Further Investigation Areas.

The following provides a preliminary list (which is neither comprehensive nor conclusive) of possible planning and design principles that have been identified having regard to the valuable features of Maryborough and taking account of the risks and opportunities potentially offered by urban development in the FIAs:-

- (a) any new urban development area should reinforce the role of Maryborough City Centre as the primary location in Maryborough for shopping, commercial, entertainment, visitor accommodation and government services;

- (b) any new urban development area should protect and reinforce the environment and amenity of the Mary River and should minimise importing of artificial themes or concepts that diminish the City's historic or cultural association with the River;
- (c) any new urban development area should incorporate models of neighbourhood design that are reminiscent of traditional Queensland towns and that reinforce an emphasis on the use of active transport modes;
- (d) any new urban development area should have regard to elements of the architectural heritage of Maryborough, including older Queensland vernacular design;
- (e) any new urban development area should be of a scale that sits comfortably with the existing urban fabric of Maryborough and provides a sense of integration and organic growth.

2.10 Structure Planning Generally

Structure planning is a tool for managing the effects and demands of development in an integrated, holistic and orderly way. Structure Plans are particularly useful when there is a need or desire to:-

- (a) provide integrated management of complex environmental issues within a defined geographical area;
- (b) coordinate the staging of development over time, particularly where large areas are to be developed;
- (c) ensure co-ordinated and compatible patterns and intensities of development in order to manage the effects of development across parcels of land in different ownerships, and between existing and proposed areas of development;
- (d) provide a co-ordinated approach to infrastructure provision and other services across land parcels in different ownerships; and
- (e) provide higher levels of certainty to developers, the council, the public and affected parties regarding the layout, character and costs of development in an area earmarked for growth or redevelopment.

Structure plans provide a framework to guide the development of a particular area by defining the future development and land use patterns, areas of open space, the layout and nature of infrastructure (including transportation links), and other key features for managing the effects of development.

Structure plans generally comprise one or more maps, plans or diagrammatic representations of the proposed layout, features, character and links for areas being developed or redeveloped.

The maps or plans do not typically go into such detail as to define individual lot boundaries or the physical form of buildings and structures. The maps, plans or representations are usually supported by text explaining the background to the

issues which initiated the structure plan and the management approaches to be used to deal with those issues.

Features that may be represented in, and managed through, a structure plan, include:-

- (a) the type and location of land uses that will be permitted, including development type, density and staging;
- (b) multi-modal transport links and connectivity;
- (c) the location, type, scale and staging of infrastructure required to service an area, including stormwater, water and sewerage;
- (d) landscape character and amenity;
- (e) natural hazards;
- (f) the provision of community facilities and reserves; and
- (g) the protection of sites, features or values (cultural, ecological, historical or amenity related).

A simplified approach to structure planning has been adopted to determine settlement pattern concepts for the Further Investigation Areas and used to inform the recommendations of this report. Further information about the application of the process of structure planning to the FIAs is described in **Chapter 8** of this Report.

2.11 Project Implications

Maryborough is a major regional centre in the Fraser Coast Region. Although it has not experienced rapid population growth in recent decades, it provides many of the principal administrative, health and employment functions necessary to support an area of increasing economic importance.

Australian Bureau of Statistics population projections based on current growth rates and historic patterns and trends indicate that the population of Maryborough is expected to remain relatively steady between 2007 and 2027, increasing by only approximately 11% from 27,276 to 30,384. In comparison, the population of Hervey Bay is expected to increase by almost 100% over the same period, from 57,914 to 112,883.

The Department of Infrastructure and Planning's Broadhectare Study for Maryborough identifies that there is sufficient broadhectare land and existing vacant stock suitable and currently available for residential development. The Broadhectare Study identifies that existing available land is able to accommodate between 27 and 38 years of population growth, depending on future growth rates.

Based on current population projections, existing demand for housing and examination of the available land supply by the Department of Infrastructure and Planning in the Broadhectare Study 2007, it is difficult to see an immediate need to make additional land available for urban development at Maryborough.

However, this assessment must be treated with some caution because:

1. The Broadhectare Study has not been interrogated as part of this study (this was not within the scope of work) so the veracity of the study's findings have not been tested. Better information about the nature of the existing land stock is required to undertake a more detailed assessment of land supply based on market availability, although it is unlikely that a more detailed assessment would result in a substantially different finding;
2. When the importance of Maryborough is considered in a broader context and arguments about regional patterns of settlement and the desirability of locating a greater proportion of regional population in close proximity to major employment, transport and community facilities is considered there may be a case to contemplate expansion of the existing urban boundaries of Maryborough. This would take advantage of and support the existing economic, transport and social infrastructure that is already established in Maryborough as well as take advantage of the relatively higher levels of affordability. Maryborough also displays many of the characteristics that are now being sought after in the development of major new urban communities. Consolidating an existing settlement that displays these characteristics may therefore be a preferable and more efficient model of urban growth than one that is based upon the replication of similar characteristics elsewhere; and
3. A scenario where a higher proportion of population growth is attracted to locate at Maryborough on the basis of its existing infrastructure and locational attributes is one element of a legitimate regional planning strategy. The rationale for this scenario is based around providing an attractive land supply for the growth of Maryborough to serve to reduce some of the pressure that is currently being experienced for housing in Hervey Bay. Although, these areas currently serve different housing markets, evidence from other coastal regions suggest that there can be an overlap between coastal and hinterland markets once certain price points are achieved.

The above deliberations serve to indicate that a strategic review of the Maryborough urban growth boundary is relevant and timely. That strategic review should focus on the future growth of all parts of Maryborough, including the potential for alternative growth fronts to the Granville and Maryborough North FIAs (such as obsolete airport land and opportunities in Tinana).

3. Description of the Further Investigation Areas

3.1 Introduction

This Chapter provides a general description of the Granville and Maryborough North Further Investigation Areas and their key features.

A more detailed description of each of the FIAs is provided in **Chapter 6** of this report.

3.2 Granville Further Investigation Area

The Granville Further Investigation Area is located approximately 2 kilometres to the east of the Maryborough Central Business Area and adjoins the existing residential neighbourhood of Granville. It has an area of approximately 595 hectares and is almost rectangular in shape.

It includes a number of large rural lots located either side of Walkers Point Road extending from Arnaud Street in the south to Eden Street West in the north. The western boundary of the FIA is established by the Mary River. The eastern boundary of the FIA is established by State land and private property.

Key features of the Granville FIA include:-

- (a) its proximity to central Maryborough;
- (b) its proximity to the existing residential neighbourhood of Granville;
- (c) its wide frontage to the Mary River and the River's flooding influence;
- (d) its accessibility to Walkers Creek Road as a major rural collector route;
- (e) its large size, regular shape and comparatively low level of land fragmentation;
- (f) its relative flat to gently undulating topography;
- (g) its current use for predominantly horticultural or general rural activities; and
- (h) the existence of areas of remnant vegetation in the southern, central and eastern parts of the FIA.

3.3 Maryborough North Further Investigation Area

The Maryborough North Further Investigation Area is located approximately 3 kilometres to the north of the Maryborough Central Business Area. It is bounded generally by the neighbourhoods of Aubinville and St Helens to the east, the neighbourhoods of Fairfield and Baddow to the south, the Maryborough Rifle Range

and private property to the west and Saltwater Creek to the North. It has an area of approximately 810 hectares and is irregular in shape.

It includes a large area of rural land as well as areas currently used for community, industrial and rural residential purposes. Much of the rural land in the FIA is allocated as an Effluent Re-use Irrigation Area for the Maryborough Waste Water Treatment Plant.

Key features of the Maryborough North Further Investigation Area include:-

- (a) its proximity to Maryborough Central Business Area;
- (b) its proximity to the existing residential neighbourhoods of Fairfield, Aubineville, St Helens and Baddow;
- (c) its relationship to the Mary River and Saltwater Creek and the River's flooding influence;
- (d) its accessibility to Saltwater Creek Road (Maryborough/Hervey Bay Road) as a State controlled road;
- (e) its large area, irregular shape and relatively fragmented pattern of land subdivision;
- (f) its current use for a range of horticultural and general rural activities as well for a range of other non-urban land uses; and
- (g) the existence of pockets of remnant vegetation in the southern, eastern and western parts of the FIA.

4. State and Regional Planning Framework

4.1 Introduction

This Chapter describes the State and regional planning framework relevant to the future planning of the FIAs.

It includes a summary of relevant legislation, regional planning instruments and current State Planning Policies.

The legislation referred to in this Chapter is:-

- (a) the *Integrated Planning Act 1997*;
- (b) the *Vegetation Management Act 1999*; and
- (c) the *Nature Conservation Act 1992*.

Other legislation may also be of some relevance however these Acts are considered to establish the primary legislative framework.

The Regional Plan referred to in this Chapter is the Wide-Bay Burnett Regional Plan 2006-2026.

The State Planning Policies referred to in this Chapter are:-

- (a) the State Coastal Management Plan;
- (b) State Planning Policy 1/92 – Development and the Conservation of Agricultural Land;
- (c) State Planning Policy 1/02 – Development in the Vicinity of Certain Airports and Aviation Facilities;
- (d) State Planning Policy 2/02 - Planning and Managing Development Involving Acid Sulfate Soils;
- (e) State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide; and
- (f) State Planning Policy 1/07 – Housing and Residential Development.

It is acknowledged that the Queensland planning environment is dynamic and currently experiencing a period of rapid change. The legislation, regional planning instruments and State Planning Policies referenced above may be superseded in the near future. Where change is likely to the State and Regional Planning framework this has been identified in the relevant sub-section below.

4.2 Integrated Planning Act (IPA) 1997

The *Integrated Planning Act 1997* (IPA) provides the foundation for Queensland's planning and development assessment legislation.

The Department of Infrastructure and Planning is currently undertaking a review of the IPA that will lead to the preparation of new planning legislation to be available in early to mid 2009.

The purpose of the IPA is to seek to achieve ecological sustainability by:-

- (a) coordinating and integrating planning at the local, regional and State level;
- (b) managing the process by which development occurs; and
- (c) managing the effects of development on the environment (including managing the use of premises).

The main elements of the IPA include:-

- (a) local government planning schemes as the main planning and development assessment instrument;
- (b) a single Integrated Development Assessment System (IDAS) for all development related assessment by local and State governments;
- (c) infrastructure planning; and
- (d) private certification.

4.2.1 Planning Schemes and Amendments

Chapter 2 of the IPA identifies the key concepts for planning schemes and establishes the legislative framework for their preparation and amendment.

Schedule 1 sets out the process stages that must be followed in order for a planning scheme or amendment to take effect. These are:-

- (a) Stage 1 – preliminary consultation and preparation stage;
- (b) Stage 2 – consideration of State interests and consultation stage; and
- (c) Stage 3 – adoption stage.

One outcome of this report may be a recommendation for Council to prepare a planning scheme amendment in respect to one or both of the FIAs. If so, this report may provide useful background material to inform the plan-making process.

4.2.2 Development Applications and Assessment Processes

Chapter 3 of the IPA incorporates the IDAS and sets out the process for the lodgement and assessment of development applications.

As described in **Section 1.3** of this Report, most of the current development applications lodged in the FIAs are for preliminary approval overriding the planning scheme pursuant to S.3.1.6 of the IPA.

The IPA includes specific decision making rules for the assessment of this type of development application. The IPA also includes accountability provisions (S.3.5.15) that require an Assessment Manager to identify the 'sufficient grounds' that have been determined to support approval of a development application where that development application is in conflict with a planning scheme.

Apart from the relevant matters specified under the IPA, Council's assessment of the current development applications may be informed by the recommendations of this report.

4.3 Vegetation Management Act (VMA) 1999

The *Vegetation Management Act 1999* (VMA) seeks to preserve remnant vegetation by phasing out broad scale rural land clearing and regulating land clearing in urban areas.

The purpose of the VMA is to regulate the clearing of vegetation in a way that:-

- (a) conserves remnant endangered, of concern and not of concern regional ecosystems;
- (b) conserves vegetation in declared areas;
- (c) ensures that clearing does not cause land degradation;
- (d) prevents the loss of biodiversity;
- (e) maintains ecological processes;
- (f) manages the environmental effects of clearing; and
- (g) reduces green house gas emissions.

The purpose of the VMA is achieved mainly by:-

- (a) providing applicable codes for the assessment of vegetation clearing applications under the IDAS;
- (b) declaring protected areas; and
- (c) enforcing vegetation clearing provisions.

The VMA is particularly relevant to the development applications within the FIAs as these applications are all located on land included within the Rural Precinct.

The clearing of remnant vegetation outside of designated urban areas is constrained by the VMA and is generally required to be avoided as part of any urban development proposal.

Further information relating to the vegetation and other environmental values present within the FIAs is provided in **Chapter 7**.

4.4 Nature Conservation Act 1992

The *Nature Conservation Act 1992* (NCA) seeks to conserve nature values by identifying and managing protected areas, preserving biological diversity and promoting ecologically sustainable development.

The purpose of the NCA is achieved mainly by:-

- (a) gathering, researching and disseminating information on nature, identifying critical habitats and areas of major interest, and encouraging the conservation of nature by education and co-operative involvement of the community;
- (b) dedication and declaration of areas representative of the biological diversity, natural features and wilderness of Queensland as protected areas;
- (c) managing protected areas;
- (d) protecting native wildlife and its habitat;
- (e) promoting ecologically sustainable use of protected wildlife and areas;
- (f) recognising the interest in nature of Aborigines and Torres Strait Islanders and their co-operative involvement in nature conservation; and
- (g) co-operative involvement of landholders in biodiversity management.

The Nature Conservation (Koala) Conservation Plan 2006 (the Koala Plan) established under the NCA came into effect on 2 October 2006. This Plan addresses the key threats facing koalas and sets out strategies to stop the decline of koala numbers and set in train the species' recovery. Issues addressed in the Koala Plan include habitat protection and vegetation clearing associated with development.

Although the Nature Conservation Act is unlikely to have a direct influence on the future planning of the FIAs, the identification of areas of koala habitat and opportunities to implement strategic conservation measures are relevant matters that require consideration.

Further information relating to the Koala habitat and other environmental values present within the FIAs is provided in **Chapter 7**.

4.5 Wide Bay-Burnett Regional Plan 2006-2026

The Wide Bay-Burnett 2026 Regional Plan is a regional growth management strategy which covers the 6 Council areas in the Wide Bay-Burnett Region.

The Regional Plan was launched in May 2007 and is a non-statutory planning instrument that provides principles and policy actions to guide government agencies and peak community bodies regarding the long term development of the Wide Bay Burnett region.

Unlike the South-east Queensland Regional Plan it does not currently include any regulatory component, although this may change in the near future. The Regional Planning Advisory Committee has recently commenced a process to augment the Regional Plan to include a statutory 'Urban Footprint' Regional Land Use Category and is undertaking a number of background planning and infrastructure studies to inform this process.

Although there is not yet a formal timeframe for when the updated Regional Plan may commence, it is anticipated that a Preferred Pattern of Development for the Region (the precursor to the delineation of an Urban Footprint) will be available by

the middle of 2009. The recommendations of this report are likely to be relevant to the evolution of the Preferred Pattern of Urban Development.

Further details of consultation held with the Department of Infrastructure and Planning in relation to the ongoing regional planning process are contained in **section 6.2** of this report.

Implementation of the current Regional Plan is intended to be undertaken primarily through existing structures and processes. The current Regional Plan therefore does not have a formal role in the development assessment process.

Although not a statutory planning instrument, IPA regards matters addressed in local government planning schemes for which the Regional Plan makes a recommendation as being regional dimensions of the planning scheme and the local government and Minister must be satisfied that the regional dimensions have been coordinated and integrated into the local government's planning scheme.

Accordingly, the vision and policy principles of the Regional Plan are a relevant consideration in the future planning of the Further Investigation Areas.

The overall vision of the Regional Plan is...

The quality of our region's relaxed, balanced lifestyle is widely known and distinguishes the Wide Bay Burnett from other places in Queensland and Australia.

It is characterised by ready access to a well managed natural environment which underpins a robust regional economy. This in turn supports better employment opportunities, a range of community services, and a choice of affordable housing options that satisfy the community's needs.

People choose to live in or visit the Wide Bay Burnett because it has a strong sense of community and a distinct identity based on the ability of the region to manage its natural resources, settlement pattern, and economy.

Key elements of the vision for People and Settlement in 2026 particularly relevant to the future use and development of the Granville and Maryborough North FIAs are as follows:-

Developments in the region meet standards of best practice in the design and delivery of community services, utility and transport infrastructure.

Settlement is planned to ensure it is in harmony with natural systems and does not encroach on natural resources that are important to the region's economy and environment.

Residential and commercial developments are appropriately located and designed to minimise potential environmental, economic and social impacts to protect identified and potential good quality agricultural land, to minimise urban sprawl and to maximise opportunities for energy savings.

There remains a choice of lifestyles in the Wide Bay Burnett region, with a balance between rural and urban residential living opportunities at a range of different scales.

The arrangement and density of commercial and residential development is conducive to providing an effective public transport and freight system for the movement of people and goods both within and between centres, and throughout the region.

The richness of the Wide Bay Burnett's heritage is recognised and the conservation of natural features, individual buildings and streetscapes contributes to the character and identity of the region's centres and rural areas.

Both of the Further Investigation Areas are currently identified as being Preferred Rural Areas on the Regional Plan Preferred Settlement Pattern Map. They are also identified as having areas of good quality agricultural land and remnant vegetation on the Natural Economic Resources and the Environmental Protection Value Map respectively.

The Regional Plan Preferred Settlement Pattern Map is provided as **Figure 4.1** to this Report.

4.6 State Coastal Management Plan

The State Coastal Management Plan provides a policy framework for the protection and management of Queensland's 'coastal zone'.

The coastal zone refers to 'coastal waters and all areas to the landward side of coastal waters in which there are physical features, ecological or natural processes or human activities that affect, or potentially affect, the coast or coastal resources'. The determination of the coastal zone depends on the existence of a clear link with the coast or coastal resources.

Under the *Coastal Protection and Management Act 1995* the State Coastal Management Plan has the status of a State Planning Policy for the purpose of making and amending planning schemes and assessing and deciding development applications.

One of the development applications lodged with Council in the Granville Further Investigation Area provides for a direct link with the Mary River by proposing the establishment of water based development incorporating a marina, created waterways and water-side development.

Other development proposals or concepts that rely upon access to or otherwise impact upon the Mary River would also trigger the application of the State Coastal Management Plan. Accordingly, the State Coastal Management Plan is a relevant consideration in the future planning of the Further Investigation Areas (particularly the Granville FIA).

The State Coastal Management Plan identifies a number of outcomes, principles and policies that are intended to be applied to plan-making and development assessment processes.

Those that are particularly relevant to the FIAs are:-

- (a) 2.1.2 - Settlement pattern and design;
- (b) 2.1.3 - Coastal-dependant land uses;

- (c) 2.1.4 - Canals and dry land marina's and
- (d) 2.1.10 -Tourism and recreational activities.

4.7 State Planning Policy 1/92: Development and the Conservation of Agricultural Land

State Planning Policy 1/92 addresses the conservation of good quality agricultural land and provides guidance to local government on how this issue is to be addressed when preparing planning schemes or assessing development applications.

Existing land resource mapping for the Maryborough area identifies that both of the Further Investigation Areas contain areas of land identified as either Class A or Class B agricultural land. This mapping, prepared at a scale of 1:100,000 has not been verified by more detailed site survey. Accordingly, State Planning Policy 1/92 is a relevant consideration in the future planning of the Further Investigation Areas.

The Policy Principles of State Planning Policy 1/92 are as follows:-

1. *Good quality agricultural land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose;*
2. *the alienation of some productive agricultural land will inevitably occur as a consequence of development, but the Government will not support such alienation when equally viable alternatives exist, particularly where developments that do not have very specific locational requirements (for example, 'rural residential') are involved;*
3. *when preparing, reviewing or amending planning schemes, local authorities will be expected to include provisions for the conservation of good quality agricultural land, regardless of the effect of market fluctuations on its viability;*
4. *the preparation of planning instruments should include an evaluation of alternative forms of development, and significant weight should be given to those strategies which minimise the impacts on good quality agricultural land.*
5. *due consideration should be given to the protection of good quality agricultural land when development applications are being determined;*
6. *where a planning scheme does not 'contain adequate agricultural land conservation provisions', the Government will be guided by the principles set out in this Policy when considering applications for the approval of planning schemes, scheme amendments and development applications;*
7. *the fact that existing farm units and smallholdings are not agriculturally viable does not in itself justify their further subdivision or rezoning for non-agricultural purposes;*
8. *Local Authority planning provisions should aim to minimise instances of incompatible uses locating adjacent to agricultural operations in a manner*

that inhibits normal farming practice. Where such instances do arise, measures to ameliorate potential conflicts should be devised wherever possible;

9. *State Planning Policy 1/92 applies to all areas of good quality agricultural land, irrespective of whether farming activity is present.*

Under State Planning Policy 1/92 there is a requirement for land identified as good quality agricultural land to be protected in local government planning schemes unless there is an overriding need in terms of public benefit for the land to be set aside for an alternative purpose. Class A land in all areas is considered to be good quality agricultural land. In some areas, Class B land (where agricultural land is scarce) and better quality Class C land (where pastoral industries predominate), are also considered to be good quality agricultural land.

Further information relating to the agricultural land values present within the FIAs is provided in **Chapter 7**.

4.8 State Planning Policy 1/02: Development in the Vicinity of Certain Airports and Aviation Facilities

State Planning Policy 1/02 addresses the safety and operational efficiency of prescribed airports and aviation facilities and provides guidance to local government about how these issues are to be addressed when preparing planning schemes or assessing development applications.

Maryborough Airport is identified as one of the airports to which the State Planning Policy applies and accordingly State Planning Policy 1/02 is a relevant consideration in the future planning for the FIAs.

The areas covered by the State Planning Policy vary with the issue being addressed and the particular airport or aviation facility, but are generally:-

- (a) areas beneath, or in the vicinity of, the airport's operational airspace;
- (b) areas within areas defined by the 20 Australian Noise Exposure Forecast (ANEF) Contour at and around each airport;
- (c) areas within public safety areas; and
- (d) areas otherwise in the vicinity of the aviation facility.

The State Planning Policy categorises the impacts of development in two ways – direct impacts and indirect impacts.

Direct impacts involve development that has the potential to adversely affect an airport's operational airspace. The safety and efficiency of operational airspace can be compromised not only by buildings and structures, but also by 'outputs' (such as smoke, plumes and lighting) and congregations of wildlife, particularly birds or bats.

The functioning of navigation, communication or surveillance aviation facilities, some of which are considerable distances from airports, can also be affected by

physical 'line of sight' obstructions and 'outputs' such as significant electrical or electro-magnetic emissions.

Indirect impacts arise when people living in, working in or visiting development perceive aircraft noise to be a significant problem and consequently campaign to curtail aircraft operations to reduce noise impacts.

While the direct impacts of possible urban development in the FIAs will need to be clearly addressed, in the case of Maryborough Airport it is anticipated that the influence of the State Planning Policy with respect to the Further Investigation Areas relates mostly to the indirect impacts of development.

Encroachment of incompatible development in areas close to an airport may ultimately compromise the future of that airport forcing it to close or modify its normal operations.

Development that has either adverse direct or indirect impacts on the Maryborough Airport would be in conflict with the State Planning Policy.

Further information relating to the possible impacts of development in the FIAs on the operations of Maryborough airport is provided in **Chapter 7**.

4.9 State Planning Policy 2/02: Planning and Managing Development Involving Acid Sulfate Soils

State Planning Policy SPP 2/02 – Planning and Managing Development Involving Acid Sulfate Soils aims to ensure development involving acid sulfate soils is planned and managed to avoid release of potentially harmful contaminants into the environment.

Acid sulfate soils may potentially or actually occur naturally over extensive low-lying coastal areas, predominantly below 5 metres AHD. SPP 2/02 applies to all land, soil and sediment at or below 5 metres Australian Height Datum (AHD) where the natural ground level is less than 20 metres AHD. Within that area, SPP 2/02 applies to development involving excavating or otherwise removing 100 cubic metres or more of soil or sediment, or development involving filling of land involving 500 cubic metres or more of material with an average depth of 0.5 of a metre or greater. SPP 2/02 applies primarily during development application stage.

The potential effects of disturbing acid sulfate soils need to be addressed when planning for, or undertaking, development. While it is preferable to avoid disturbing acid sulfate soils, it is not the intention of the SPP to stop development because of acid sulfate soils. This is because the potential adverse effects of disturbance can be avoided or minimised by treatment and, in some cases, by ongoing management.

The presence (or possible presence) of acid sulfate soils is a development constraint that should be subject to an appropriately rigorous risk assessment. Determining the presence or absence of acid sulfate soils should therefore be taken into account as early as possible when considering projects in areas likely to contain acid sulfate soils.

Further information relating to the possible impacts of development in the FIAs on acid sulfate soils is provided in Chapter 7.

4.10 State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

State Planning Policy 1/03 addresses the possible impacts of flooding, bushfire and landslide on people, property, economic development and the environment. It also provides guidance to local government about how these issues are to be addressed when preparing planning schemes or assessing development applications.

The State Planning Policy identifies natural hazard management areas within which minimising risks to the community should be a key consideration in development assessment and the preparation of planning schemes.

Natural hazard management areas relate to three defined categories of natural hazard:-

- (a) land subject to flooding and in particular, land inundated by a Defined Flood Event in a planning scheme (based on a 1% Annual Exceedance Probability Flood);
- (b) land subject to bushfire and in particular, land identified by a local government planning scheme as a medium or high bushfire hazard area; and
- (c) land subject to landslide and in particular, land identified by a local government planning scheme as land being subject to geotechnical stability or having a slope of greater than 15%.

The FIAs include land identified as natural hazard management areas for the purposes of State Planning 1/03 and accordingly the State Planning Policy is a relevant consideration in the future planning of the FIAs.

The State Planning Policy adopts a policy of prudent avoidance whereby as far as practical development in natural hazard areas is to be avoided unless there is an overriding need for the development and the development is able to minimize the adverse impacts from the natural hazard such that there is not an acceptable risk to people and property.

The extent of land within the FIAs identified as being susceptible in a Defined Flood Event is particularly relevant as flooding is acknowledged to be a major natural hazard on land in proximity to the Mary River and its tributaries.

The presence of remnant vegetation in the FIAs and associated bushfire hazard risk is also acknowledged to be a natural hazard on land in parts of the FIAs.

It is also relevant to acknowledge the growing scientific consensus that the enhanced greenhouse effect is changing the world's climate and that Queensland will be vulnerable to the effects of climate change. Predicted changes are likely to include reductions in annual rainfall but increases in rainfall intensity, coastal erosion and sea level, risk of bushfires, and flood risk and damage to transport

infrastructure and low-lying human settlements. These changes would have significant impacts on the nature and extent of natural hazards and, where practicable, should be considered when developing hazard mitigation strategies.

Further information relating to the natural hazard areas present in the FIAs is provided in **Chapter 7**.

4.11 State Planning Policy 1/07: Housing and Residential Development

State Planning Policy 1/07 addresses housing needs and provides guidance to local government about how to identify the housing needs of their communities and ensure that there are no barriers to providing opportunities for a range of housing options that respond appropriately to those needs.

The State Planning Policy takes effect when a local government decides to prepare a new planning scheme or is required to amend its planning scheme as a result of a regional planning process. The policy has no role in the assessment of development applications.

The Queensland Department of Housing has previously provided to the Fraser Coast Regional Council a housing analysis for the Maryborough Area that defines the housing needs for the Maryborough area into the future.

Although no formal process has been undertaken to identify whether there are any barriers in the current Fraser Coast (Maryborough City) Planning Scheme to the provision of a range of housing options that respond appropriately to those needs, it is generally acknowledged that the current housing stock does not align well with predicted future housing needs.

Although the State Planning Policy is not directly relevant to the planning of the FIAs, consideration of housing need is a matter that should be taken into account when considering the mix of housing that should be provided in any new urban development area.

4.12 Project Implications

There are a range of State and regional planning dimensions that need to be addressed when considering the future development of the Granville and Maryborough North FIAs.

These dimensions are applicable (to varying degrees) to the assessment of the current development applications as well as to a strategic planning review.

At a fundamental level, development of the FIAs at this time would appear to be substantially in conflict with the Wide Bay Burnett Regional Plan and with elements of three State Planning Policies, namely State Planning Policy 1/92, State Planning Policy 1/03 and the State Coastal Management Plan.

Consideration of the State and regional planning framework applicable to the FIAs further demonstrates that there is a strong case for the future planning of these areas to be undertaken by way of a strategic planning review and identifies the

primary State and regional dimensions that need to be considered as part of that review process.

5. Local Planning Framework

5.1 Introduction

This Chapter describes the local planning framework relevant to the FIAs.

It is noted that subsequent to the Council amalgamations which took place on 15 March 2008, the entity known as the Council for the City of Maryborough was incorporated into the amalgamated local government area of Fraser Coast Regional Council.

Pursuant to section 39 of the *Local Government Reform Implementation Regulation 2008*, the existing planning scheme of a merging local government's local government area continues to apply to the area (the 'relevant area') that was the merging local government's planning scheme for the relevant area until a new planning scheme for the relevant area is prepared by the new local government.

The 2000 Maryborough City Planning Scheme therefore provides the current planning and development assessment framework for the FIAs.

The Fraser Coast Regional Council is currently in the process of undertaking a Whole of Council Area Planning Project (WOCAPP) for the local government area. This project will include preparation of a new Growth Management Strategy/Strategic Plan for the Fraser Coast Region and is intended to be a precursor to preparation of a new planning scheme. The outcomes of this report will be relevant to the WOCAPP.

5.2 The Maryborough City Planning Scheme 2000

5.2.1 Vision

The Maryborough City Planning Scheme (City Plan) provides the following vision for Maryborough...

"Maryborough will be a dynamic, attractive and economically viable regional centre, combining its 19th century charm with modern cultural and recreational facilities and services, for both the community and tourists"

Although a high level statement of policy intent without specific relevance to the development assessment process, the Vision provides the basis upon which the other measures of the planning scheme have been prepared.

City Plan intends that the primary measures to achieve the Vision will be the achievement of development which is consistent with:-

- (a) the Regional Growth Management Framework;
- (b) the Desired Environmental Outcomes of the City Plan;
- (c) Measures to achieve those DEO's including:-

- (i) Local Area Vision statements and measures;
- (ii) Development Codes; and
- (iii) Planning Scheme Policies.

City Plan also acknowledges that other measures to help achieve the Vision include the Council’s Corporate Plan, the actions of other levels of Government, private sector investment and community endeavour.

5.2.2 City Strategies

City Plan includes 10 City Strategies which relate to a wide range of elements and that express the ecological, social and economic outcomes sought for the planning scheme area. These strategies are:-

- (a) Commercial Strategy;
- (b) Tourism Strategy;
- (c) Industry Strategy;
- (d) Transport Strategy;
- (e) Conservation Strategy;
- (f) Community Strategy;
- (g) Residential Strategy;
- (h) Rural Residential Strategy;
- (i) Rural Strategy;
- (j) Public Safety Strategy.

The City Strategies are comprised of 35 Desired Environmental Outcomes (DEO’s) and Primary Measures to achieve the DEO’s.

DEO’s play an essential role in the development assessment framework. In accordance with the IPA, the decision of an assessment manager in respect to a development application must not compromise the achievement of the Desired Environmental Outcomes for the planning scheme area.

Table 4.1 below summarises the relevance of each of the DEO’s to the future planning and development of the FIAs.

Table 4.1 RELEVANCE TO DEO’s TO FURTHER INVESTIGATION AREAS

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
Commercial Strategy		
DEO1 The City Centre is the dominant location in the Maryborough Region for major shopping and commercial facilities.	Relevant. Any urban development of the FIA should avoid establishing shopping and commercial development of a scale that could compromise or	Relevant. Any urban development of the FIA should avoid establishing shopping and commercial development of a scale that could compromise or

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
	undermine the primacy of the Maryborough City Centre.	undermine the primacy of the Maryborough City Centre.
DE02 The City Centre is the dominant location in Maryborough for major entertainment, accommodation and government services.	Primary Relevance. Any urban development of the FIA should avoid establishing entertainment or accommodation services of a scale that would compromise or undermine the primacy of the Maryborough City Centre.	Primary Relevance. Any urban development of the FIA should avoid establishing entertainment or accommodation services of a scale that would compromise or undermine the primacy of the Maryborough City Centre.
DE03 The efficiency, attractiveness and vitality of the City Centre is enhanced.	Limited Relevance. Any urban development of the FIA is unlikely to impact upon the efficiency, attractiveness and vitality of the Maryborough City Centre.	Limited Relevance. Any urban development of the FIA is unlikely to impact upon the efficiency, attractiveness and vitality of the Maryborough City Centre.
Transport Strategy		
DE04 Areas and valuable features of particular tourism and recreation potential are protected and enhanced.	Relevant. Any urban development of the FIA should consider possible impacts on elements of environmental or historical value that contribute to the tourism and recreational appeal of Maryborough.	Relevant. Any urban development of the FIA should consider possible impacts on elements of environmental or historical value that contribute to the tourism and recreational appeal of Maryborough.
DE05 The visual quality of the whole of Maryborough City to residents and visitors is improved, particularly in visually prominent locations.	Relevant. Any urban development of the FIA should consider possible impacts upon the visual quality of major roads and City gateways.	Key Relevance. Any urban development of the FIA should consider possible impacts upon the visual quality of major roads and City gateways.
DE06 A range of short stay accommodation is provided for tourists.	Relevant. Any urban development of the FIA should consider opportunities to provide tourist accommodation. Any such opportunities should not compromise or undermine the primacy of the Maryborough City Centre.	Limited Relevance. Limited opportunities for tourist accommodation are considered to exist within this FIA.

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
Industry Strategy		
DEO7 A sufficient supply of well serviced industrial land with a satisfactory level of flood immunity is provided to meet the requirements of new and expanded industry.	Relevant. Any urban development of the FIA should consider whether industrial activities are suitable to be located within the FIA.	Relevant. Any urban development of the FIA should consider whether industrial activities are suitable to be located within the FIA.
DEO8 Industrial areas are provided with necessary infrastructure being reticulated water, sewerage, water supply and stormwater drainage, sealed roads and access to existing railways where feasible.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.
DEO9 Interference with industrial activities as a result of non-industrial traffic or the proximity of incompatible non-industrial land uses is precluded as far as possible.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.
DEO10 A sufficient supply of appropriately located land is provided for land-extensive commercial activities which may be better located outside the City Centre.	Relevant. Any urban development of the FIA should consider whether land extensive commercial activities are appropriate to be located within the FIA.	Relevant. Any urban development of the FIA should consider whether land extensive commercial activities are appropriate to be located within the FIA.
DEO11 A high standard of visual amenity and site access is achieved in industry/commerce areas, particular where located on major roads or adjacent to residential areas.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.	Relevant. Any urban development of the FIA should consider relationships to existing and planned industrial areas within or adjoining the FIA.
Transport Strategy		
DEO12 A high quality, efficient and integrated passenger and freight	Relevant. Any urban development of the FIA should provide for the	Relevant. Any urban development of the FIA should provide for the

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
<p>system is provided in the City. In particular, an efficient and safe road network which supports agreed settlement patterns, minimises environmental impacts and is appropriate to the needs of urban and rural communities is provided.</p>	<p>establishment of an appropriate local road network and any improvements to the major road network required to support the preferred pattern of settlement.</p>	<p>establishment of an appropriate local road network and any improvements to the major road network required to support the preferred pattern of settlement.</p>
<p>DEO13 The future development of the City takes into account the planned system of major by-pass and major freight routes.</p>	<p>Relevant. Any urban development of the FIA should consider plans to upgrade elements of the major road network.</p>	<p>Key Relevance. Any urban development of the FIA should consider plans to upgrade elements of the major road network.</p>
<p>DEO14 The existing and future operation of Maryborough Airport is facilitated.</p>	<p>Key Relevance. Any urban development of the FIA should consider possible impacts on the existing and future operations of the Maryborough Airport.</p>	<p>Key Relevance. Any urban development of the FIA should consider possible impacts on the existing and future operations of the Maryborough Airport.</p>
<p>DEO15 Transport services and infrastructure are provided and maintained to service the needs of the community and development to foster the economic growth of Maryborough City.</p>	<p>Relevant. Any urban development of the FIA should consider the capacity of existing and planned transport services and infrastructure and the network improvements necessary to services and infrastructure to support development of the FIA.</p>	<p>Relevant. Any urban development of the FIA should consider the capacity of existing and planned transport services and infrastructure and the network improvements necessary to services and infrastructure to support development of the FIA.</p>
Conservation Strategy		
<p>DEO16 The water quality of the Mary River, other waterways within the local government area and the Great Sandy Strait is maintained or improved.</p>	<p>Relevant. Any urban development of the FIA should consider the possible impacts of development on the water quality of the Mary River.</p>	<p>Relevant. Any urban development of the FIA should consider the possible impacts of development on the water quality of the Mary River.</p>
<p>DEO17 Areas which are important for biodiversity</p>	<p>Relevant. Any urban development of the FIA should provide for the</p>	<p>Relevant. Any urban development of the FIA should provide for the</p>

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
conservation, wildlife habitat, Fish Habitat Areas or coastal processes are identified and protected.	protection of ecologically significant areas.	protection of ecologically significant areas.
DEO18 Those parts of Maryborough's historical, architectural, anthropological and cultural heritage which have value to past, present and future residents of the City (as well as others) are conserved	Relevant. Any urban development of the FIA should provide for the conservation of any places or items of historical, architectural, anthropological, archaeological or cultural heritage significance.	Relevant. Any urban development of the FIA should provide for the conservation of any places or items of historical, architectural, anthropological, archaeological or cultural heritage significance.
Community Strategy		
DEO19 Adequate land is provided to satisfy the urban recreation needs of the City's population, suitably located in relation to other land uses and City's transport network.	Relevant. Any urban development of the FIA would need to consider the provision of adequate and suitable land for urban recreation purposes.	Relevant. Any urban development of the FIA would need to consider the provision of adequate and suitable land for urban recreation purposes.
DEO20 A connected open space system is developed in order to promote opportunities within the urban area for continuous walking and cycling in a park setting.	Relevant. Any urban development of the FIA would need to incorporate an appropriate open space system that promoted opportunities for use of active transport modes.	Relevant. Any urban development of the FIA would need to incorporate an appropriate open space system that promoted opportunities for use of active transport modes.
DEO21 Future demands of primary, secondary and tertiary education facilities are adequately provided for.	Relevant. Any urban development of the FIA would need to consider potential demands for future primary, secondary and tertiary education facilities.	Relevant. Any urban development of the FIA would need to consider potential demands for future primary, secondary and tertiary education facilities.
DEO22 Special uses and their ongoing operation are encouraged.	Relevant. Any urban development of the FIA would need to consider possible impacts on existing and planned special uses and their ongoing operation.	Relevant. Any urban development of the FIA would need to consider possible impacts on existing and planned special uses and their ongoing operation.
DEO23 Adequate land,	Relevant. Any urban	Relevant. Any urban

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
infrastructure and facilities are provided to satisfy identified community needs.	development of the FIA would need to consider the appropriate and efficient provision of urban infrastructure and services.	development of the FIA would need to consider the appropriate and efficient provision of urban infrastructure and services.
Residential Strategy		
DEO24 A sufficient supply of sequentially serviced urban residential land with an acceptable level of flood immunity is available to cater for the accommodation requirements of future population of the urban area of the City.	Key Relevance. This Strategic Planning Review involves examination of an FIA that may contain land suitable to accommodate the long term urban development needs of Maryborough. Any urban development of the FIA should have regard to and be responsive to potential flooding hazards.	Key Relevance. This Strategic Planning Review involves examination of an FIA that may contain land suitable to accommodate the long term urban development needs of Maryborough. Any urban development of the FIA should have regard to and be responsive to potential flooding hazards.
DEO25 Opportunities are provided for people to live in the mainland coastal townships in a manner which protects the natural environment and scenic values of these areas.	Not Relevant.	Not relevant.
DEO26 Safe, quite and attractive residential areas are established and maintained.	Key Relevance. Any urban development of the FIA would need to consider possible impacts on existing residential neighbourhoods.	Relevant. Any urban development of the FIA would need to consider possible impacts on existing residential neighbourhoods.
DEO27 Adequate and efficient provision of urban infrastructure services and local urban facilities, such as local shopping and community facilities is achieved in residential areas	Relevant. Any urban development proposal for this FIA would need to consider the appropriate and efficient provision of urban infrastructure and services.	Relevant. Any urban development of the FIA would need to consider the appropriate and efficient provision of urban infrastructure and services.
DEO28 Choice of housing types, including town houses and apartments are available in locations close to the City Centre.	Relevant. Any urban development of the FIA should consider opportunities for the establishment of a mix of	Relevant Any urban development of the FIA should consider opportunities for the establishment of a mix of

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
	housing types in those parts of the FIA proximate to the City Centre.	housing types in those parts of the FIA proximate to the City Centre.
Rural Residential Strategy		
DEO29 Areas for low density residential dwellings with high levels of amenity are provided in locations which do not compromise the orderly expansion or continued operation of other preferred land uses.	Relevant. The FIA includes some areas designated for rural residential development. Any development concept for the FIA will consider the location of rural residential so as not to compromise the orderly expansion or continued operation of other preferred land uses.	Relevant. The FIA includes some areas designated for rural residential development. Any development concept for the FIA will consider the location of rural residential so as not to compromise the orderly expansion or continued operation of other preferred land uses.
Rural Strategy		
DEO30 In rural areas the establishment of activities which could compromise farming activities is prevented.	Relevant. Any urban development of the FIA should consider possible impacts on existing farming activities.	Relevant. Any urban development of the FIA should consider possible impacts on existing farming activities.
DEO31 Good quality agricultural land is protected from land use and/or subdivision which would detract from its sustainable use for agricultural production.	Key Relevance. Any urban development of the FIA should consider possible impacts on GQAL in accordance with SPP 1/92.	Key Relevance. Any urban development of the FIA should consider possible impacts on GQAL in accordance with SPP 1/92.
DEO32 Valuable economic deposits of minerals or other materials are protected.	Not Relevant.	Relevant. The FIA includes land subject to a Mining Lease.
DEO33 Undeveloped land not required for the short to medium term needs of the City's development is retained for a range of longer term uses.	Relevant. This Strategic Planning Review involves examination of an FIA that may contain land suitable to accommodate the long term urban development needs of Maryborough.	Relevant. This Strategic Planning Review involves examination of an FIA that may contain land suitable to accommodate the long term urban development needs of Maryborough.
DEO34 Activities associated with existing State Forest areas are provided for.	Limited Relevance. Any urban development proposal for this FIA should consider possible impacts upon the ongoing productive use of	Not Relevant.

Desired Environmental Outcome	Relevance to Granville FIA	Relevance to Maryborough North FIA
	adjoining State Forest land.	
Public Safety Strategy		
DE035 Development in the City takes place with due recognition of public health and safety issues.	Key Relevance. Any urban development proposal for this FIA should consider the possible impacts of flooding, bushfire and other natural hazards.	Key Relevance. Any urban development proposal for this FIA should consider the possible impacts of flooding, bushfire and other natural hazards.

This section of the City Plan also includes Strategy Maps that provide a spatial representation of the City Strategies. An extract from Strategy Map 2.1 as applicable to the FIAs is provided as **Figure 5.1** to this Report.

The Strategy Map shows that the majority of the Granville and Maryborough North FIAs are currently designated for Rural purposes.

5.2.3 Local Area 5 – Granville

The Maryborough City Plan includes a Local Area Plan for the Granville Local Area. The Granville Local Area takes in the whole of the Granville FIA and also includes the existing residential neighborhood of Granville and surrounding rural areas.

The Local Area Plan intends that the Granville Local Area be developed as a predominantly residential area interspersed with and adjoined by bushland areas.

Other important elements of the vision for the Granville Local Area include:-

- (a) a desire to maintain the quiet residential character of the area;
- (b) a preference for future residential expansion to be via infill;
- (c) recognition of the need for future development to consider and resolve drainage problems in the area;
- (d) recognition that residents in the local area will rely upon services and facilities provided in the City Centre;
- (e) recognition of the importance of existing distinctive features in the local area including the Mary River and surrounding areas of environmental and historical significance.

The Granville Local Area Plan is supported by a Precinct Map which depicts the land use precincts allocated to land within the Local Area. An extract from Local Area Plan 5 (Granville) as applicable to the Granville FIA is provided as **Figure 5.2** to this Report. The majority of the Granville FIA is included in the Rural Precinct.

5.2.4 Local Area 6 – Maryborough West and North

Maryborough City Plan includes a Local Area Plan for the Maryborough West and North Local Area. The Maryborough West and North Local Area Plan includes the

whole of the Maryborough North FIA as well as the suburbs of Aubinville, Aldershot, Maryborough West and St Helens. The Local Area also includes part of Wongi State Forest and large areas of rural land to the north of Maryborough.

Important elements of the Vision for this Local Area Plan relevant to the Maryborough North FIA include:-

- (a) a desire to maintain areas important for nature conservation purposes with other areas developed for a mix of residential, industrial, rural residential, community and rural uses that are appropriately buffered from one another;
- (b) a recognition that this area may also accommodate large activities that are unable to find appropriate locations elsewhere within the urban fabric of the City;
- (c) a desire to protect the riparian areas of Saltwater Creek and the Mary River;
- (d) recognition that residents in the local area will rely upon services and facilities provided in the City Centre;
- (e) recognition of the drainage limitation in existing allocated urban areas and the need to provide appropriate sewerage, stormwater drainage and road treatments in conjunction with new development.

The Maryborough West and North Local Area Plan is supported by a Precinct Map which depicts the land use precincts allocated to land within the Local Area. An extract from Local Area Plan 6 (Maryborough West and North) as applicable to the Granville FIA is provided as **Figure 5.2** to this Report. The majority of the Granville FIA is included in the Rural Precinct.

5.2.5 Planning Scheme Codes

The Maryborough City Plan includes Planning Scheme Codes that contain measures applicable to specific areas, particular land uses or particular aspects of development.

Planning Scheme Codes contain the detailed planning requirements that are required to be met by code assessable development and that are also generally relevant to the assessment of impact assessable development proposals.

Although a Strategic Planning Review of the Further Investigation Areas does not require comprehensive consideration of these detailed measures, it is pertinent to acknowledge those Codes that may be of primary relevance to development occurring in the FIAs.

These include:-

- (a) the Ecological Protection Code;
- (b) the Filling and Excavation Code;
- (c) the Flood Management Code;
- (d) the Infrastructure Services Code;
- (e) the Lot Reconfiguration Code; and

(f) the Subdivision and Engineering Works Code.

5.2.6 Planning Scheme Policies

The City Plan includes Planning Scheme Policies that provide guidance on information to be submitted with particular development applications and transitional arrangements for the imposition of infrastructure (headworks) charges.

It is pertinent to note that in respect to infrastructure, City Plan currently includes Planning Scheme Policies for water supply and sewerage contributions and for parkland contributions.

It is anticipated that development of the FIAs would require a more comprehensive approach to the infrastructure funding, most probably via infrastructure agreements.

5.3 Project Implications

The current planning intent of the Maryborough City Plan is for the Granville and Maryborough North Further Investigation Areas to remain predominantly rural areas with limited intrusion by urban activities. Development of the FIAs at this time is clearly inconsistent and in conflict with the Maryborough City Plan.

Having regard to the Desired Environmental Outcomes for the Planning Scheme Area and the Vision Statements provided in respect to the Granville Local Area and the Maryborough West and North Local Area identification of sufficient planning grounds would be required to justify approval of a development application for urban purposes in either of the FIAs.

In this context, it is considered that any proposals for comprehensive development of the Further Investigation Areas could only practically be facilitated by amendment to the Maryborough City Plan and this process is due and planned, given the City Plan was adopted in 2000.

Although City Plan contains a range of provisions that are potentially relevant to development in the FIAs it is unlikely that the existing planning scheme (now over eight years old) incorporates all of the tools necessary to facilitate comprehensive development in these areas.

The age of the current planning framework for Maryborough, combined with the changing planning influences applicable to the FIAs, Maryborough and the Regional Council area as a whole, demonstrates that there is a strong case for the future planning of these areas to be undertaken as part of an overall strategic planning review for the Regional Council area.

6. Consultation with Relevant State Agencies

6.1 Introduction

This chapter provides a summary of the current positions and strategies of a selection of relevant State Government agencies, namely Department of Infrastructure and Planning (DIP), Department of Main Roads (DMR), Department of Education Training and the Arts (DETA), and Department of Emergency Services (DES).

The comments included in this section reflect the outcomes of an informal and limited consultation process undertaken with each agency. It should be recognised that further formal consultation with each state agency should be undertaken prior to finalisation and endorsement of any structure planning outcomes.

6.2 Department of Infrastructure and Planning

Consultation with the Department of Infrastructure and Planning was undertaken on 4 February 2009. The primary purpose of the consultation process undertaken with DIP was to understand the status of the Wide Bay Burnett Regional Plan and to recognise DIP's interest in expansion of the urban area of Maryborough. The outcomes of the consultation with DIP revealed the following:

- (a) The Wide Bay Burnett Regional Plan (WBBRP) was launched in May 2007 and is a non-statutory planning instrument that provides principles and policy actions to guide government agencies and peak community bodies regarding the long term development of the Wide Bay Burnett region.
- (b) The Wide Bay Burnett Regional Plan Advisory Committee (WBBRPAC) has requested of the Minister for Infrastructure and Planning that the WBBRP be the next Regional Plan to become a statutory instrument. While the Minister is sympathetic to the suggestion, there has not been any political commitment to the creation of a statutory WBBRP. Notwithstanding, the WBBRPAC has commenced preparation of a Regional Plan that has potential to become a statutory instrument at short notice.
- (c) A statutory Regional Plan would incorporate a defined urban footprint / preferred pattern of development. DIP is in the process of identifying in very broad terms how that preferred pattern of development would present. A draft preferred pattern of development has been based on the existing urban areas in current planning schemes. Also, alternative development patterns are being considered and include:-
 - "Coastal Growth", in which growth is focussed in Bundaberg and Hervey Bay and other coastal centres;

- "Southern Attraction", in which growth is focussed in Gympie and Maryborough and other centres in the south of the region;
- "Rural Growth", in which growth is focussed in Kingaroy and other rural western centres; and
- "Current Trends", which reflects the existing pattern of development and growth.

The ultimate 'preferred pattern of development' may be any one of these options, or a combination of two or more options.

- (d) The preparation of a statutory Regional Plan is based on acceptance of the PIFU high growth rate of 125,000 additional people by 2026.
- (e) DIP was unable to advise at this stage whether Maryborough will be a preferred location for growth, as the development of the preferred pattern of development and other strategising is still at a preliminary stage. DIP also recognised Maryborough's traditionally slow rate of growth as an influence on its role in accommodating proportions of future regional growth.
- (f) The preferred pattern of development will be influenced by the Broadhectare Land Study 2007 which identifies that most local government areas in the Wide Bay Burnett Region have sufficient vacant land already appropriately allocated for residential purposes to accommodate at least 20 years of growth (based on high projections). Where that growth cannot be accommodated in greenfield land, there exists sufficient infill space to accommodate the growth.
- (g) Because the investigations into the preferred pattern of development are still at a broad preliminary level, with the areas to accommodate particular growth emphasis still unknown, and because the Broadhectare Land Study 2007 recognises an abundance of existing residential land in the Region, DIP has not yet considered whether any additional areas in Maryborough (such as the FIAs) should be allocated to accommodate population growth. DIP suggested that a strategic exercise undertaken by Council should identify the need to expand its existing residential areas, and that DIP and Council should further discuss the outcomes of the strategic exercise once it is completed.
- (h) A preferred pattern of development will be finalised by mid 2009.
- (i) DIP is also currently undertaking a Regional Infrastructure Study and a Regional Industrial Land Demand Study.

6.3 Department of Main Roads

Consultation with Department of Main Roads was undertaken initially on 5 February 2009 and in subsequent discussions. The primary purpose of undertaking consultation with DMR was to determine the intention for and status of any future state-controlled road proposals or upgrades that might affect planning for the FIAs, and to understand DMR's interests should the FIAs be developed. The outcomes of the consultation with DMR revealed the following:-

- (a) DMR has identified a need for a state-controlled Northern Maryborough Bypass road. Preliminary planning for the Northern Maryborough Bypass has been undertaken and a number of alignment options have been devised. **Appendix A** identifies the Northern Maryborough Bypass alignment options identified by DMR. DMR has advised that the alignments are only a guide and that the final alignment could be any one of the options, a combination of a number of options, or some alternative route.
- (b) DMR has identified a need for a state-controlled Eastern Maryborough Bypass road. Preliminary planning for the Eastern Maryborough Bypass has been undertaken and an approximation of an appropriate route has been identified. **Appendix A** identifies a preliminary route for the Eastern Maryborough Bypass as identified by DMR. The presentation of only a single route should not be construed to mean this route is the accepted final alignment. The planning for the Eastern Maryborough Bypass consists of two stages. The first stage is a link from Maryborough – Hervey Bay Road through Maryborough Airport and across the Mary River to Odessa Street / Walkers Point Road. The second stage connects stage one to the Cooloola connection road through the eastern part of the FIA.
- (c) The Northern Maryborough Bypass and the Eastern Maryborough Bypass are intended to be state-controlled limited access roads. The placement of these roads through the FIAs may have implications for the future road network of the FIAs. The future bypass roads might also generate/attract heavy vehicle traffic through the FIAs, particularly given their intended connectivity to industrial areas.
- (d) Detailed planning for the future road network and its impacts can only be undertaken in association with transport modelling. A detailed transport model for Maryborough is understood to have been commenced however delivery of the outcomes of that model could be in the order of 1 to 2 years away.
- (e) In terms of the impacts of development of the Maryborough North FIA, DMR identified that if Maryborough - Hervey Bay Road were to be the primary access route to the FIA then this would accelerate the need for the duplication of that road. Further, the increase in local trips would change the function of the road from a rural arterial to an urban arterial function, which does not accord with DMR's current planning (which is to maintain its rural function). The number of intersections on Maryborough - Hervey Bay Road would need to be rationalised as a part of any broad strategic planning exercise. Existing direct access from rural lots to the state-controlled road should also be rationalised. Overall, structure planning for the FIA creates a need to consider a suitable local road network to service the area that does not rely on the state-controlled Maryborough – Hervey Bay Road.
- (f) In terms of the impacts of development of the Granville FIA, DMR identified that substantial residential development would create a significant impact on the 2 lane capacity of the Tiger Street Bridge which connects Granville to Maryborough proper. Significant growth in this area would potentially drive the need for duplication of Tiger Street Bridge or creation of a second bridge crossing in an alternate location - especially where there is a high transport

demand towards Hervey Bay. Flow on impacts on the city road network are harder to predict and a transport model would better define those impacts. Another consideration of DMR is the flood immunity of existing Tiger Street Bridge. DMR believes the bridge to have limited flood immunity.

6.4 Department of Education, Training and the Arts

Consultation with Department of Education, Training and the Arts was undertaken on 17 February 2009. The primary purpose of undertaking consultation with DMR was to establish the current capacity of all existing state-run schools close to the FIAs and to determine the ability of those schools to satisfy student growth resulting from population growth in the FIAs. The outcomes of the consultation with DETA revealed the following:-

- (a) St Helens State Primary School (which relates primarily to the Maryborough North FIA) currently accommodates 199 students but has capacity in its current building stock for further students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. The school has grown rapidly in recent times and there are some ongoing concerns relating to the adequacy of sewerage infrastructure.
- (b) Maryborough West State Primary School (which relates primarily to the Maryborough North FIA) currently accommodates 630 students but has capacity in its current building stock for approximately 680 to 730 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. The school is the largest primary school in Maryborough.
- (c) Granville State Primary School (which relates primarily to the Granville FIA) currently accommodates 399 students but has capacity in its current building stock for approximately 500 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school to 600-800 students.
- (d) High school aged children are able to attend either of the two State High Schools in Maryborough: Maryborough State High School or Aldridge State School. Maryborough State High School currently accommodates 730 students but has capacity in its current building stock for approximately 1,200 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. Aldridge State High School currently accommodates 993 students and is at capacity with its current building stock. However, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school.
- (e) A number of private schools exist in Maryborough, which would share any increase in school student numbers resulting from development of the FIAs.
- (f) In Maryborough, a rate of approximately 10 to 12 school-aged children (including both primary and secondary students) per 100 dwellings is a basic rate that can be applied to identify potential state school student numbers.

- (g) Overall DETA advised that there is space and scope in the existing network of state primary schools and state high schools to accommodate a large amount of new students resulting from the development of the FIAs.

6.5 Department of Emergency Services

Consultation with the Department of Emergency Services was undertaken on 26 February 2009. The primary purpose of undertaking consultation with DES was to understand the implications of flooding of the existing low-level bridge connecting Granville to Maryborough proper on the existing residents and potential future residents of Granville. The outcomes of the consultation with DES revealed the following:

- (a) In terms of the impacts on the existing population at Granville, DES advised that they are not in the business of reviewing the adequacy of all infrastructure and replacing any identified at-risk infrastructure. Therefore, if Granville was to be retained in its current form a new bridge would not be required despite the potential for residents to be separated from Maryborough in the case of severe flood events.
- (b) In the instance of population expansion at Granville, where a new bridge would be required to service the population, that bridge would need to satisfy DES's requirements for emergency access, including compliance with State Planning Policy 1/03. In the interest of community safety and wellbeing, community infrastructure (including a bridge) should be located and designed to function effectively during and after natural hazard events.

6.6 Project Implications

The consultation undertaken with the Department of Infrastructure and Planning (DIP), Department of Main Roads (DMR), Department of Education Training and the Arts (DETA), and Department of Emergency Services (DES) is important in identifying the state-level issues affecting the planning for the FIAs.

The Department of Infrastructure and Planning's possible future release of a statutory Regional Plan for Wide Bay Burnett, incorporating an urban footprint and associated regulatory provisions, will identify the preferred locations for growth in the Region including in Maryborough. The structure planning exercise for the FIAs may provide assistance in determining the shape of a future urban footprint.

The Department of Main Roads' planning for the Northern Maryborough Bypass, through the Maryborough North FIA, and the Eastern Maryborough Bypass, through the Granville FIA, may affect the planning for the FIAs.

The Department of Education, Training and the Arts' comments that all existing schools in Maryborough have substantial capacity for additional students in existing building stock or in land area for new buildings relieves a potential constraint to expansion of the existing urban area into the FIAs.

The Department of Emergency Services identified that any new urban infrastructure should comply with the requirements of SPP 1/03. For example, a new bridge

constructed between Granville and Maryborough should be located and designed to function effectively during and after natural hazard events.

7. Further Investigation Area Features, Constraints and Opportunities

7.1 Introduction

This Chapter provides a more detailed description of each of the FIAs. It describes the important social, environmental, economic and infrastructure characteristics of each of the FIAs and the extent to which these impact upon or represent a constraint to or opportunity for future urban development in each of the FIAs.

Analysis of this material will inform the development of the settlement pattern scenarios described in **Chapter 8** of this Report.

7.2 Granville Further Investigation Area

7.2.1 Location and Context

The Granville Further Investigation Area is located approximately 2 kilometres to the east of the Maryborough Central Business Area and adjoins the existing residential neighbourhood of Granville. It has an area of approximately 595 hectares and is almost rectangular in shape.

It includes a number of large rural lots located either side of Walkers Point Road extending from Arnaud Street in the south to Eden Street West in the north. Walkers Point Road runs north-south through the centre of the FIA. The western boundary of the FIA is established by the Mary River. The southern boundary of the FIA is established by the existing residential neighbourhood of Granville. The eastern and northern boundaries of the FIA are established by State land and private property.

7.2.2 Land Use

7.2.2.1 Existing Land Use

The Granville FIA is predominantly used for a range of rural uses including sugar cane cultivation, small scale cropping and grazing. Agricultural production, primarily for sugar cane, is particularly prevalent on land west of Walkers Point Road while grazing and other non-agricultural rural activities are more common east of Walkers Point Road.

There are a number of rural residential lots excised from larger lots, particularly along Walkers Point Road. There are some fringing areas of peri-urban development along the south-western boundary of the FIA where the existing neighborhood extends into the FIA. Open space and recreation areas associated with the existing residential neighborhood, such as the Federation Park football oval, are also located in the south-western boundary of the FIA.

The current dominant agricultural and pastoral land use, comparatively large lots size and pattern of subdivision makes the FIA a relatively intact rural area.

Established, productive rural areas should not be fragmented and compromised unless there is an overriding need for urban residential or alternative land use on that land.

Figure 7.1 depicts the current pattern of land use within the Granville FIA.

7.2.2.2 Surrounding Land Use

Land to the north of the FIA is primarily used for agricultural production, with some rural residential allotments to the north-west of the FIA. Land to the east of the FIA is comprised of vegetated areas and areas of agricultural production. Land to the south of the FIA is comprised of residential uses associated with the established Granville neighbourhood. The Mary River forms the western boundary of the FIA, with the Maryborough Airport and an established residential area further west of the River.

Development of the FIA should respect the integrity of adjoining land uses. If the FIA is to include future residential land uses, such development should create a sense of integration with and organic growth of the existing Granville residential neighbourhood. Areas of agricultural production and of ecological importance should be adequately buffered from future residential uses.

Figure 7.1 presents the current use of land immediately surrounding Granville FIA.

7.2.3 Land Tenure

The majority of the FIA is in freehold tenure with only small parts of the FIA (predominantly in the south-west of the FIA) included in Lease, Reserve or State land tenure. Some freehold land in the south of the FIA is owned by Fraser Coast Regional Council.

Figure 7.2 depicts the current pattern of land tenure within the Granville FIA.

7.2.4 Land Fragmentation

The Granville FIA is made up of over 240 separate allotments that range in area from approximately 700 square metres to 185 hectares. The majority of the site is comprised of larger rural lots. Some standard-sized residential lots, which contribute the greatest number of lots but only a small proportion of the total area of the FIA, are located close to the existing residential neighborhood.

The collection of larger lots held by a relatively small number of owners allows for a better opportunity to achieve a large scale integrated outcome, through an efficient and coordinated process of planning and development.

7.2.5 Topography and Slope

The Granville FIA has a relatively flat to gently undulating topography. The FIA has a high point of 25 metres AHD along the eastern edge of the FIA and falls away as it approaches the Mary River.

The topography of the FIA, being generally flat, provides good opportunity for urban expansion, requiring insignificant earthworks to facilitate urban activity. However, if development is proposed on flood prone land, significant earthworks will be required to achieve the necessary levels of flood immunity for that land.

Detailed geotechnical investigations should be undertaken within the FIA to confirm or refute the existence of unstable land prior to any commitment to future development of the area.

Figure 7.3 identifies the contours of the Granville FIA.

7.2.6 Waterways and Wetlands

Waterways

The Granville FIA is adjacent to the Mary River, which rises in the Sunshine Coast hinterland and empties into the Great Sandy Strait 17 kilometres south of Hervey Bay. The Mary River is tidal where it passes the Granville FIA. Also, a small unnamed overland flow path enters the Mary River from the northern part of the FIA.

Development is to be managed in terms of its relationship to watercourses. The integrity of riparian corridors, particularly of the Mary River, must be maintained. The effects of any future development on the riparian area of the Mary River and its tributaries must be limited, particularly in terms of:

- Riverbank stability and channel integrity;
- Maintenance of a corridor of natural vegetation which has sufficient ecological integrity to support local and regional biodiversity values (including aquatic and terrestrial vegetation and wildlife);
- Protection of water quality values from nutrients, sediments and pollutants.

Protection of the Mary River and its riparian corridor, including through appropriate buffering to development, is important to the health of the Mary River and wider catchment area.

As identified by the Ecological Assessment prepared by CEPLA and attached in **Appendix B** the Department of Primary Industries recommends buffers of 50 to 100 metres to freshwater systems to maintain ecological processes. These buffer areas have been applied to planning for future development of the Granville FIA. In particular, CEPLA has applied a 100 metre buffer to the Mary River and a 30 metre buffer to all other minor waterways.

The Mary River is not identified as a referable wetland on the Environmental Protection Agency referable wetland mapping.

The location of the Mary River and associated waterways is identified on **Figure 7.4**.

Wetlands

A number of locally-significant wetland systems occurring in the Granville FIA have been identified in mapping provided by Fraser Coast Regional Council. In the

Ecological Assessment, attached in **Appendix B**, CEPLA has identified that naturally occurring wetlands are recommended to be retained and buffered.

Areas of referable wetlands as identified on the Environmental Protection Agency referable wetland mapping also occur in the Granville FIA. These areas generally translate to the wetland areas mapped by Fraser Coast Regional Council and have been evaluated by CEPLA in their attached Ecological Assessment.

The Department of Primary Industries recommends a default buffer of 50m to freshwater systems. However the DPI 'buffer function assessment table' suggests that a buffer of up to 100m may be necessary to protect ecological functions (carbon cycling, leaf litter inputs etc.). Davies and Lane (1995) provide the most comprehensive guidelines to wetland buffer in Australia. They recommend buffers of 200m on sandy soils to prevent nutrient inputs. Therefore buffers of 100-200m are desirable, depending on the proposed adjacent use and the water quality measures to be implemented. CEPLA has applied 100m buffers to wetlands in the Granville FIA.

Locally significant wetland areas and their buffers have been mapped by CEPLA in the Ecological Assessment in **Appendix B** and have been reproduced in **Figure 7.5** of this report.

7.2.7 Flooding

The flood mapping contained in the Flood Management Code of the current Fraser Coast Regional Council planning scheme (Maryborough City) plots the area of inundation equivalent to the 1893 flood, that is, 12.27 metres recorded at the Macalister Street flood gauge. The height of the 1893 flood best represents the 100 year ARI flood event and is the land which Council considers to be flood prone or potentially flood prone.

The majority of land within the FIA that is north and west of Walkers Point Road is identified as flood prone or potentially flood prone land. All land within the FIA that is south and east of Walkers Point Road is not flood prone or potentially flood prone land.

Development must respond to flooding constraints in two ways. Firstly development must achieve an acceptable level of flood immunity in order to limit possible damage to property and risks to safety. Secondly development must reserve land needed for flood water storage and flows, so that the adverse effects of flooding are not increased by additional development. Accordingly, it is generally desirable for future urban growth in the FIA to be located outside of identified flood prone or potentially flood prone areas.

It is important to recognise that the effects of climate change have not been considered in the mapping or assessment of flood prone land in this study. Any future development of the FIA for urban purposes should consider the impacts of climate change and sea level rise on flooding within the FIA.

The Fraser Coast Regional Council mapping of flood prone land has been reproduced in **Figure 7.4**.

7.2.8 Vegetation and Ecology

This section describes the vegetation and other ecological values of the Granville FIA at national, state and local level. This information has been extracted from the Ecological Assessment prepared by CEPLA, attached in **Appendix B**.

The Granville FIA has the potential to support fauna species listed under the Environmental Protection and Biodiversity Conservation Act (EPBC). It is acknowledged however that habitats may be degraded and further assessment would be required to ascertain the value of the FIA to EPBC species.

The Granville FIA also has the potential to support fauna species listed under Nature Conservation (Wildlife) Regulation 2006 (NCWR). It is acknowledged however that habitats may be degraded and further assessment would be required to ascertain the value of the FIA to NCWR species.

Some vegetation communities within the Granville FIA equate to Regional Ecosystems that are designated 'Not of Concern' and 'Of Concern' under the Vegetation Management Act 1999. Unless exempted under this Act, permitting is required to clear vegetation in identified Regional Ecosystems. Priority should be given to the retention of these remnants, particularly those listed 'Of Concern'. CEPLA have assessed many of the areas of remnant vegetation in the Granville FIA and have indicated their preference for retention of these areas on the figures attached to the Ecological Assessment.

Areas of other native vegetation, which may include areas of remnant vegetation, have also been assessed by CEPLA. Some of these areas of other native vegetation have been identified as important to retain.

Opportunities exist for the enhancement of localised connectivity within sections of the Granville FIA. Larger remnants within the FIA area have become separated as a result of clearing. This exercise presents an opportunity to reconnect large remnants located in the north and south of the FIA, and also connect these areas to the Mary River corridor.

The above vegetation and ecological values have been identified in the Ecological Assessment. CEPLA has suggested methods for retention and protection of these environmentally sensitive and important areas, including implementation of buffers and identification of a desirable nature conservation network. All important vegetation and ecological values, including designation of the desirable nature conservation network, have been mapped by CEPLA in the Ecological Assessment in **Appendix B**. CEPLA's mapping has been reproduced in **Figure 7.5** of this report.

7.2.9 Good Quality Agricultural Land

State Planning Policy SPP 1/92 – Development and the Conservation of Agricultural Land identifies the broad principles for protection of good quality agricultural land from inappropriate developments.

SPP1/92 considers that good quality Agricultural land is a finite national and state resource that must be conserved and managed for the longer term. As a general aim, the exercise of planning powers and the planning process should be used to

protect such land from those developments that lead to its alienation or diminished productivity.

Guideline 1 for SPP1/92 identifies four classes of agricultural land:

- **Class A - Crop land** - Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.
- **Class B - Limited crop land** - Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping.
- **Class C - Pasture land** - Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.
- **Class D - Non-agricultural land** - Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Agricultural land classes are based on an assessment of the agricultural suitability of the land for specified agricultural uses. Agricultural land suitability is a rating of the ability of land to maintain a sustainable level of productivity. The factors used to assess agricultural land suitability are the soil, topographic and climatic limitations which determine sustainable productivity. Class A land in all areas is considered to be good quality agricultural land. In some areas, Class B land (where agricultural land is scarce) and better quality Class C land (where pastoral industries predominate), are also considered to be good quality agricultural land.

The majority of land in the Granville FIA is classified as Class A – Crop Land.

Due to the local characteristics of Maryborough and its surrounds, being an area where agricultural land is abundant and where agricultural industries (rather than pastoral industries) predominate, the responsibility to conserve the more fertile and potentially productive land applies mostly to the Class A land in the Granville FIA.

Development without regard to the need for land conservation and the continuing importance of agriculture is inappropriate. The best and most versatile farming land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose. Good quality agricultural land is a valuable resource that should, in general, be protected from irreversible development. When considering the future distribution of development, settlement patterns that minimise the impact on productive farming areas, both directly and indirectly, should be evaluated.

In the Granville FIA all Class A land should avoid development for urban purposes, where possible.

The proximity of development, particularly where there is a significant residential component, can inhibit farming practice, thereby limiting the extent to which the

inherent land quality can be exploited: for example, crop spraying and cane burning are two operations which cause conflicts with adjoining residential properties. Clearly, such conflicts should be avoided if possible but, where new developments have to be located on or adjacent to good quality agricultural land, measures to ameliorate potential conflicts should be devised wherever practicable. Guideline 2 of SPP1/92 identifies buffers that should be employed to adequately separate residential and agricultural land uses. These buffer distances have been reproduced in Table 7.1 below.

Table 7.1 – Good Quality Agricultural Land Buffer Requirements

	Duration threshold	Min. default distance (m)	Min. design distance with buffer element (m)
Chemical spray drift	None	300	40
Intermittent odour	>88 hrs/yr	500	500
Intermittent noise (based on 90bB(A))	>10 hrs/yr<50 hrs/yr	60 (day-time) 1000 (night-time)	15 (day-time) 250 (night-time)
Long term noise (based on 90bB(A))	>50 hrs/yr	500 (day-time) 1000 (night-time)	120 (day-time) 1000 (night-time)
Dust, smoke and ash	None	150	40

The impacts of chemical spray drift and dust, smoke and ash are the most relevant in the context of the existing and ongoing agricultural uses of the Granville FIA. A 40 metre vegetated buffer can be applied to ameliorate these impacts, however it is recognised that creation of a vegetated buffer may not be possible in the short term. As such, buffers between any areas of good quality agricultural land and agricultural areas that continue to operate, and any newly created residential areas should be in the order of, on average, 150 metres.

Mapping for agricultural land classes exists for the Granville FIA and is depicted in **Figure 7.6**.

7.2.10 Potential Acid Sulfate Soil Areas and Contaminated Land

Acid Sulfate Soils

Acid Sulfate Soils occur predominantly in coastal areas with elevations generally below 5 metres AHD. When such lands are disturbed or drained, toxic quantities of acid, aluminum, iron and heavy metals may contaminate land and adjacent waterways. This can lead to severe impacts on vegetation and aquatic species and accelerated structural failure of building foundations, pipes, road surfaces and other infrastructure.

State Planning Policy SPP 2/02 – Planning and Managing Development Involving Acid Sulfate Soils aims to ensure development involving acid sulfate soils is planned

and managed to avoid release of potentially harmful contaminants into the environment.

The current planning scheme for the former City of Maryborough also includes an 'Assessment and Management of Acid Sulfate Soils Code' which is to be regarded as the local interpretation and expression of State Planning Policy 2/02. The Code seeks to ensure that the production of acid sulfate soils is maintained to within natural limits and so that there is no environmental harm caused to natural systems by the production of acid sulfate soils.

The potential effects of disturbing acid sulfate soils need to be addressed when planning for, or undertaking, development. While it is preferable to avoid disturbing acid sulfate soils, it is not the intention of the SPP to stop development because of acid sulfate soils. This is because the potential adverse effects of disturbance can be avoided or minimised by treatment and, in some cases, by ongoing management.

The presence (or possible presence) of acid sulfate soils is a development constraint that should be subject to an appropriately rigorous risk assessment. Determining the presence or absence of acid sulfate soils should therefore be taken into account as early as possible when considering projects in areas likely to contain acid sulfate soils.

Land with acid sulfate soils occurrence is not present in the Granville FIA. Land with low probability of acid sulfate soils occurrence is present across the majority of the FIA. **Figure 7.7** demonstrates the distribution of land with the potential for acid sulfate soils occurrence in the Granville FIA.

The presence of land with low or high probability acid sulfate soils does not present a rigid constraint to development of the Granville FIA. Appropriate mitigation measures can be undertaken prior to development occurring to ameliorate the impacts of acid sulfate soils.

Contaminated Land

The Granville FIA does not contain any contaminated land.

Figure 7.7 demonstrates the distribution of contaminated land throughout Maryborough.

7.2.11 Bushfire Hazard

Bushfire is a significant hazard for urban, rural residential and rural communities and can cause extensive damage to property, injury and loss of life.

State Planning Policy SPP 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide 1.0 aims to minimise potential adverse impacts of flood, bushfire and landslide on people, property, economic activity and the environment.

Effective land use planning can limit and, over time, reduce the impacts of natural disasters. The SPP will shape land use planning and development decisions to create settlement patterns that reduce vulnerability to many bushfire events. Local government strategic planning should include strategies that would prevent

development from increasing bushfire risk for existing and planned communities and facilities.

SPP 1/03 adopts a policy of prudent avoidance whereby as far as practical development in natural hazard areas is to be avoided unless there is an overriding need for the development and the development is able to minimize the adverse impacts from the natural hazard such that there is not an acceptable risk to people and property.

For the most part the Granville FIA has a low bushfire hazard. Some portions of the FIA, particularly in the eastern corner and along the southern-western boundary, are designated as being of medium bushfire hazard.

It is assumed that areas of Medium Bushfire Hazard are likely to be able to be mitigated of the impacts of bushfire hazard when developing a large urban area and therefore do not represent a rigid constraint to development of the FIA for residential purposes.

Figure 7.8 demonstrates the distribution of low and medium bushfire hazard in the Granville FIA.

7.2.12 Character and Identity

Large parts of the Granville FIA have an established and comprehensive attractive rural character. The rural character is dominated by productive agricultural land (sugar cane) west of Walkers Point Road, and by mostly pastoral land east of Walkers Point Road.

High intensity vegetation in some parts of the FIA and on the eastern and southern peripheries of the FIA creates a desirable contrast to the expanse of rural and agricultural land. Indeed, high intensity vegetation forms a rough eastern and southern boundary to the FIA.

The Mary River, a wide river with vegetated banks, runs along the western side of the FIA and creates a visually attractive edge to the FIA.

The FIA is generally flat, with only a small rise in elevation in the north of the FIA. The monotony in elevation ensures limited opportunity for expansive views from the FIA to areas external to the FIA, and similarly restricts opportunities for areas external to the FIA to view elevated points of interest within the FIA.

Views from the western side of the Mary River across to the Granville FIA presently observe a largely rural setting fronted by a vegetated bank to the river, which might be affected by redevelopment of the FIA.

The established urban residential and rural residential dwellings extending along Walkers Point Road north of the defined existing urban area (south of the FIA boundary) create a peri-urban character that implies future residential growth in that direction.

Overall, the Granville FIA presents a largely intact rural character with some desirable visual elements along the boundaries of the FIA. However the Granville FIA is not of such an outstanding or distinctive character, as compared to other

areas in the vicinity of Maryborough, that it must be retained in its entirety or in perpetuity.

A visual representation of major character and identity elements has been presented in **Figure 7.9**.

7.2.13 Transport Infrastructure

7.2.13.1 Existing Road Network

The Granville FIA is serviced by a single road, namely Walkers Point Road. Walkers Point Road runs centrally through the FIA from the existing Granville residential neighbourhood in the south towards Walkers Point beyond the FIA in the north. Through the existing Granville residential neighbourhood Walkers Point Road (at that point named Odessa Street) is classified as a Major Urban Collector, while through the FIA Walkers Point Road is classified as a Rural Collector. A number of roads intersect Walkers Point Road, servicing the properties to the east and west. Some roads are constructed rural access roads, particularly those servicing established dwellings, while others are unformed (graded dirt) roads.

As discussed in the traffic advice provided by Holland Traffic Consulting, attached as **Appendix C**, the most obvious feature from a traffic viewpoint in the Granville area is that there is only a single road connection to Maryborough proper. The connection comprises a relatively narrow two-lane bridge (Tiger Street Bridge) over the Mary River. There are traffic signal controlled intersections either side of the bridge having relatively low traffic capacities by virtue of the need for both of those traffic intersections to accommodate relatively high levels of turning traffic.

The Tiger Street Bridge forms part of the state-controlled road network, which to the south of the Mary River connects through Maryborough City centre to the Bruce Highway, and to the north of the Mary River travels east to Cooloola.

The situation of only a single road connection to Maryborough proper raises concerns regarding the outcome of major blockage of, or damage to, the bridge. Holland Traffic Consulting suggests that such a situation becomes more acceptable as the communities on each side of the river grow in size and develop their own community facilities, such as schools, hospitals and significant shopping centres. Such a situation is unlikely to occur on the Granville side of the Mary River in the foreseeable future. The question of what would occur in the event the Tiger Street Bridge was damaged, was blocked by some major incident, or was flooded therefore becomes highly relevant. In such an event, the alternative route to Maryborough proper appears to involve a round-trip via Gunalda, a distance in excess of 150km. In fact, the nearest major community facilities accessible by road in such circumstances are those in Gympie, almost 100km distant. "Queensland Streets" touches on this subject, where in section 3.4, it suggests that a reasonable degree of connectivity is desirable for a number of reasons, including the provision of alternative routes for emergency use. In fact, it suggests that precincts of more than 100 lots should have more than one possible access route. The urbanised area east of the Mary River obviously contains more than 100 dwellings.

Accordingly, it is the view of Holland Traffic Consulting that encouragement of significant residential development in the Granville area could not be said to

represent sound or appropriate planning unless an additional crossing of the Mary River, or a new road link across Tinana Creek (such as could conceptually be achieved by linking Bidwill Road with Woongool Road) is contemplated.

In detail, neither of the intersections of Eden Street nor Range Street with Walkers Point Road are well situated to accommodate any significant increase in traffic flows. The Eden Street intersection has very poor sight distances to the south. The Range Street intersection is located on the inside of a bend on Walkers Point Road which also results in sight distance restrictions.

The existing road network in the established Granville residential neighbourhood is developed on a grid structure which lends itself to the efficient future expansion into the FIA.

The existing road network is illustrated on **Figure 7.10**.

7.2.13.2 Future Road Network

Fraser Coast Regional Council has not expressed a desire to alter the existing road network in Granville. In particular, Council has not made a commitment to the duplication of the existing bridge across the Mary River or the creation of a new bridge in an alternative location.

In association with this project some consultation has been undertaken with Department of Main Roads (refer to **section 7.3** of this report). Department of Main Roads has advised that some planning for a future 'Eastern Maryborough Bypass' road has been undertaken, but that there is no firm intention or commitment to constructing this road in the short term. The future Eastern Bypass would, in the first instance, connect from Hervey Bay – Maryborough Road on the western side of the Mary River, through the southwestern part of the FIA, to Walkers Point Road/Odessa Street. The second stage would extend the Eastern Bypass from Walkers Point Road/Odessa Street, through the FIA, to a connection point to the Cooloola Road beyond the eastern extent of the existing residential neighbourhood. Construction of the Eastern Bypass will require a new bridge across the Mary River.

The Eastern Maryborough Bypass may limit development in parts of the FIA as it provides a physical constraint with limited access or crossing points.

The possible route of the Eastern Bypass is illustrated on **Figure 7.10**.

7.2.13.3 Alternative Transport Methods

A single bus route services the existing Granville neighbourhood. Bus route 4 circulates through Granville and connects to the Maryborough city centre via the Tiger Street Bridge.

The existing Granville neighbourhood does not contain any formal on road or off road bicycle routes. Pedestrian paths are provided along some streets.

The existing alternative transport methods network is illustrated on **Figure 7.10**.

7.2.13.4 Airport Considerations

State Planning Policy 1/02 addresses the safety and operational efficiency of prescribed airports and aviation facilities and provides guidance to local government about how these issues are to be addressed when preparing planning schemes or assessing development applications.

Maryborough Airport is identified as one of the airports to which the State Planning Policy applies and accordingly State Planning Policy 1/02 is a relevant consideration in the future planning for the FIAs. In all future planning for areas the direct and indirect impacts on the operation of airports must be considered.

While the direct impacts (such as intrusion of buildings and their associated outputs and flow on effects into operational airspace) of possible urban development in the FIAs will need to be clearly addressed, in the case of Maryborough Airport it is anticipated that the influence of the State Planning Policy with respect to the Indirect impacts arise when people living in, working in or visiting development perceive aircraft noise to be a significant problem and consequently campaign to curtail aircraft operations to reduce noise impacts.

Encroachment of incompatible development in areas close to an airport may ultimately compromise the future of that airport forcing it to close or modify its normal operations.

In order to avoid both direct and indirect impacts SPP 1/02 generally requires that development does not intrude into the 20 Australian Noise Exposure Forecast (ANEF) Contour at and around each airport. The 20 ANEF contour for the existing runway at Maryborough Airport do not impact upon the Granville FIA.

An important consideration in the planning for the Granville FIA is whether there is any intention to expand the Maryborough Airport. The creation of a runway perpendicular to the existing runway may extend 20 ANEF contours into the Granville FIA. Discussion earlier in this report has identified that there are two options for Maryborough Airport – to expand its operations to fulfil a more regional role if Hervey Bay Airport were to close, or to cease its operations if the regional airport were to be created in a new location between Maryborough and Hervey Bay. However, there is no current planning for the expansion or closure of Maryborough Airport and so alterations to the ANEF contours cannot be considered at this stage. Planning for the Granville FIA should not be influenced by potential for future expansion of Maryborough Airport.

The existing 20 ANEF contours are mapped on the Local Area Plan Extracts in **Figure 5.2**.

7.2.14 Physical Infrastructure

7.2.14.1 General Matters Affecting All Physical Infrastructure Networks

The following outlines the general matters affecting all physical infrastructure networks, as highlighted by Opus Qantec McWilliams in their advice in **Appendix D**:

- (a) The imposition of the Mary River, which borders the north-western boundary of the FIA, severs it from the Maryborough City Centre and assumed core trunk infrastructure, and may constrain the potential to provide water and sewerage infrastructure to a future significant dedicated urban residential redevelopment. It is further identified that the connectivity to existing trunk water and road infrastructure is via an existing residentially developed area to the south of the Granville FIA with Walkers Point Road and its associated Tiger Street existing bridge crossing of the Mary River being the prime access route for any new, augmented or duplicated infrastructure other than sewerage infrastructure which will need to traverse the Mary River in the vicinity of the existing STP which is located opposite to the Granville FIA.
- (b) The indicative route location for the DMR identified Future Eastern Maryborough Bypass severs the FIA from east to west and may result in difficulty in planning and providing integrated trunk infrastructure in the context of the preliminary and concept nature of the design of this future DMR asset. Development and its associated local infrastructure provision may also be similarly constrained with this Bypass having the potential to dictate development sequencing and timing.
- (c) Assuming that no form of residential development other than traditional urban style lots of at least 600m² in area, the relatively modest developable yield and its potentially low intensity, on a per area basis, and given the other identified constraints, in general, it is considered that the relative cost of the provision of both trunk and local infrastructure will be high.
- (d) Based on a general review of the constraints and the location of existing trunk infrastructure, and in particular water infrastructure, and notwithstanding the constraints and values as identified on Figure 2 of the Chenoweth Granville FIA ecological assessment, it is considered that any urban style residential development should progressively extend from adjacent to the existing established consolidated residential precincts within the FIA but with particular regard to flood and transport network constraints.
- (e) If development of the FIA is ultimately something that Council does wish to proceed with, then in association with a future priority infrastructure plan and associated infrastructure charges schedule being developed and approved as part of a structure planning exercise, infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure in order to service the demands of any unanticipated and possibly anticipated residential development.

7.2.14.2 Water Supply Infrastructure

The following analysis of water supply infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

Based on a review of Maryborough City's Water and Sewerage Headworks Planning Scheme Policy 6.3 (PSP 6.3), a relatively small area located in the south-eastern part of the Granville Further Investigation Area is located within the existing Granville zone of the water supply headworks area as declared in the year 2000. However, based on surface contour values of this area, further investigation is

recommended to confirm that adequate pressure head is available to provide an adequate supply in these higher localised areas.

In order to assess the potential to adequately meet the water supply demands due to future residential development within this FIA, a detailed review of background water reports, including the current computer based water network model, together with analysis of per capita water consumption historical records so as to establish demand trends, will be required.

Through this process, any spare capacity and pressure inadequacies can be identified and considerations given to any feasible upgrades and duplications on a cost-benefit analysis and in the context of anticipated demands based on potential residential development growth within the FIA.

Such an analysis and detailed review should involve a whole of network integrated approach starting with the existing supply at Tinana Creek and the Tedington Water Treatment Plant and proceeding through the trunk supply system to the existing 450mm diameter distribution main to the existing Granville zone via the Tiger Street Bridge over the Mary River.

A detailed Granville water network analysis will also be required with reasonable possible infrastructure modifications identified and considered. In particular, the existing 300mm diameter water main which currently exists within Walkers Point Road in the vicinity of Burns Street may currently have some spare capacity which can be allocated to satisfy some future residential demand.

Section 4.0 of PSP 6.3 specifies that water supply is only required for rural residential lots less than 1 ha in area and only at Council's discretion for rural lots. On this basis, it may assist in the allocation of spare water supply capacity to future residential development within this Granville FIA, to strategically only consider the inclusion of urban style traditional residential lots.

Through the restriction of a revised water designated infrastructure service area (headworks area), a residential lot mix will result, whereby lots equal to or larger than 1 ha will only be possible outside this designated area. This potential arrangement will then be commensurate with the generally constrained environment within which any future residential development is to occur.

Based on recent census results, it appears that 2.6 EP (equivalent person) per household is a reasonable basis with the 550 litres per EP per day consumption rate as per PSP 6.3 to be reviewed so as to establish realistic future per capita reticulated water demands. It should be noted that these comments in regard to lot areas are limited to the context of the supply of reticulated water rather than a broader planning context.

Overall, subject to further detailed water analysis including modelling for anticipated demands, it is reasonable to conclude that significant trunk water supply, treatment and storage upgrades may be required for any endorsed significant urban style residential development.

The existing water supply infrastructure network is illustrated on **Figure 7.11**.

7.2.14.3 Sewerage Infrastructure

The following analysis of sewerage infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

The existing sewage treatment plant (STP) is centrally located adjacent to the Mary River opposite this Granville FIA and its associated effluent disposal area is located in the north-west of the Maryborough North FIA also on the opposite side of the Mary River. Sewage is conveyed to the STP via a system of gravity and rising mains together with associated pump stations where required.

Based on the relatively flat terrain of the Granville FIA, it is expected that additional pump stations and rising mains, and possible augmentation of these as they currently exist, together with gravity sewers, may be required to adequately service any future traditional urban style residential development within this FIA.

As is the case with the existing trunk water supply, a detailed assessment of the capacity of the existing trunk sewerage network is required in order to identify any spare capacity and/or deficiencies.

It is reasonable to assume that the provision of additional and/or augmented trunk sewerage infrastructure is less problematic in comparison to trunk water infrastructure based on the relative close proximity of the existing STP and anticipated route location and general separation from existing road corridors.

However, the capacity of the existing STP and Environmental Protection Agency (EPA) licensing requirements for discharge of increased effluent volumes require particular scrutiny in terms of additional currently unplanned demands.

Furthermore, environmental and ecological impacts of any duplication of trunk mains within wetlands, waterways and associated buffers including potential crossing of the Mary River needs careful consideration.

The existing sewerage infrastructure network is illustrated on **Figure 7.12**.

7.2.14.4 Stormwater Infrastructure

The following analysis of stormwater infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

As the Granville FIA is bordered by the Mary River generally to its west and south with the western portion of the FIA significantly constrained by potential flood impacts in areas below the Q100 or highest recorded flood line, the existence of suitable lawful points of discharge is not in question.

It is envisaged that suitable level control and bulk earthworks will be undertaken to manage major and minor stormwater flows via a combination of subsurface piped systems and overland flow paths, including roadways, in accordance with the Queensland Urban Drainage Manual and relevant Council standards. Any external stormwater catchment flows will be required to be conveyed through future residential developments to the relevant lawful point of discharge.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be

required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in close proximity and at risk. Proposed stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/ pollutant removal.

As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis.

It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks.

As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime.

Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council.

The existing stormwater infrastructure network is illustrated on **Figure 7.13**.

7.2.15 Community Infrastructure and Open Space

7.2.15.1 Community Infrastructure

Community infrastructure does not exist within the boundaries of the Granville FIA.

A preliminary community infrastructure assessment has been undertaken for the adjacent Granville residential neighbourhood. The community infrastructure identified to presently exist in the established Granville neighbourhood includes:

- Apostolic Church, Dale Street;
- Anglican Church, Odessa Street;
- Scout Hall, St Mungo Plantation Park, Banana Street;
- Granville State Primary School, Cambridge Street;
- Granville Preschool, Cambridge Street;
- Granville Community Kindergarten, Cambridge Street; and
- Groundwater Aged Persons Complex, Arnaud Street.

The above inventory identifies a range of community infrastructure to service the existing Granville residential neighbourhood. Residential uses created in the Granville FIA would be able to utilise these existing community facilities.

Additional Community Infrastructure

The "Planning for Social Infrastructure" document prepared by SGS Economics and Planning (Urbecon December 2005 - Planning for Social Infrastructure, SGS Economics and Planning), included in **Appendix E**, identifies requirements for

community infrastructure based on population levels. Local level requirements, district level requirements and shire-wide or regional requirements are reproduced in the table below.

Table 7.2 – Community Infrastructure Requirements

Facility	Benchmark for Provision (# per population)	Responsibility
Local Level Requirements		
Community meeting room / Multi-purpose hall	1: 6-10,000	Council
Childcare Centre (long day care)	1: 5-7 (children aged 0-4), or 1: 4-8,000 (total population)	Primarily Private
Kindergarten	1:7,500-10,000	Private
Primary School	1:7,500	State
Public/Community Housing	6-7 dwellings: 1000	State/community housing providers
Aged person's housing <ul style="list-style-type: none"> • High Care (Nursing home) beds • Low Care (Hostel) places • Community Aged Care Packages (CACPs) • Self Care 	<ul style="list-style-type: none"> • 40 beds/1,000 people 70+ • 48 places/1,000 people 70+ • 20 CACPs/1,000 people 70+ • 50 places/1000 people 70+ 	Commonwealth/ Private
District Level Requirements		
Multi-purpose Community Centre	1:20-30,000	Council
High School	1:20,000	State
Youth Facility/Service	1:20,000	Council/State/others
Branch Library	1:15,000-30,000	Council
Aged Care Centre	1:10-20,000	Council/C'wealth/others
Neighbourhood Centre	1:20-30,000	State
Community Health Centre	1:20-30,000	State
Police and Emergency Services	1:25-30,000	State
TAFE Campus	1:30,000	State
Shire-wide or Regional Requirements		
Art Gallery	1:30-150,000	Council/State/Federal
Museum	1:30-120,000	Council/State/Federal
Central Library	1:50-150,000	Council
Civic Centre	1:30-120,000	Council
Performing Arts/Exhibition/Convention Centre	1:50-200,000	Council/State/Federal/private
Supported (Emergency) Accommodation	1:50-100,000	State/others
Hospital		

<ul style="list-style-type: none"> • Public • Private 	<ul style="list-style-type: none"> • 2.6 beds/1000 people • 1.7 beds/1000 people 	State Private
TAFE District Facility	1:150,000	State
University	1:150-200,000	Commonwealth

(Source: Urbecon December 2005 - Planning for Social Infrastructure, SGS Economics and Planning)

The 2006 census recorded the population of Granville as 2,607. The existing community infrastructure in Granville satisfies the local level requirements for the existing population and a potential population increase of approximately 5,000 to 7,500 people, except is absent of the following facilities:

- A community meeting room / multi-purpose hall; and
- A child care centre.

The greater area of Maryborough contains all of the district level requirements for community facilities. Future development of the Granville FIA will have access to the district level community facilities located throughout Maryborough.

The Fraser Coast Regional Council Area and the Wide Bay Burnett Region contain all of the shire-wide or regional requirements for community facilities. In fact, many of these facilities are located in Maryborough. Future development of the Granville FIA will have access to the shire-wide or regional community facilities located throughout Fraser Coast Regional Council Area and the Wide Bay Burnett Region.

A detailed community infrastructure assessment will be required to determine the quantum expansion required of existing infrastructure to service any extension of urban development into the FIA.

State School Capacity

Some consultation has been undertaken with the Department of Education, Training and the Arts' regional Maryborough office to establish the capacity of existing schools in Maryborough and determine their ability to satisfy student growth resulting from population growth. In respect of capacity of state schools near Granville, the Department advised that:

- (h) Granville State Primary School currently accommodates 399 students but has capacity in its current building stock for approximately 500 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school to 600-800 students.
- (i) High school aged children would attend either of the two State High Schools in Maryborough: Maryborough State High School or Aldridge State School. Maryborough State High School currently accommodates 730 students but has capacity in its current building stock for approximately 1,200 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. Aldridge State High School currently accommodates 993 students and is at capacity with its current building stock. However, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school.

- (j) Families in Granville are able to send students to either the network of state schools or a number of private schools, all of which are scattered throughout Maryborough. Future population growth in Granville would witness increases in students at both the state and private schools.

Overall, the Department has advised even very large population growth in the Granville FIA would be unlikely to exceed the capacity of the existing network of state schools and that no new schools would be required (although some new buildings in the existing land area of some schools may be required).

Full details of the Department of Education, Training and the Arts' consultation outputs are included in **section 6.4** of this report.

7.2.15.2 Open Space and Recreation Infrastructure

Existing Open Space and Recreation Infrastructure

The Granville FIA contains a number of existing public parks and reserves. In the southern parts of the FIA some areas of historic residential format subdivision that have never been developed for residential purposes and are now covered by dense vegetation have been acquired by Fraser Coast Regional Council and allocated as public reserves.

The Granville FIA also contains existing private recreational facilities. The Federation Park AFL Club is located in the southern portion of the FIA.

A number of other public parks and private recreational facilities exist in the adjacent established Granville residential neighbourhood to service the existing population.

The existing open space and recreation infrastructure in the Granville FIA is identified on **Figure 7.15**.

Future Open Space and Recreation Infrastructure

The Granville FIA contains some possible future public open space areas, as identified by the Parkland Contribution Planning Scheme Policy of the current Fraser Coast (Maryborough City) Planning Scheme.

These desired future public open space areas should be retained where possible in the future planning for the Granville FIA.

Future development of the FIA for urban purposes may necessitate the creation of additional open space and recreation facilities.

The future open space and recreation infrastructure in the Granville FIA is identified on **Figure 7.15**.

7.2.16 Synthesis of Constraints and Opportunities

In summary, the attributes that lead to opportunities and constraints for urban development of the Granville Further Investigation Area may be described in the following way:-

- Most of the FIA is currently cleared and is used for productive agricultural purposes or other non-productive rural purposes;

- The FIA is adjacent the established Granville residential neighbourhood, and development into the FIA could represent organic growth of that neighbourhood;
- Most of the FIA has relatively large rural lots held in freehold tenure, allowing for a good opportunity for an efficient and coordinated process of planning and development;
- The topography of the FIA, being generally flat, provides good opportunity for urban expansion requiring insignificant earthworks to facilitate urban activity. However, if development is proposed on flood prone land significant earthworks will be required to achieve the necessary levels of flood immunity for that land. Detailed geotechnical investigations should be undertaken within the FIA to confirm or refute the existence of unstable land prior to any commitment to future development of the area ;
- The Granville FIA is located adjacent the Mary River. Protection of the integrity and ecological processes of the Mary River and its corridor, including through appropriate buffering to development, is important to the health of the Mary River and its catchment area. A buffer of 100 metres is to be applied to the Mary River;
- A small tributary of the Mary River enters the north-west part of the FIA. Protection of the integrity and ecological processes of this minor waterway is also important to the health of the Mary River, and as such a buffer of 30 metres is to be applied;
- A number of locally-significant wetland systems occur in the Granville FIA. These naturally occurring wetlands are recommended to be retained and adequately buffered to protect their important ecological values. A buffer of 100 metres is to be applied to wetland areas in the FIA;
- A larger portion of the FIA, adjacent the Mary River and generally west of Walkers Point Road, is identified as flood prone or potentially flood prone land (1:100 ARI flood event). Future urban development in the FIA should be located outside of identified flood prone or potentially flood prone areas, to achieve acceptable levels of flood immunity for future development and to reserve land needed for flood water storage and flows. Further consideration must also be given to the impacts of climate change and sea level rise on flooding in the FIA;
- A number of areas of remnant vegetation and ecological values have been identified in the Granville FIA. Methods for the retention and protection of these environmentally sensitive and important areas, including implementation of buffers, enhancement of localised connectivity, and establishment of a desired nature conservation network, are to be applied to the FIA. CEPLA has prepared detailed mapping that relates to the retention and protection of important environmental areas;
- The majority of land in the FIA is classified as Class A agricultural land, and is therefore considered Good Quality Agricultural Land. Good quality agricultural land is a valuable resource that should be protected from development that

may lead to its alienation or diminished productivity. In the Granville FIA all Class A land should avoid development for urban purposes, where possible. Further, a buffer of 150 metres to any future urban purposes is to be applied to areas of good quality agricultural land (Class A land) and other areas of continued agricultural operation;

- Land with acid sulfate soils occurrence is not present in the FIA;
- The FIA contains land subject to medium bushfire hazard, however it is accepted that areas of medium bushfire hazard are likely to be able to be mitigated of the impacts of bushfire hazard through appropriate planning processes undertaken in association with future Greenfield urban development. Bushfire Hazard does not represent a rigid constraint to development of the FIA for urban purposes;
- The Granville FIA presents a largely intact rural character with some desirable visual elements, such as the Mary River and areas of dense remnant vegetation, along the boundaries of the FIA. However, the FIA does not present such an outstanding or distinctive character as compared to other areas in the vicinity of Maryborough, that it must be retained;
- The Granville FIA is accessed by a single road, Walkers Point Road. Further, the entire Granville neighbourhood is only connected to Maryborough proper by a single bridge (the Tiger Street Bridge) over the Mary River. Significant future urban development in the Granville area could not be said to represent sound or appropriate planning unless an additional crossing of the Mary River, or a new road link across Tinana Creek, is contemplated;
- The Department of Main Roads has advised that preliminary planning for a future Eastern Maryborough Bypass, connecting Maryborough – Hervey Bay Road (near the airport) to Walkers Point Road and then the Cooloola Road, via a new bridge across the Mary River, has been undertaken, but that there is no firm intention or commitment to constructing this road in the short term. Structure planning for future urban development of the FIA should allow for the creation of the Eastern Maryborough Bypass at some stage in the future;
- The Eastern Maryborough Bypass may limit development in parts of the FIA as it will allow limited access or crossing points;
- The intent for future expansion or closure of the Maryborough Airport is unknown and therefore planning for any changes to the current runway configuration and associated 20 ANEF contours is not to be applied to this structure planning exercise. The existing 20 ANEF contours do not extend into the Granville FIA;
- Capability exists for connection to the existing water supply network and sewerage network, although it is expected that additional elements of network infrastructure, and possible augmentation of those that currently exist, may be required to adequately service any future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in

support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades;

- The imposition of the Mary River, which severs the FIA from the Maryborough City Centre and assumed core trunk infrastructure, may constrain the potential to provide water and sewerage infrastructure to a future significant dedicated urban residential redevelopment. The indicative route for the Eastern Maryborough Bypass also severs the FIA from east to west and may thereby result in difficulty in planning and providing integrated trunk infrastructure;
- As the Granville FIA is bordered by the Mary River and large parts of the FIA constrained by potentially flood prone land, suitable lawful points of discharge for new stormwater infrastructure, constructed in association with urban development of the FIA, are readily available within or adjacent to the FIA. Stormwater quality improvement objectives must be met, particularly with the Mary River in close proximity and at risk;
- Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high (subject to a more detailed investigation not included in the scope of this project);
- The sequencing of infrastructure would generally occur in a logical manner from south to north, through the FIA commencing at the connection of the FIA to the existing Granville neighbourhood;
- The FIA does not contain any existing community infrastructure. However, the established Granville neighbourhood has a wide range of community infrastructure that is able to service urban expansion into the Granville FIA. Some new community facilities, such as a child care centre and multi-purpose centre / community hall may be required to fill existing infrastructure gaps;
- Granville State Primary School has sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in primary school-aged students in the FIA. Maryborough State High School and Aldridge State High School have sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in secondary school-aged students in the FIA. Future urban development of the Granville FIA it is unlikely to necessitate creation of new state primary or secondary schools;
- A number of existing and possible open space and recreation areas existing within or near the Granville FIA. Urban expansion within the FIA may necessitate new open space and recreation facilities to provide an adequate level of access to open space for future residents.

The synthesis of the major opportunities and constraints applying to the Granville FIA is depicted in **Figure 7.16**.

7.2.17 Unconstrained Land

Areas of the Granville FIA not constrained by the above environmental, economic and social characteristics are potentially suitable for urban development. Specifically, unconstrained land includes land that:

- is not flood prone or potentially flood prone land (outside of the level of the 1:100 ARI flood event);
- is outside of CEPLA's proposed nature conservation network;
- is more than 150 metres from ongoing agricultural land uses that are adjacent to the FIA;
- is not identified for existing or future community use or public or private open space;
- is not separated from areas of existing urban development or access roads by future state-controlled roads; and
- is not inhibited by established uses on highly fragmented land.

While not identified as an absolute constraint, as per the constraints identified above, urban development of land identified as good quality agricultural land (Class A land) should be minimised unless there is overriding need for the urban development.

An area of approximately 218 hectares is identified as unconstrained land (37% of the FIA) that is potentially suitable for urban development. The ability of the unconstrained land to be developed needs to be considered in conjunction with the need for substantial infrastructure expansion and protection of valuable site features.

Figure 7.17 graphically represents the area of unconstrained land in the Granville FIA.

7.3 Maryborough North Further Investigation Area

7.3.1 Location and Context

The Maryborough North Further Investigation Area is located approximately 3 kilometres to the north of the Maryborough Central Business Area. It is bounded generally by the neighbourhoods of Aubinville and St Helens to the east, the neighbourhoods of Fairfield and Baddow to the south, the Maryborough Rifle Range and private property to the west and Saltwater Creek to the North. It has an area of approximately 810 hectares and is irregular in shape.

7.3.2 Land Use

7.3.2.1 Existing Land Use

The Maryborough North FIA is predominantly used for a range of rural uses including sugar cane cultivation, small scale cropping, grazing and a number of other non-productive rural uses. Agricultural production, primarily for sugar cane, is particularly prevalent on land in the northwest of the FIA. Grazing activities infiltrate areas of agricultural production in the northwest of the FIA in some instances.

A wide range of rural uses have been established along the Maryborough – Hervey Bay Road corridor, including small pastoral holdings, large rural residential allotments, hobby farms, and other per-urban activities. The Maryborough – Hervey

Bay Road corridor also includes a number of industrial activities interspersed with rural activities. An established industrial subdivision has been established centrally in the FIA, adjoining an established rural residential subdivision.

Relatively intact areas of intensive vegetation occur sporadically across the FIA – the most intact areas are in the southwest and northwest of the FIA, where adjoining the rifle range and where associated with waterway corridors connecting to Saltwater Creek.

The existing Maryborough landfill is located in the southern part of the FIA.

Open space and recreation areas, such as the Harry Booth Memorial Soccer Ground and the Fay Smith Wetlands, are also located in the south of the FIA.

The Maryborough North FIA generally presents a fragmented and incoherent land use pattern, primarily due to the extensive range of ad hoc uses that have established along Maryborough – Hervey Bay Road. However, land west of Lawson Road presents as a relatively intact rural area.

Figure 7.1 depicts the current pattern of land use within the Maryborough North FIA.

7.3.2.2 Surrounding Land Use

Land to the east of the FIA is primarily used for agricultural production. Maryborough Airport adjoins the FIA to the south-east. Land to the south of the FIA is comprised of uses associated with the existing residential neighbourhood of Fairfield, with predominantly parkland and residential land adjoining the FIA boundary. Land adjoining the western border is comprised of the vegetated areas of the rifle range and land used for agricultural production. Saltwater Creek forms the northern boundary of the FIA, with land further north of the Creek covered by intensive vegetation or used for agricultural production.

Development of the FIA should respect the integrity of adjoining land uses. If the FIA is to include future residential land uses, such development should create a sense of integration with and organic growth of the existing adjoining residential neighbourhood. Areas of agricultural production and of ecological importance should be adequately buffered from future residential uses.

Figure 7.1 presents the current use of land immediately surrounding the Maryborough North FIA.

7.3.3 Land Tenure

The majority of the FIA is in freehold tenure with only small parts of the FIA (predominantly in the south-west of the FIA) included in Lease, Reserve or State land tenure.

Figure 7.2 depicts the current pattern of land tenure within the Maryborough North FIA.

7.3.4 Land Fragmentation

The Maryborough North FIA is made up of over 215 separate allotments that range in area from approximately 700 square metres to 106 hectares. A large proportion

of the site is comprised of larger rural lots. There is extensive fragmentation of the rural land where fronting Maryborough – Hervey Bay Road and in the south of the FIA. The existing lot layout provides evidence of some urban subdivisions, most notably an industrial subdivision on Maryborough – Hervey Bay Road, a rural residential subdivision adjoining the industrial subdivision on Maryborough – Hervey Bay Road, and a urban residential subdivision in the south of the FIA (although that subdivision is presently used for open space and recreation purposes).

The collection of larger lots held by a relatively small number of owners allows for a better opportunity to achieve a large scale integrated outcome, through an efficient and coordinated process of planning and development.

7.3.5 Topography and Slope

The Maryborough North FIA has a relatively flat to gently undulating topography. The FIA reaches a high point of approximately 15 metres AHD at a number of knolls in the south-west and north-west of the FIA. The FIA contains very low lying land in a central corridor through the FIA and where adjoining Saltwater Creek.

The topography of the FIA, being generally flat, provides good opportunity for urban expansion requiring insignificant earthworks to facilitate urban activity. However, if development is proposed on flood prone land, significant earthworks will be required to achieve the necessary levels of flood immunity for that land.

Detailed geotechnical investigations should be undertaken within the FIA to confirm or refute the existence of unstable land prior to any commitment to future development of the area.

Figure 7.3 identifies the contours of the Maryborough North FIA.

7.3.6 Waterways and Wetlands

Waterways

The Maryborough North FIA is adjacent to Saltwater Creek, which is a major tributary to the Mary River. Saltwater Creek connects to the Mary River approximately 1 kilometre east of the north-eastern boundary of FIA. Saltwater Creek is a tidal waterway.

A number of smaller waterways extend through the FIA. These waterways are generally associated with wetland areas and flow into Saltwater Creek.

Development is to be managed in terms of its relationship to watercourses. The integrity of riparian corridors, particularly of Saltwater Creek, must be maintained. The effects of any future development on the riparian area of Saltwater Creek and its tributaries must be limited, particularly in terms of:

- Riverbank stability and channel integrity;
- Maintenance of a corridor of natural vegetation which has sufficient ecological integrity to support local and regional biodiversity values (including aquatic and terrestrial vegetation and wildlife);
- Protection of water quality values from nutrients, sediments and pollutants.

Protection of Saltwater Creek and its riparian corridor, including appropriate buffering to development, is important to the health of Saltwater Creek, the Mary River and the wider catchment area.

As identified by the Ecological Assessment prepared by CEPLA in **Appendix B** the Department of Primary Industries recommends buffers of 50 to 100 metres to freshwater systems to maintain ecological processes. These buffer areas have been applied to planning for future development of the Maryborough North FIA. In particular, CEPLA has applied a 100 metre buffer to Saltwater Creek and a 30 metre buffer to the small tributaries of Saltwater Creek.

Saltwater Creek is not identified as a referable wetland on the Environmental Protection Agency referable wetland mapping.

The location of Saltwater Creek and associated waterways, and their relationship to the Mary River, is identified on **Figure 7.4**.

Wetlands

A number of locally-significant wetland systems occurring in the Maryborough North FIA have been identified in mapping provided by Fraser Coast Regional Council. In the Ecological Assessment, attached in **Appendix B**, CEPLA has identified that naturally occurring wetlands are recommended to be retained and buffered.

Areas of referable wetlands as identified on the Environmental Protection Agency referable wetland mapping occur in the Maryborough North FIA. These areas generally translate to the wetland areas mapped by Fraser Coast Regional Council and have been evaluated by CEPLA in the Ecological Assessment.

The Department of Primary Industries recommends a default buffer of 50m to freshwater systems. However the DPI 'buffer function assessment table' suggests that a buffer of up to 100m may be necessary to protect ecological functions (carbon cycling, leaf litter inputs etc.). Davies and Lane (1995) provide the most comprehensive guidelines to wetland buffer in Australia. They recommend buffers of 200m on sandy soils to prevent nutrient inputs. Therefore buffers of 100-200m are desirable, depending on the proposed adjacent use and the water quality measures to be implemented. CEPLA has applied 100m buffers to wetlands in the Maryborough North FIA.

Locally significant wetland areas and their buffers have been mapped by CEPLA in the Ecological Assessment in **Appendix B** and have been reproduced in **Figure 7.5** of this report.

7.3.7 Flooding

The flood mapping contained in the Flood Management Code of the current Fraser Coast (Maryborough City) Planning Scheme plots the area of inundation equivalent to the 1893 flood, that is, 12.27 metres recorded at the Macalister Street flood gauge. The height of the 1893 flood best represents the 100 year ARI flood event and is the land which Council considers to be flood prone or potentially flood prone.

A large area of land in the south-east of the FIA, a corridor that runs east-west through the centre of the FIA, and land adjoining Saltwater Creek is identified as flood prone or potentially flood prone land.

Development must respond to flooding constraints in two ways. Firstly development must achieve an acceptable level of flood immunity in order to limit possible damage to property and risks to safety. Secondly development must reserve land needed for flood water storage and flows, so that the adverse effects of flooding are not increased by additional development. Accordingly, it is generally desirable for future urban growth in the FIA to be located outside of identified flood prone or potentially flood prone areas.

It is important to recognise that the effects of climate change have not been considered in the mapping or assessment of flood prone land in this study. Any future development of the FIA for urban purposes should consider the impacts of climate change and sea level rise on flooding within the FIA.

The Fraser Coast Regional Council mapping of flood prone land has been reproduced in **Figure 7.4**.

7.3.8 Vegetation and Ecology

This section describes the vegetation and other ecological values of the Maryborough North FIA at national, state and local level. This information has been extracted from the Ecological Assessment prepared by CEPLA, attached in **Appendix B**.

One species (*Quassia bidwillii*) listed as vulnerable under the Environmental Protection and Biodiversity Conservation Act (EPBC Act) was recorded in the Maryborough North FIA near Saltwater Creek. This species, whose location is identified in CEPLA's mapping, should be buffered and retained from degrading influences. The Maryborough North FIA has the potential to support other fauna species listed under the EPBC Act. It is acknowledged however that habitats may be degraded and further assessment would be required to ascertain the value of the FIA to EPBC species.

The species *Quassia bidwillii* is also listed as vulnerable under the Nature Conservation (Wildlife) Regulation 2006 (NCWR) and was recorded in the Maryborough North FIA near Saltwater Creek. This species, whose location is identified in CEPLA's mapping, should be buffered and retained from degrading influences. The Maryborough North FIA also has the potential to support fauna species listed under NCWR. It is acknowledged however that habitats may be degraded and further assessment would be required to ascertain the value of the FIA to NCWR species.

The South East Queensland Biodiversity Assessment Mapping Methodology (SEQ BAMB) has included Saltwater Creek and an area of Regional Ecosystem RE12.3.5 wetland in a Bioregional Corridor. This corridor should be preserved and enhanced through the retention of existing vegetation and enhancement through restoration of degraded vegetation communities. Low intensity or open space uses should ideally be located in these corridors.

Some vegetation communities within the Maryborough North FIA equate to Regional Ecosystems that are designated 'Not of Concern' and 'Of Concern' under the Vegetation Management Act 1999. Unless exempted under this Act, permitting is required to clear vegetation in identified Regional Ecosystems. Priority should be

given to the retention of these remnants, particularly those listed 'Of Concern'. CEPLA have assessed many of the areas of remnant vegetation in the Maryborough North FIA and have indicated their preference for retention of these areas on the figures attached to the Ecological Assessment.

Areas of other native vegetation, which may include areas of remnant vegetation, have also been assessed by CEPLA. Some of these areas of other native vegetation have been identified as important to retain.

Some vegetation adjacent to Saltwater Creek, including a section adjoining the north-east corner of the FIA and mangrove communities present along the waterway, is classed as 'Marine Plants' under the Queensland Fisheries Act 1999. Permitting is required to interfere with these species, and accordingly they should be buffered and retained from degrading influences

Opportunities exist for the enhancement of localised connectivity within sections of the Maryborough North FIA. Large areas of remnant vegetation and waterways within the FIA area have become separated as a result of clearing. This exercise presents an opportunity to reconnect large areas of high ecological value located in the north-west and south-west of the FIA to other areas of ecological value and to the Saltwater Creek corridor.

The above vegetation and ecological values have been identified in the Ecological Assessment prepared by CEPLA. CEPLA has suggested methods for retention and protection of these environmentally sensitive and important areas, including implementation of buffers and identification of a desirable nature conservation network. All important vegetation and ecological values, including designation of the desirable nature conservation network, have been mapped by CEPLA in the Ecological Assessment in **Appendix B**. CEPLA's mapping has been reproduced in **Figure 7.5** of this report.

7.3.9 Good Quality Agricultural Land

State Planning Policy SPP 1/92 – Development and the Conservation of Agricultural Land identifies the broad principles for protection of good quality agricultural land from inappropriate developments.

SPP1/92 considers that good quality Agricultural land is a finite national and state resource that must be conserved and managed for the longer term. As a general aim, the exercise of planning powers and the planning process should be used to protect such land from those developments that lead to its alienation or diminished productivity.

Guideline 1 for SPP1/92 identifies four classes of agricultural land:

- **Class A - Crop land** - Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.
- **Class B - Limited crop land** - Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping.

- **Class C - Pasture land** - Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.
- **Class D - Non-agricultural land** - Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Agricultural land classes are based on an assessment of the agricultural suitability of the land for specified agricultural uses. Agricultural land suitability is a rating of the ability of land to maintain a sustainable level of productivity. The factors used to assess agricultural land suitability are the soil, topographic and climatic limitations which determine sustainable productivity. Class A land in all areas is considered to be good quality agricultural land. In some areas, Class B land (where agricultural land is scarce) and better quality Class C land (where pastoral industries predominate), are also considered to be good quality agricultural land.

The majority of land in the Maryborough North FIA is classified as Class A – Crop Land.

Due to the local characteristics of Maryborough and its surrounds, being an area where agricultural land is abundant and where agricultural industries (rather than pastoral industries) predominate, the responsibility to conserve the more fertile and potentially productive land applies mostly to the Class A land in the Maryborough North FIA.

Development without regard to the need for land conservation and the continuing importance of agriculture is inappropriate. The best and most versatile farming land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose. Good quality agricultural land is a valuable resource that should, in general, be protected from irreversible development. When considering the future distribution of development, settlement patterns that minimise the impact on productive farming areas, both directly and indirectly, should be evaluated.

In the Maryborough North FIA all Class A land should avoid development for urban purposes, where possible.

The proximity of development, particularly where there is a significant residential component, can inhibit farming practice, thereby limiting the extent to which the inherent land quality can be exploited: for example, crop spraying and cane burning are two operations which cause conflicts with adjoining residential properties. Clearly, such conflicts should be avoided if possible but, where new developments have to be located on or adjacent to good quality agricultural land, measures to ameliorate potential conflicts should be devised wherever practicable. Guideline 2 of SPP1/92 identifies buffers that should be employed to adequately separate residential and agricultural land uses. These buffer distances have been reproduced in **Table 7.1** which is included in **section 7.2.9** of this Report.

The impacts of chemical spray drift and dust, smoke and ash are the most relevant in the context of the existing and ongoing agricultural uses of the Maryborough North FIA. A 40 metre vegetated buffer can be applied to ameliorate these impacts, however it is recognised that creation of a vegetated buffer may not be possible in the short term. As such, buffers between any areas of good quality agricultural land and agricultural areas that continue to operate, and any newly created residential areas should be in the order of, on average, 150 metres.

Mapping for agricultural land classes exists for the Maryborough North FIA and is depicted in **Figure 7.6**.

7.3.10 Potential Acid Sulfate Soil Areas and Contaminated Land

Acid Sulfate Soils occur predominantly in coastal areas with elevations generally below 5 metres AHD. When such lands are disturbed or drained, toxic quantities of acid, aluminum, iron and heavy metals may contaminate land and adjacent waterways. This can lead to severe impacts on vegetation and aquatic species and accelerated structural failure of building foundations, pipes, road surfaces and other infrastructure.

State Planning Policy SPP 2/02 – Planning and Managing Development Involving Acid Sulfate Soils aims to ensure development involving acid sulfate soils is planned and managed to avoid release of potentially harmful contaminants into the environment.

The current Fraser Coast (Maryborough City) planning scheme includes an 'Assessment and Management of Acid Sulfate Soils Code' which is to be regarded as the local interpretation and expression of State Planning Policy 2/02. The Code seeks to ensure that the production of acid sulfate soils is maintained to within natural limits and so that there is no environmental harm caused to natural systems by the production of acid sulfate soils.

The potential effects of disturbing acid sulfate soils need to be addressed when planning for, or undertaking, development. While it is preferable to avoid disturbing acid sulfate soils, it is not the intention of the SPP to stop development because of acid sulfate soils. This is because the potential adverse effects of disturbance can be avoided or minimised by treatment and, in some cases, by ongoing management.

The presence (or possible presence) of acid sulfate soils is a development constraint that should be subject to an appropriately rigorous risk assessment. Determining the presence or absence of acid sulfate soils should therefore be taken into account as early as possible when considering projects in areas likely to contain acid sulfate soils.

Land with acid sulfate soils occurrence has only limited presence in the Maryborough North FIA, where east of Maryborough – Hervey Bay Road, and where adjoining Saltwater Creek. Land with low probability of acid sulfate soils occurrence is present across the majority of the remainder of the FIA.

Figure 7.7 demonstrates the distribution of land with the potential for acid sulfate soils occurrence in the Maryborough North FIA.

The presence of land with low or high probability acid sulfate soils does not present a rigid constraint to development of the Maryborough North FIA. Appropriate mitigation measures can be undertaken prior to development occurring to ameliorate the impacts of acid sulfate soils.

Contaminated Land

The Maryborough North FIA has three parcels that contain contaminated land - the landfill site, the northern part of the rifle range, and a small site on the eastern side of Maryborough – Hervey Bay Road.

Figure 7.7 demonstrates the distribution of contaminated land throughout Maryborough.

7.3.11 Bushfire Hazard

Bushfire is a significant hazard for urban, rural residential and rural communities and can cause extensive damage to property, injury and loss of life.

State Planning Policy SPP 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide 1.0 aims to minimise potential adverse impacts of flood, bushfire and landslide on people, property, economic activity and the environment.

Effective land use planning can limit and, over time, reduce the impacts of natural disasters. The SPP will shape land use planning and development decisions to create settlement patterns that reduce vulnerability to many bushfire events. Local government strategic planning should include strategies that would prevent development from increasing bushfire risk for existing and planned communities and facilities.

SPP 1/03 adopts a policy of prudent avoidance whereby as far as practical development in natural hazard areas is to be avoided unless there is an overriding need for the development and the development is able to minimize the adverse impacts from the natural hazard such that there is not an acceptable risk to people and property.

For the most part the Maryborough North FIA has a low bushfire hazard. Some portions of the FIA, particularly north of the rifle range along the FIAs western boundary, in the FIA's south-western corner, adjoining Saltwater Creek, and intermittently through the centre of the FIA, are designated as being of medium bushfire hazard.

It is assumed that areas of Medium Bushfire Hazard are likely to be able to be mitigated of the impacts of bushfire hazard when developing a large urban area and therefore do not represent a rigid constraint to development of the FIA for residential purposes.

Figure 7.8 demonstrates the distribution of low and medium bushfire hazard in the Maryborough North FIA.

7.3.12 Character and Identity

The character of the Maryborough North FIA is largely determined by the views experienced when travelling along the heavily-trafficked route of Maryborough –

Hervey Bay Road. The views along the FIA's primary public viewpoint present fragmented rural uses interspersed with random occurrence community activities and industrial uses. The character presented along this route is of disharmony and is not of an attraction that it must be retained in its current form.

Some parts of the Maryborough North FIA have an established and attractive rural character. These areas of a dominant rural character exist east of Lawson road and along the north of the FIA. The rural character is dominated by pastoral land, with some interspersed agricultural land.

High intensity vegetation along the western, northern (as part of the Saltwater Creek corridor) and eastern boundaries of the FIA creates a desirable contrast to the cleared land throughout the FIA. The high intensity vegetation along these boundaries should be retained to define the edges of the FIA.

The FIA is generally flat, with only a small rise in elevation in the northwest and southwest of the FIA. The limited undulation of the FIA ensures limited opportunity for expansive views from the FIA to areas external to the FIA, and similarly restricts opportunities for areas external to the FIA to view elevated points of interest within the FIA.

Overall, the Maryborough North FIA presents a character of limited visual quality along Maryborough – Hervey Bay Road, and of improved rural character towards the peripheries of the FIA. The existing vegetation that creates a desirable defined edge to northern, eastern and western boundaries should be retained. Overall, the Maryborough North FIA does not have such an outstanding character or visual quality that it must be retained in its entirety or in perpetuity.

A visual representation of major character and identity elements has been presented in **Figure 7.9**.

7.3.13 Transport Infrastructure

7.3.13.1 Existing Road Network

Maryborough – Hervey Bay Road runs centrally through the Maryborough North FIA and as a result is the primary method for access to and from the FIA. Maryborough – Hervey Bay Road is a state-controlled road that extends from central Maryborough in the south, northwards through the FIA, to Hervey Bay in the north-west.

Within the FIA a number of roads intersect Maryborough – Hervey Bay Road, servicing the properties to the east and west. Gladys Street and Fazio Road provide access to the west, connecting to Lawson Street which runs roughly parallel to Maryborough – Hervey Bay Road. Cobbles Road and Hibiscus Road provide access to the east. Some of those access roads are constructed rural access roads, while others are unformed (graded dirt) roads.

Bryant Street and Neptune Street provide access to the FIA from the south. Bryant Street and Neptune Street are both classified as urban collector roads.

Holland Traffic Consulting has advised in their material attached as **Appendix C** that the combination of the configuration of the FIA and the location of access

roads suggests that the majority of traffic flows generated by development of the FIA would utilise Bryant Street in accessing community facilities in Maryborough generally. In turn, this would lead to increased usage of Boys Avenue, Neptune Street and Woodstock Street. All of these streets appear to be already utilised as, or intended by virtue of their standard construction to be, major routes, and on that basis, the traffic flows anticipated to be generated by such development could be accommodated, although probably with some intersection grading.

Development in northern areas of the FIA, but south of the proposed Northern Maryborough Bypass, would rely on access to Maryborough – Hervey Bay Road via Fazio Road and/or Gladys Street. In such an event, it is likely the existing road reserve of Fazio Road would require widening in order to accommodate the required intersection treatment at Maryborough – Hervey Bay Road. In addition, there is no doubt that Maryborough – Hervey Bay Road would need to be upgraded to at least a 4 lane configuration should development of the FIA occur. However, this may of course occur irrespective of development of the FIA.

The existing road network is illustrated on **Figure 7.10**.

7.3.13.2 Future Road Network

In association with this project consultation has been undertaken with Department of Main Roads (refer to **section 6.3** of this report). Department of Main Roads has advised that planning for a future 'Northern Maryborough Bypass' road has been undertaken, but that there is no firm intention or commitment to constructing this road in the short term. The future Northern Bypass would connect the Bruce Highway to Maryborough – Hervey Bay Road.

Planning for the Northern Bypass has progressed to a level where a number of possible alignment options have been developed by Department of Main Roads. An investigation area for the route covers the majority of the Maryborough North FIA, with a number of alignment options identified within the investigation area.

For the purposes of this structure planning exercise a central alignment has been adopted. The central alignment most accurately reflects historic planning for a northern bypass route by Fraser Coast Regional Council, as expressed through former Maryborough City planning schemes. Notwithstanding the notional acceptance of the central alignment, which has not been ratified by Department of Main Roads, the whole of the investigation area should be considered in future planning for the Maryborough North FIA.

The investigation area and central alignment of the Northern Bypass is illustrated on **Figure 7.10**.

If the FIA is in fact to be bisected by a major road (being the Northern Maryborough Bypass) it is likely that if Department of Main Roads adopts that Department's normal stance, there will be no local crossing or intersection on that route within the FIA planning area.

7.3.13.3 Alternative Transport Methods

One bus route extends through the Maryborough North FIA. Bus route 5 provides a public bus service between Maryborough and Hervey Bay.

Three other bus routes (route 1, route 2 and a central city loop route) service the residential neighbourhood immediately south of the Maryborough North FIA.

The FIA and existing residential neighbourhood south of the FIA does not contain any formal on road or off road bicycle routes. Pedestrian paths are provided along most streets in the existing residential neighbourhood.

The existing alternative transport methods network is illustrated on **Figure 7.10**.

7.3.13.4 Airport Considerations

State Planning Policy 1/02 addresses the safety and operational efficiency of prescribed airports and aviation facilities and provides guidance to local government about how these issues are to be addressed when preparing planning schemes or assessing development applications.

Maryborough Airport is identified as one of the airports to which the State Planning Policy applies and accordingly State Planning Policy 1/02 is a relevant consideration in the future planning for the FIAs. In all future planning for areas the direct and indirect impacts on the operation of airports must be considered.

While the direct impacts (such as intrusion of buildings and their associated outputs and flow on effects into operational airspace) of possible urban development in the FIAs will need to be clearly addressed, in the case of Maryborough Airport it is anticipated that the influence of the State Planning Policy with respect to the Indirect impacts arise when people living in, working in or visiting development perceive aircraft noise to be a significant problem and consequently campaign to curtail aircraft operations to reduce noise impacts.

Encroachment of incompatible development in areas close to an airport may ultimately compromise the future of that airport forcing it to close or modify its normal operations.

In order to avoid both direct and indirect impacts SPP 1/02 generally requires that development does not intrude into the 20 Australian Noise Exposure Forecast (ANEF) Contour at and around each airport. The 20 ANEF contour for the existing runway at Maryborough Airport extends into the southern part of the Maryborough North FIA. Urban development should generally be avoided in this location.

An important consideration in the planning for the Maryborough North FIA is whether there is any intention to expand the Maryborough Airport. Expansion or duplication of the existing runway may extend ANEF contours further into the Maryborough North FIA. Discussion earlier in this report has identified that there are two options for Maryborough Airport – to expand its operations to fulfil a more regional role if Hervey Bay Airport were to close, or to cease its operations if the regional airport were to be created in a new location between Maryborough and Hervey Bay. However, there is no current planning for the expansion or closure of Maryborough Airport and so alterations to the ANEF contours cannot be considered at this stage. Planning for the Maryborough North FIA should not be influenced by potential for future expansion of Maryborough Airport.

The existing 20 ANEF contours are mapped on the Local Area Plan Extracts in **Figure 5.2**.

7.3.14 Physical Infrastructure

7.3.14.1 General Matters Affecting All Physical Infrastructure Networks

The following outlines the general matters affecting all physical infrastructure networks, as highlighted by Opus Qantec McWilliams in their advice in **Appendix D**:

- (a) The imposition of Saltwater Creek to the north and the flood prone area to the east of Saltwater Creek Road (Maryborough – Harvey Bay Road) somewhat isolates the FIA from surrounding areas and may therefore constrain the potential to provide integrated trunk water, sewerage and road infrastructure, in particular, to any future significant dedicated urban residential redevelopment within the FIA. Similar to the case of the Granville FIA, but to a lesser extent, it is assumed that new trunk water infrastructure will be extended generally northwards from that existing rather than creating new stand alone trunk infrastructure networks and components with resulting potential remote associated augmentation and duplication. This situation is not assisted by the potential need to undertake associated trunk infrastructure water upgrades and duplication within and through existing residentially developed areas and via existing roadways which are not all under the control of Council.
- (b) The indicative route location for the DMR identified Future Northern Maryborough Bypass severs the FIA from east to west and may thereby result in difficulty in planning and providing integrated trunk infrastructure in the context of the preliminary and concept nature of the design of this future DMR asset. Development and its associated local infrastructure provision may also be similarly constrained with this Bypass having the potential to dictate development sequencing and timing. This situation is further exacerbated through the indicated generally east-west orientated future arterial roads which are depicted on Strategy Map Extract (figure 5.1) of Maryborough City Plan 2000.
- (c) Assuming that no form of residential development other than traditional urban style lots of at least 600m² in area, the relatively modest developable yield and its potential low intensity, on a per area basis, and given the other identified constraints, in general, it is considered that the relative cost of the provision of both trunk and local infrastructure will be high.
- (d) Based on a general review of the constraints and the location of existing trunk infrastructure, and in particular water infrastructure, and notwithstanding the constraints and values as identified on Figure 2 of the Chenoweth Maryborough North FIA ecological assessment, it is considered that any urban style residential development should progressively extend from adjacent to the existing established consolidated residential precincts within the FIA but with particular regard to flood and transport network constraints.
- (e) If development of the FIA is ultimately something that Council does wish to proceed with, then in association with a future priority infrastructure plan and

associated infrastructure charges schedule being developed and approved as part of a structure planning exercise, infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure in order to service the demands of any unanticipated and possibly anticipated residential development.

7.3.14.2 Water Supply Infrastructure

The following analysis of water supply infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

Based on a review of Maryborough City's Water and Sewerage Headworks Planning Scheme Policy 6.3 (PSP 6.3), the area located to the south of Quarry Road is included within the current water headworks area. Within this headworks area, a relatively small area located in its south eastern part is contained within the declared Low Level zone and the balance of this included area is located within the declared High Level Zone.

Based on a review of surface contour values within these headworks areas, further investigation is recommended to confirm that adequate pressure head is available to provide an adequate supply in the higher localised areas.

In order to assess the potential to adequately meet the water supply demands due to future residential development within this FIA, a detailed review of background water reports, including the current computer based water network model together with analysis of per capita water consumption historical records so as to establish demand trends will be required.

Through this process, any spare capacity and pressure inadequacies can be identified and considerations given to any feasible upgrades and duplications on a cost-benefit analysis and in the context of anticipated demands based on potential residential development growth within the FIA.

Such an analysis and detailed review should involve a whole of network integrated approach starting with the existing supply at Tinana Creek and the Tedington Water Treatment Plant and proceeding through the trunk supply system to the existing Aberdeen & Boys Avenues reservoirs/pumps and towers and then to the existing trunk water distribution main network.

A detailed water network analysis will also be required for the existing High and Low Level Zones with possible reasonable infrastructure modifications identified and considered. It is reasonable to assume that significant spare capacity could currently exist within both of these water supply zones due to the extent of current inclusion within the 2000 year headworks area.

Provided that any future residential development is restricted to the current headworks area, then as long as the anticipated water demands are consistent with those specified within PSP 6.3, they should be able to be satisfied.

Section 4.0 of PSP 6.3 specifies that water supply is only required for rural residential lots less than 1 ha in area and only at Council's discretion for rural lots. On this basis, it may assist in the allocation of any spare water supply capacity to

future residential development within this Maryborough North FIA, to strategically only consider the inclusion of urban style traditional residential lots.

Through generally maintaining the existing water designated infrastructure service area (headworks area) quantum within this FIA, a residential lot mix would result, whereby lots equal to or larger than 1 ha would only be possible outside this designated area, to suit the generally constrained environment within which any future residential development is to occur.

However, it is observed that a significant area within the existing Low Level Zone is subject to flood inundation and it is therefore it is recommended that some modification to the headworks area within this FIA is undertaken in this regard so as to avoid the creation of new lots which are subject to flooding.

Based on census results, it appears that 2.6 EP per household is a reasonable basis with the 550 litres per EP per day consumption rate as per PSP 6.3 required to be reviewed so as to establish realistic future per capita reticulated water demands. It should be noted that these comments in regard to lot areas are limited to the context of the supply of reticulated water rather than a broader planning context.

In summary, it appears that any future residential development should generally occur on the limited available flood free land within the FIA and the existing water headworks area adjusted to respect this requirement and also modelled to confirm adequate serviceability. Other constraints as previously identified should also be considered in locating future consolidated urban style residential development precincts.

Subject to further detailed water analysis including modelling for anticipated demands, it is reasonable to conclude that significant trunk water supply, treatment and storage upgrades may be required for any endorsed significant urban style residential development.

The existing water supply infrastructure network is illustrated on **Figure 7.11**.

7.3.14.3 Sewerage Infrastructure

The following analysis of sewerage infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

The existing sewage treatment plant (STP) is located adjacent to the Mary River and opposite the Granville FIA. Its associated effluent disposal area is located to the north west of this Maryborough North FIA. Sewage is conveyed to the STP via a system of gravity and rising mains together with associated pump stations where required.

Based on the relatively flat terrain of this Maryborough North FIA, it is expected that additional pump stations and rising mains, together with gravity sewers, will be required to adequately service any future traditional urban style residential development within this FIA.

As is the case with the existing trunk water supply, a detailed assessment of the capacity of the existing trunk sewerage network is required in order to identify any spare capacity and/or deficiencies.

Due to the relatively central location of the existing STP being adjacent to the Mary River and opposite the Granville FIA, it is reasonable to assume that the provision of additional and/or augmented trunk sewerage infrastructure is less problematic in comparison to trunk water infrastructure.

However, the capacity of the existing STP and Environmental Protection Agency (EPA) licensing requirements for discharge of increased effluent volumes require particular scrutiny in terms of additional currently unplanned demands. Furthermore, environmental and ecological impacts of any duplication of trunk mains within wetlands, waterways and associated buffers need careful consideration.

A large part of the Maryborough North FIA is constrained by the sewerage effluent re-use irrigation area. The ability to develop on land identified for sewerage effluent re-use irrigation is unknown. The potential for the effluent re-use irrigation area to be redistributed to other parts of Maryborough, due to imposition of urban expansion, and the associated requirements for amendment of Environmentally Relevant Activity approvals, must be investigated before any development commitment can be made on land currently in the effluent re-use irrigation area.

The existing sewerage infrastructure network is illustrated on **Figure 7.12**.

7.3.14.4 Stormwater Infrastructure

The following analysis of stormwater infrastructure has been reproduced from Opus Qantec McWilliams' advice, as included in **Appendix D**.

The Maryborough North FIA is bordered by Saltwater Creek to its north and the Mary River flood plain generally to its east with the south-eastern and north-western portions of the FIA significantly constrained by potential flood impacts in areas below the Q100 or highest recorded flood line. Suitable lawful points of discharge are facilitated through the proximity of established waterways and the Mary River together with its tributary of Saltwater Creek.

It is envisaged that suitable level control and bulk earthworks will be undertaken to manage major and minor stormwater flows via a combination of subsurface piped systems and overland flow paths, including roadways, in accordance with the Queensland Urban Drainage Manual and relevant Council standards. Any external stormwater catchment flows will be required to be conveyed through future residential developments to the relevant lawful point of discharge.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in close proximity and at risk. Potential stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/ pollutant removal.

As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis.

It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks. As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime.

Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council.

The existing sewerage infrastructure network is illustrated on **Figure 7.13**.

7.3.15 Community Infrastructure and Open Space

7.3.15.1 Community Infrastructure

Limited community infrastructure exists within the boundaries of the Maryborough North FIA.

A preliminary community infrastructure assessment has been undertaken for the Maryborough North FIA and surrounding area. The community infrastructure identified to presently exist in the Maryborough North FIA and in the established residential neighbourhood immediately adjacent the FIA includes:

- New Apostolic Church, Pallas Street, Maryborough;
- Lutheran Church, Woodstock Street, Maryborough;
- Anglican Church, Pallas Street, Maryborough;
- Church of Nazareth, Neptune Avenue, Maryborough;
- Aldridge State High School, Boys Avenue, Maryborough;
- Maryborough West Primary School, North Street, Maryborough;
- St Helens Primary School, Saltwater Creek Road (Maryborough – Hervey Bay Road), St Helens;
- Maryborough Special School, Woodstock Street, Maryborough;
- Maryborough West Preschool, North Street, Maryborough;
- Maryborough Central Preschool, North Street, Maryborough;
- Maryborough Base Hospital, Walker Street, Maryborough;
- Meals on Wheels, Churchill Street, Maryborough;
- Maryborough Community Health Centre, Winston Noble Street, Maryborough;
- The Wesley Centre, Searle Street, Maryborough;
- Wahroonga Aged Persons Complex, Neptune Street, Maryborough;
- A Pied Piper Child Care & Development Centre, Saltwater Creek Road (Maryborough – Hervey Bay Road), Maryborough;

- Maryborough Child Care Centre, Saltwater Creek Road (Maryborough – Hervey Bay Road), Maryborough;
- Blue Care, Churchill Street, Maryborough;
- Christian Outreach Centre, Saltwater Creek Road (Maryborough – Hervey Bay Road), Maryborough; and
- Maryborough Airport, Maryborough – Hervey Bay Road.

The above inventory identifies a full range of community infrastructure to service the existing residential neighbourhood immediately south of the Maryborough North FIA. Some of the above facilities are situated in the FIA but generally service the existing residential areas in Maryborough.

Additional Community Infrastructure

The “Planning for Social Infrastructure” document prepared by SGS Economics and Planning (Urbecon December 2005 - Planning for Social Infrastructure, SGS Economics and Planning), included in **Appendix E**, identifies requirements for community infrastructure based on population levels. Local level requirements, district level requirements and shire-wide or regional requirements are reproduced in **Table 7.2** included in **section 7.2.15.1** of this Report.

A review of the existing community infrastructure in Maryborough North FIA and adjoining residential neighbourhoods, combined with a recognition of population growth in the area should development of the FIA occur, establishes that the existing community infrastructure in the locality is of a level that could support substantial population growth of the Maryborough FIA.

The community infrastructure in the areas surrounding the Maryborough North FIA satisfies the local level requirements for community infrastructure.

The greater area of Maryborough contains all of the district level requirements for community facilities. Future development of the Maryborough North FIA will have access to the district level community facilities located throughout Maryborough.

The Fraser Coast Regional Council Area and the Wide Bay Burnett Region contain all of the shire-wide or regional requirements for community facilities. In fact, many of these facilities are located in Maryborough. Future development of the Maryborough North FIA will have access to the shire-wide or regional community facilities located throughout Fraser Coast Regional Council Area and the Wide Bay Burnett Region.

Notwithstanding, a detailed community infrastructure assessment will be required to determine the quantum expansion required of existing infrastructure to service any extension of urban development into the FIA.

State School Capacity

Some consultation has been undertaken with the Department of Education, Training and the Arts’ regional Maryborough office to establish the capacity of existing schools in Maryborough and determine their ability to satisfy student growth resulting from population growth. In respect of capacity of state schools near Maryborough North, the Department advised that:

- (a) St Helens State Primary School currently accommodates 199 students but has capacity in its current building stock for further students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. The school has grown rapidly in recent times and there are some ongoing concerns relating to the adequacy of sewerage infrastructure.
- (b) Maryborough West State Primary School currently accommodates 630 students but has capacity in its current building stock for approximately 680 to 730 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. The school is the largest primary school in Maryborough.
- (c) High school aged children are able to attend either of the two State High Schools in Maryborough: Maryborough State High School or Aldridge State School. Maryborough State High School currently accommodates 730 students but has capacity in its current building stock for approximately 1,200 students. Further, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school. Aldridge State High School currently accommodates 993 students and is at capacity with its current building stock. However, the school grounds contain sufficient space to establish new buildings that would expand the capacity of the school.
- (d) Families in Maryborough North are able to send students to either the network of state schools or a number of private schools, all of which are scattered throughout Maryborough. Future population growth in Maryborough North would witness increases in students at both the state and private schools.

Overall, the Department has advised even very large population growth in the Maryborough North FIA would be unlikely to exceed the capacity of the existing network of state schools and that no new schools would be required (although some new buildings in the existing land area of some schools may be required).

Full details of the Department of Education, Training and the Arts' consultation outputs are included in **section 7.4** of this report.

7.3.15.2 Open Space and Recreation Infrastructure

Existing Open Space and Recreation Infrastructure

The Maryborough North FIA contains a number of existing public parks and reserves. The southern part of the FIA contains the Fay Smith Wetlands and the Harry Booth Memorial Soccer Ground.

The Maryborough North FIA also contains some existing private recreational facilities. The northern-most extent of the Maryborough Rifle Range is located in the western portion of the FIA.

A number of other public parks and private recreational facilities exist in the established residential neighbourhood to the south of the FIA to service the existing population of that neighbourhood.

The existing open space and recreation infrastructure in the Maryborough North FIA is identified on **Figure 7.15**.

Future Open Space and Recreation Infrastructure

The Maryborough North FIA contains some possible future public open space areas, as identified by the Parkland Contribution Planning Scheme Policy of the current Fraser Coast (Maryborough City) Planning Scheme. The most substantial area of possible future open space is that which extends across the existing landfill site.

These desired future public open space areas should be retained where possible in the future planning for the Maryborough North FIA.

Future development of the FIA for urban purposes may necessitate the creation of additional open space and recreation facilities.

The future open space and recreation infrastructure in the Granville FIA is identified on **Figure 7.15**.

7.3.16 Synthesis of Constraints and Opportunities

In summary, the attributes that lead to opportunities and constraints for urban development of the Maryborough North Further Investigation Area may be described in the following way:-

- Most of the FIA is currently cleared and is used for a range of rural practices;
- The FIA is adjacent to an established residential neighbourhood, and development into the FIA could represent organic growth of that neighbourhood;
- The majority of western and northern parts of the FIA have relatively large rural lots held in freehold tenure, allowing for a good opportunity for an efficient and coordinated process of planning and development. Land adjacent Maryborough – Hervey Bay Road suffers greater fragmentation and is therefore less able to be comprehensively developed for an integrated large-scale community;
- Established uses on highly fragmented land pose as a significant constraint to redevelopment of that land. An industrial subdivision, a rural residential subdivision, and a further industrial activity adjoining those subdivisions, located centrally in the FIA, are such established uses on fragmented land that should be retained in their current form;
- The topography of the FIA, being generally flat, provides good opportunity for urban expansion requiring insignificant earthworks to facilitate urban activity. However, if development is proposed on flood prone land significant earthworks will be required to achieve the necessary levels of flood immunity for that land. Detailed geotechnical investigations should be undertaken within the FIA to confirm or refute the existence of unstable land prior to any commitment to future development of the area;
- The Maryborough North FIA is located adjacent to Saltwater Creek, which is a major tributary to the Mary River. Protection of the integrity and ecological processes of Saltwater Creek and its corridor, including through appropriate buffering to development, is important to the health of Saltwater Creek and its

catchment area, and to the Mary River. A buffer of 100 metres is to be applied to Saltwater Creek;

- A number of smaller waterways extend through the FIA and connect to Saltwater Creek. Protection of the integrity and ecological processes of these minor waterways is also important to the health of Saltwater Creek and the Mary River, and as such a buffer of 30 metres is to be applied;
- A number of locally-significant wetland systems occur in the Maryborough North FIA. These naturally occurring wetlands are recommended to be retained and adequately buffered to protect their important ecological values. A buffer of 100 metres is to be applied to wetland areas in the FIA;
- A large portion of the FIA is identified as flood prone or potentially flood prone land (1:100 ARI flood event). Future urban development in the FIA should be located outside of identified flood prone or potentially flood prone areas, to achieve acceptable levels of flood immunity for future development and to reserve land needed for flood water storage and flows. Further consideration must also be given to the impacts of climate change and sea level rise on flooding in the FIA;
- A number of areas of remnant vegetation and ecological values have been identified in the Maryborough North FIA. Methods for the retention and protection of these environmentally sensitive and important areas, including implementation of buffers, enhancement of localised connectivity, and establishment of a desired nature conservation network, are to be applied to the FIA. CEPLA has prepared detailed mapping that relates to the retention and protection of important environmental areas;
- The majority of land in the FIA is classified as Class A agricultural land, and is therefore considered Good Quality Agricultural Land. Good quality agricultural land is a valuable resource and should be protected from development that may lead to its alienation or diminished productivity. In the Maryborough North FIA all Class A land should avoid development for urban purposes, where possible. Further, a buffer of 150 metres to any future urban purposes is to be applied to areas of good quality agricultural land (Class A land) and other areas of continued agricultural operation;
- Land in the FIA with acid sulfate soils occurrence is generally restricted to the location of Saltwater Creek and will therefore remain undisturbed due to other constraints affecting that land;
- The FIA contains land subject to medium bushfire hazard, however it is accepted that areas of medium bushfire hazard are likely to be able to be mitigated of the impacts of bushfire hazard through appropriate planning processes undertaken in association with future Greenfield urban development. Bushfire Hazard does not represent a rigid constraint to development of the FIA for urban purposes;
- The Maryborough North FIA presents a character of limited visual quality along Maryborough – Hervey Bay Road, and of increased rural character towards the peripheries of the FIA. The FIA does not present such an outstanding character

or visual quality that it must be retained in its entirety. Dense vegetation along the boundaries of the FIA creates a desirable definition to the edge of the FIA that should be retained;

- The FIA has significant frontage to Maryborough – Hervey Bay Road. This road is a state-controlled road and therefore limited access points should be provided to it from the FIA. Development of the FIA for urban purposes may necessitate an upgrade of Maryborough – Hervey Bay Road to 4 lanes. It is likely that the majority of traffic flows generated by the development of the FIA would utilise street to the south of the FIA, particularly Bryant Street, Boys Avenue, Neptune Street and Woodstock Street. Traffic flows anticipated to be generated by development of the FIA could be accommodated on these roads, although some intersection grading might be required;
- The Department of Main Roads has advised that preliminary planning for a future Northern Maryborough Bypass, connecting the Bruce Highway to Maryborough – Hervey Bay Road, has been undertaken, but that there is no firm intention or commitment to constructing this road in the short term. While a number of possible alignment options have been devised, which when considered together cover the majority of the FIA, a central alignment has been assumed for this structure planning exercise. Structure planning for the future urban development of the FIA should allow for the future creation of the Northern Maryborough Bypass;
- It is likely that implementation of the Northern Bypass Road will not allow a local crossing or intersection on that route within the FIA. Therefore, the Northern Maryborough Bypass represents a constraint to development north of the assumed route;
- The existing 20 ANEF contours of the Maryborough Airport extend into the southern part of the Maryborough North FIA. Development should be avoided in areas constrained by the 20 ANEF contours. The intent for future expansion or closure of the Maryborough Airport is unknown and therefore planning for any changes to the current runway configuration and associated 20 ANEF contours is not to be applied to this structure planning exercise;
- Capability exists for connection to the existing water supply network and sewerage network, although it is expected that additional elements of network infrastructure, and possible augmentation of those that currently exist, will be required to adequately service any future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades;
- The indicative route for the Northern Maryborough Bypass severs the FIA from east to west and thereby results in difficulty in planning and providing integrated trunk infrastructure north of that route;
- As the Maryborough North FIA is bordered by Saltwater Creek and large parts of the FIA are constrained by potentially flood prone land, suitable lawful points of discharge for new stormwater infrastructure, constructed in association with

urban development of the FIA, are readily available within or adjacent to the FIA. Stormwater quality improvement objectives must be met, particularly with Saltwater Creek in close proximity and at risk;

- Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high (subject to a more detailed investigation not included in the scope of this project);
- A large portion of the FIA is subject of the effluent re-use irrigation area. The potential for the effluent re-use irrigation area to be redistributed to other parts of Maryborough, because of the imposition of urban development (and associated loss of irrigation land), and the associated requirements for amendment of Environmentally Relevant Activity approvals, must be investigated before any development commitment can be made on land currently in the effluent re-use irrigation area;
- The FIA contains a limited amount of existing community infrastructure. The established neighbourhoods to the south of the FIA has a full range of community infrastructure however a detailed community infrastructure assessment will be required to determine the quantum expansion required of existing infrastructure to service any extension of urban development into the FIA;
- St Helens State Primary School and Maryborough West State Primary School have sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in primary school-aged students in the FIA. Maryborough State High School and Aldridge State High School have sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in secondary school-aged students in the FIA. Future urban development of the Maryborough North FIA is unlikely to necessitate creation of new state primary or secondary schools;
- A number of existing and possible open space and recreation areas existing within or near the Maryborough North FIA. Urban expansion within the FIA may necessitate new open space and recreation facilities to provide an adequate level of access to open space for future residents.

The synthesis of the opportunities and constraints applying to the Maryborough North FIA is depicted in **Figure 7.16**.

7.3.17 Unconstrained Land

Areas of the Maryborough North FIA not constrained by the above environmental, economic and social characteristics are potentially suitable for urban development. Specifically, unconstrained land includes land that:

- is not flood prone or potentially flood prone land (outside of the level of the 1:100 ARI flood event);
- is outside of CEPLA's proposed nature conservation network;
- is more than 150 metres from ongoing agricultural land uses that are adjacent to the FIA;

- is not identified for existing or future community use or public or private open space;
- is not within the 20 ANEF contours of Maryborough Airport;
- is not separated from areas of existing urban development or access roads by future state-controlled roads; and
- is not inhibited by established uses on highly fragmented land.

While not identified as an absolute constraint, as per the constraints identified above, urban development of land identified as good quality agricultural land (Class A land) should be minimised unless there is overriding need for the urban development.

Similarly, land designated for effluent re-use irrigation is not an absolute constraint, but the ability for this area to be developed must be investigated and justified before any development commitment can be made.

An area of approximately 180 hectares is identified as unconstrained land (22% of the FIA) that is potentially suitable for urban development. The ability of the unconstrained land to be developed needs to be considered in conjunction with the need for substantial infrastructure expansion and protection of valuable site features.

Figure 7.17 graphically represents the unconstrained land in the Maryborough North FIA.

7.4 Comparison of Characteristics

The analysis of the characteristics of the Granville FIA and the Maryborough North FIA identifies the potential for each of the FIAs to accommodate urban development. The opportunities and constraints of each FIA have been considered in isolation.

The following matrix references the characteristics of the two FIAs, thereby providing the ability to efficiently compare the opportunities and constraints that apply to each FIA. The comparison matrix set out below allows for judgments to be made on which FIA is more suitable for initial urban development.

Table 7.5 – Comparison of Characteristics

	Granville FIA	Maryborough North FIA
Existing use	Most of the FIA is currently cleared and is used for productive agricultural purposes or other non-productive rural purposes.	Most of the FIA is currently cleared and is used for a range of rural purposes. An industrial subdivision, a rural residential subdivision, and a further industrial activity adjoining those subdivisions, located centrally in the FIA, are established uses on fragmented land that should be

	Granville FIA	Maryborough North FIA
		retained in their current form.
Land Tenure	Most of the FIA is held in freehold tenure, although most of the south-west corner (Bell Hilltop) is state land.	Most of the FIA is held in freehold tenure, although most of the south-east corner is held as state land, reserve, lands lease or is privately owned by Council.
Land Fragmentation	The majority of land in the FIA is made up of large rural allotments, allowing for efficient future development.	The majority of land in the northern and western parts of the FIA is made up of large rural allotments, allowing for efficient future development. Land adjacent Maryborough – Hervey Bay Road suffers greater fragmentation and will require amalgamation to achieve integrated development outcomes.
Topography	The topography of the FIA, being generally flat, provides good opportunity for urban expansion requiring insignificant earthworks to facilitate urban activity.	The topography of the FIA, being generally flat, provides good opportunity for urban expansion requiring insignificant earthworks to facilitate urban activity.
Waterways	The Granville FIA is located adjacent the Mary River. A small tributary of the Mary River enters the north-west part of the FIA. The integrity and ecological processes of the Mary River, its corridor and its tributaries are to be protected. A buffer of 100 metres is to be applied to the Mary River. A buffer of 30 metres is to be applied to tributaries in the FIA.	The Maryborough North FIA is located adjacent to Saltwater Creek, which is a major tributary to the Mary River. A number of smaller waterways extend through the FIA and connect to Saltwater Creek. The integrity and ecological processes of Saltwater Creek, its corridor and its tributaries are to be protected. A buffer of 100 metres is to be applied to Saltwater Creek. A buffer of 30 metres is to be applied to the small waterways that extend through the FIA.
Wetlands	A number of locally-significant wetland systems occur in the Granville FIA. Wetlands are to be retained and adequately buffered to protect their important ecological values. A buffer of 100 metres is to be applied to wetland areas in the FIA.	A number of locally-significant wetland systems occur in the Granville FIA. Wetlands are to be retained and adequately buffered to protect their important ecological values. A buffer of 100 metres is to be applied to wetland areas in the FIA.

	Granville FIA	Maryborough North FIA
Flooding	<p>A large portion of the FIA, adjacent the Mary River and generally west of Walkers Point Road, is identified as flood prone or potentially flood prone land (1:100 ARI flood event).</p> <p>Future urban development in the FIA is to be located outside of identified flood prone or potentially flood prone land.</p> <p>The impacts of climate change and sea level rise should be considered with regards to flooding in the FIA.</p>	<p>A large portion of the FIA, adjacent to Saltwater Creek and in the south-west of the FIA, is identified as flood prone or potentially flood prone land (1:100 ARI flood event).</p> <p>Future urban development in the FIA is to be located outside of identified flood prone or potentially flood prone land.</p> <p>The impacts of climate change and sea level rise should be considered with regards to flooding in the FIA.</p>
Vegetation and Ecology	<p>A number of areas of remnant vegetation and ecological value have been identified in the Maryborough North FIA.</p> <p>Methods for the retention and protection of these environmentally sensitive and important areas, including implementation of buffers, enhancement of localised connectivity, and establishment of a desired nature conservation network, are to be applied to the FIA.</p>	<p>A number of areas of remnant vegetation and ecological value have been identified in the Maryborough North FIA.</p> <p>Methods for the retention and protection of these environmentally sensitive and important areas, including implementation of buffers, enhancement of localised connectivity, and establishment of a desired nature conservation network, are to be applied to the FIA.</p>
Good Quality Agricultural Land	<p>The majority of the FIA is classified as Class A agricultural land and is therefore considered Good Quality Agricultural Land.</p> <p>Good quality agricultural land is a valuable resource and should be protected, where possible, from development that may lead to its alienation or diminished productivity.</p> <p>Further, a buffer of 150 metres to any future urban purposes is to be applied to areas of good quality agricultural land (Class A land) and other areas of continued agricultural operation.</p>	<p>The majority of the FIA is classified as Class A agricultural land and is therefore considered Good Quality Agricultural Land.</p> <p>Good quality agricultural land is a valuable resource and should be protected, where possible, from development that may lead to its alienation or diminished productivity.</p> <p>Further, a buffer of 150 metres to any future urban purposes is to be applied to areas of good quality agricultural land (Class A land) and other areas of continued agricultural operation.</p>
Acid Sulfate Soils	<p>Land with of acid sulfate soils occurrence is not present in the FIA.</p>	<p>Land in the FIA with acid sulfate soils occurrence is generally restricted to the location of Saltwater Creek and will therefore remain undisturbed due</p>

	Granville FIA	Maryborough North FIA
		to other constraints affecting that land.
Bushfire Hazard	<p>The FIA contains some land subject to medium bushfire hazard.</p> <p>Bushfire hazard does not represent a rigid constraint to development of the FIA for urban purposes.</p>	<p>The FIA contains some land subject to medium bushfire hazard.</p> <p>Bushfire hazard does not represent a rigid constraint to development of the FIA for urban purposes.</p>
Character and Identity	<p>The Granville FIA presents a largely intact rural character with some desirable visual elements, such as the Mary River and areas of dense remnant vegetation along the boundaries of the FIA. However, the FIA does not present such an outstanding or distinctive character as compared to other areas in the vicinity of Maryborough, that it must be retained.</p>	<p>The Maryborough North FIA presents a character of limited visual quality along Maryborough – Hervey Bay Road, and of increased rural character towards the peripheries of the FIA. The FIA does not present such an outstanding character or visual quality that it must be retained.</p>
Road Infrastructure	<p>Significant future urban development in the Granville area could not be said to represent sound or appropriate planning unless an additional crossing of the Mary River, or a new road link across Tinana Creek, is contemplated.</p> <p>Preliminary planning for an Eastern Maryborough Bypass, which dissects the site, has been undertaken by Department of Main Roads. There is no firm intention or commitment to constructing this road in the short term. Construction of the Eastern Maryborough Bypass would create an additional crossing of the Mary River required to allow urban development of the FIA to proceed. However, the Eastern Maryborough Bypass may limit development in parts of the FIA as it creates a physical constraint with limited access or crossing points.</p>	<p>The FIA has a significant frontage to the state-controlled Maryborough – Hervey Bay Road. Development of the FIA for urban purposes may necessitate an upgrade of Maryborough – Hervey Bay Road to 4 lanes. Urban development of the FIA should limit access to Maryborough – Hervey Bay Road.</p> <p>It is likely that the majority of traffic flows generated by the development of the FIA would utilise streets to the south of the FIA, particularly Bryant Street, Boys Avenue, Neptune Street and Woodstock Street. Traffic flows anticipated to be generated by development of the FIA could be accommodated on these roads, although some intersection grading might be required.</p> <p>Preliminary planning for a Northern Maryborough Bypass, which dissects the site in the north, has been undertaken by Department of Main Roads. There is no firm intention or commitment to constructing this road</p>

	Granville FIA	Maryborough North FIA
		in the short term. Construction of the Eastern Maryborough Bypass may limit development in parts of the FIA as it creates a physical constraint with limited access or crossing points.
Airport Considerations	<p>The 20 ANEF contours for Maryborough Airport do not extend into the FIA.</p> <p>The intent for future expansion or closure of the Maryborough Airport is unknown and therefore planning for any changes to the current runway configuration and associated 20 ANEF contours is not to be applied to this structure planning exercise.</p>	<p>The existing 20 ANEF contours of the Maryborough Airport extend into the southern part of the Maryborough North FIA. Development should be avoided in areas constrained by the 20 ANEF contours.</p> <p>The intent for future expansion or closure of the Maryborough Airport is unknown and therefore planning for any changes to the current runway configuration and associated 20 ANEF contours is not to be applied to this structure planning exercise.</p>
Water Infrastructure	<p>Subject to detailed water network analysis including modelling for anticipated demands, it is reasonable to conclude that additional elements of network infrastructure, and possible augmentation of these as they currently exist, may be required to adequately service any significant future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades.</p> <p>Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high.</p>	<p>Subject to detailed water network analysis including modelling for anticipated demands, it is reasonable to conclude that additional elements of network infrastructure, and possible augmentation of these as they currently exist, may be required to adequately service any significant future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades.</p> <p>Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high.</p>
Sewerage Infrastructure	Subject to detailed sewerage network analysis, it is reasonable to conclude that additional elements of network	Subject to detailed sewerage network analysis, it is reasonable to conclude that additional elements of network

	Granville FIA	Maryborough North FIA
	<p>infrastructure, and possible augmentation of these as they currently exist, may be required to adequately service any significant future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades.</p> <p>Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high.</p>	<p>infrastructure, and possible augmentation of these as they currently exist, may be required to adequately service any significant future urban development within this FIA. Further detailed investigations will be required to determine the capacity of the existing network to support an extension of the urban area at this location in support of a Priority Infrastructure Plan and associated Infrastructure Charges Schedule to levy appropriate charges to ensure adequate headwork upgrades.</p> <p>Overall, it is envisaged that the relative cost of the provision of both trunk and local infrastructure will be high.</p> <p>A large portion of the FIA is subject of the effluent re-use irrigation area. The potential for the effluent re-use irrigation area to be redistributed to other parts of Maryborough, because of the imposition of urban development (and associated loss of irrigation land), and the associated requirements for amendment of Environmentally Relevant Activity approvals, must be investigated before any development commitment can be made on land currently in the effluent re-use irrigation area.</p> <p>Further, the extent of the effluent re-use irrigation area requires particular scrutiny in terms of additional currently unplanned demands.</p>
Stormwater Infrastructure	As the Maryborough North FIA is bordered by the Mary River and large parts of the FIA are constrained by potentially flood prone land, suitable lawful points of discharge for new stormwater infrastructure, constructed in association with urban development of the FIA, are readily	As the Maryborough North FIA is bordered by Saltwater Creek and large parts of the FIA are constrained by potentially flood prone land, suitable lawful points of discharge for new stormwater infrastructure, constructed in association with urban development of the FIA, are readily available within

	Granville FIA	Maryborough North FIA
	available within or adjacent to the FIA. Stormwater quality improvement objectives must be met, particularly with the Mary River in close proximity and at risk.	or adjacent to the FIA. Stormwater quality improvement objectives must be met, particularly with Saltwater Creek in close proximity and at risk.
Community Infrastructure	<p>The FIA does not contain any existing community infrastructure.</p> <p>The established Granville neighbourhood has some existing community infrastructure however additional facilities may be required to service any population increase resulting from development of the FIA.</p> <p>A detailed community infrastructure assessment will be required to determine the quantum expansion required of existing infrastructure to service any extension of urban development into the FIA.</p>	<p>The FIA contains a limited amount of existing community infrastructure.</p> <p>The established residential neighbourhood to the south of the FIA has a full range of community infrastructure that is of a level that could support substantial population growth of the Maryborough FIA.</p> <p>A detailed community infrastructure assessment will be required to determine the quantum expansion required of existing infrastructure to service any extension of urban development into the FIA.</p>
State School Capacity	<p>Granville State Primary School has sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in primary school-aged students in the FIA. Maryborough State High School and Aldridge State High School, has sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in secondary school-aged students in the FIA.</p> <p>Future urban development of the Granville FIA is unlikely to necessitate creation of new state primary or secondary schools.</p>	<p>St Helens State Primary School and Maryborough West State Primary School have sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in primary school-aged students in the FIA. Maryborough State High School and Aldridge State High School have sufficient capacity in existing buildings and in land for potential future buildings to accommodate substantial growth in secondary school-aged students in the FIA.</p> <p>Future urban development of the Maryborough North FIA is unlikely to necessitate creation of new state primary or secondary schools</p>
Open Space and Recreation	<p>Some public and private open space and recreation facilities exist in the FIA.</p> <p>Urban expansion within the FIA may</p>	<p>Some public and private open space and recreation facilities exist in the FIA.</p> <p>Urban expansion within the FIA may</p>

	Granville FIA	Maryborough North FIA
	necessitate new open space and recreation facilities to provide an adequate level of access to open space for future residents.	necessitate new open space and recreation facilities to provide an adequate level of access to open space for future residents. The site currently used for the landfill operation has been identified as a possible future open space area.
Total unconstrained land	218 hectares (37% of FIA)	180 hectares (22% of FIA)

Given the greater infrastructure commitment required to establish urban development in the Granville FIA than in the Maryborough North FIA, primarily due to the need for creation of a new river crossing, it is reasonable to conclude that development of the Maryborough North FIA is a more realistic and feasible development opportunity to be contemplated at this stage.

7.5 Project Implications

There are a range of important social, environmental, economic and infrastructure characteristics of each of the FIAs that need to be addressed when considering the future development of the Granville and Maryborough North FIAs.

This Chapter has explored the background to, and implications of, each of those valuable characteristics. Further, the extent to which each characteristic impacts upon or represents a constraint to or opportunity for future urban development in each of the FIAs has been identified.

Both of the FIAs are significantly constrained by valuable environmental features and the need for substantial infrastructure expansion to accommodate urban development. The Granville FIA has only 218 hectares of unconstrained land (37% of the FIA). The Maryborough North FIA has only 180 hectares of unconstrained land (22% of the FIA). The ability of the unconstrained land to be developed needs to be considered in conjunction with the need for substantial infrastructure expansion and protection of valuable site features.

Consideration of the valuable characteristics of the FIAs, particularly the extent of constrained land, suggests that for any significant part of the FIAs to be able to be developed some modification of the constrained land must be allowed. The extent that certain constraints can be modified needs to be further interrogated. Often, the ability to demonstrate overriding need for urban purposes, particularly residential development, will be the determining factor in whether a constraint, or a number of constraints, can be modified.

Analysis of this material provides the basis for the development of the settlement pattern scenarios described in **Chapter 8** of this Report.

8. Identification of Settlement Pattern Scenario's

8.1 Introduction

This Chapter identifies a number of settlement pattern scenarios for each of the Further Investigation Areas.

The identification of a number of settlement pattern scenarios is intended to explore how the area may be satisfactorily developed for urban purposes, so as to provide stakeholders with a higher level of understanding of the issues and opportunities provided by each of the FIAs. Each of the scenarios establishes urban development in the FIAs at varying intensities.

Each of the settlement pattern scenarios contemplates the integrated management of all applicable environmental issues and other site characteristics, to provide a theoretical framework to the coordinated and compatible development of each FIA. Further, the settlement pattern scenarios identify how the FIAs might be successfully integrated with the existing urban fabric and infrastructure of Maryborough.

The opportunities and constraints discussed in Chapter 7 of this report inform the rationale and key assumptions of the settlement pattern scenarios. Acknowledging the important opportunities and constraints of the site enables the development of settlement pattern options that are responsive and sensitive to the physical and social environment.

8.2 Granville Settlement Pattern Scenarios

8.2.1 Rationale and Key Assumptions

While all of the opportunities and constraints for the Granville FIA are applicable and accurate, some assumptions must be made on how those characteristics should apply to future development of the FIA. Most of the Granville FIA is constrained so some flexibility of constraints needs to be permitted so that development may occur. Some constraints may be able to be rationalised in order to accommodate legible urban development, but such flexibility should only be allowed where there is an overriding need for the development and where the benefits of urban development outweigh the impacts on each extenuated characteristic.

The settlement pattern scenarios for the Granville FIA are underpinned by the rationale and assumptions identified below.

1. Despite the limited need at present to make additional urban land available in Maryborough, due to relatively low rates of historic and projected population growth, urban development of the Granville FIA may proceed. A primary

assumption is that an overriding need for urban development in the FIA exists, thereby allowing flexibility for some key constraints to be substantially altered.

2. Land already identified for urban purposes by the Fraser Coast (Maryborough City) Planning Scheme should continue to be able to be developed for that use.
3. Scenarios for future urban development of the FIA will disregard the existing land uses, except where those uses demonstrate other valuable qualities that are explicitly identified in these assumptions (for example, good quality agricultural land).
4. Scenarios for future urban development of the FIA will disregard land fragmentation as a constraint, except where established subdivisions exist and they are used for their originally intended purpose.
5. Scenarios for future urban development of the FIA will be sensitive to topographical features of the FIA, but will not be significantly limited by slope.
6. Remnant vegetation, waterways and their buffers (100 metre buffer will be applied to the Mary River and 30 metre buffers will be applied to small internal waterways), wetlands and their buffers (100 metre buffer will be applied to wetland systems) and other ecological values will be protected from encroaching urban development through inclusion in the proposed nature conservation network. Minor alterations to the proposed nature conservation network may occur at the interface with proposed urban development, where it supports the creation of a legible urban form, and where corridors can be maintained.
7. Urban development is to be located outside of identified flood prone land. Minor encroachment into the flood prone land may occur at the interface between flood prone land and non-flood prone land, where it would create a more legible urban form, and where compensatory land for flood storage can be provided elsewhere in the FIA. Any major encroachment into the flood prone land may only occur where overriding need for urban development exists.
8. Good quality agricultural land (Class A land) will be protected from urban development. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists. A 150 metre buffer to all good quality agricultural land will be applied and enforced.
9. The impacts of potential acid sulfate soils are able to be addressed at development application stage and do not constrain urban development in the identification of settlement pattern scenarios.
10. The impacts of bushfire hazard are able to be addressed at development application stage and do not constrain urban development in the identification of settlement pattern scenarios.
11. Urban development is able to proceed through construction of a new bridge across the Mary River. The new river crossing will be located consistent with the current route of the Eastern Maryborough Bypass.
12. The Eastern Maryborough Bypass will be constructed to the alignment as indicated by the Department of Main Roads. The route will operate as a limited

access state-controlled road, with the only major crossing / access located at Walkers Point Road.

13. The Maryborough Airport will continue to operate, without expansion or closure.
14. Capability exists for connection to the existing water supply network, sewerage network and stormwater network. Infrastructure upgrades required to cater for urban development will be outlined in the discussion of each scenario.
15. Urban expansion areas will utilise existing community facilities in the established Granville neighbourhood. Urban development of the FIA will include creation of new community facilities to resolve shortfalls in the existing network and to provide additional facilities as required.
16. The existing network of schools serving the FIA has capacity, either in existing buildings or in new buildings on existing school land, to accommodate a large population increase commensurate with urban development of the FIA.
17. Urban development of the FIA will include creation of new open space and recreation facilities, either within the urban area, in designated community infrastructure land, or in the conservation network.

8.2.2 Scenario 1 (Status Quo)

8.2.2.1 Structure Plan Concept

Settlement Pattern Scenario 1 for the Granville Further Investigation Area recognises that the FIA is severely constrained. Scenario 1 adopts a position of avoiding any urban development within the boundaries of the FIA, beyond that currently envisaged by the Fraser Coast (Maryborough City) Planning Scheme.

The majority of land in the FIA will be retained in the Rural Precinct.

Some land in the FIA is currently included in the Community Precinct and is used for public and private open space, recreation and reserves. That land should be retained in the Community Precinct and used for those purposes.

Some land in the FIA is currently included in the Residential Precinct, the Rural Residential Precinct, or the Industrial Precinct. That land may proceed with development for that designated use because a commitment has already been made for that land to be used for those purposes.

Refer to the current Local Area Plan for Granville, as per **Figure 5.2** for depiction of the development pattern envisaged under Scenario 1.

8.2.2.2 Estimated Resident Population

No additional urban development is proposed for the FIA therefore there will be no increase in the resident population of the FIA.

8.2.2.3 Timing and Staging of Development

No additional urban development is proposed for the FIA therefore there is no need to consider the timing and staging of development.

8.2.2.4 Infrastructure Requirements

No additional urban development is proposed for the FIA therefore there are no new infrastructure requirements arising from development of the FIA. However, Holland Traffic Consulting has advised that construction of an additional crossing of the Mary River or Tinana Creek should transpire in the future to provide an alternative access route to Maryborough proper for existing residents of Granville.

8.2.2.5 Issues Requiring Further Consideration

There are no issues requiring further consideration. Scenario 1 envisages that planning and development of the Granville FIA will progress consistent with the current planning directions of the Fraser Coast (Maryborough City) Planning Scheme.

8.2.3 Scenario 2 (Urban Expansion - Consolidated)

8.2.3.1 Structure Plan Concept

Settlement Pattern Scenario 2 for the Granville Further Investigation Area recognises that the FIA is severely constrained. Scenario 2 aims to restrict impacts on the valuable characteristics of the site, but allows for some expansion of the urban area to occur. Only in limited circumstances is constrained land used for urban purposes. The urban expansion proposed for the FIA is restricted to consolidation of the existing urban area, to reduce the quantum of infrastructure upgrades required to service new development.

The urban expansion area is proposed adjacent to the established urban area of Granville, as a logical and orderly expansion of the existing neighbourhood. Two separate precincts are created – a central precinct extending west of Walkers Point Road to a point north of the Federation Park AFL Club, and a southern precinct south of the Federation Park AFL Club.

A 150 metre buffer between urban expansion areas and agricultural land (characterised by good quality agricultural land and/or existing agricultural activity) is required to protect residential dwellings from the impacts of agriculture, and to protect agricultural operations from the reverse amenity impacts of residential development. To limit the further contraction of urban land in such constrained surroundings, the 150 metre buffer is accommodated on the rural land at the rural / residential interface.

The Federation Park AFL Club is retained in the Community Precinct, for open space and recreation purposes.

A single industrial site, located in the south-eastern corner of the FIA is intended to continue its current operation for industrial activities.

The nature conservation network extends throughout the Granville FIA, incorporating the buffer to the Mary River corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values.

Land not included in the urban expansion area, community precinct, industry precinct, or in the nature conservation network is included in the rural precinct. The

rural precinct will be used for a range of rural activities such as agricultural production and pastoral uses.

The state-controlled Eastern Maryborough Bypass extends on an east – west axis through the FIA, with only a single crossing and access point in the FIA at the intersection with Walkers Point Road.

Access to the urban expansion areas is primarily from Walkers Point Road for the central precinct and from Arnaud Street for the southern precinct. The central precinct is divided by the Eastern Maryborough Bypass, which segregates the southern portion of the precinct and the established Granville neighbourhood from the northern portion of the precinct. Walkers Point Road is retained as a north to south access route, allowing the northern portion of the precinct to connect to the southern portion of the precinct and the established Granville neighbourhood, despite the presence of the Eastern Maryborough Bypass.

The Structure Plan Concept for Scenario 2 of the Granville FIA is represented on **Figure 8.1**.

8.2.3.2 Modification of Constraints

Modification of the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 2:

- The central precinct encroaches into the desired nature conservation network. That this entire precinct is recognised by the current Planning Scheme as being in the Residential Precinct or the Rural Residential Precinct then some commitment to residential development in this area has already been made. Further, this part of the nature conservation network is isolated from other ecologically valuable areas. Removal of this vegetation will not diminish the performance of surrounding ecological corridors that run north-south and east-west through the FIA.
- The portion of the central precinct that is west of Walkers Point Road is identified as good quality agricultural land. The separation of this portion of land from the larger area of good quality agricultural land to the north because of the Eastern Maryborough Bypass will jeopardise its agricultural productivity, therefore urban development is acceptable in this location.
- A 150 metre buffer between good quality agricultural land and urban land cannot realistically be located in the urban expansion area as it would substantially limit the amount of land available for urban development. Consequently, to reduce the further contraction of urban land in such constrained surroundings, the 150 metre buffer will be accommodated on the rural land at the rural / residential interface.

The valuable characteristics of the land elsewhere in the FIA have been retained. The desired nature conservation network will be enforced, good quality agricultural land will retain the ability to operate productively, and all development avoids flood prone land.

8.2.3.3 Estimated Resident Population

The proposed urban expansion area for Scenario 2 contributes 47 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 470 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident population increase of approximately 1,222 might be achieved in the Granville FIA under scenario 2.

8.2.3.4 Timing and Staging of Development

This scenario presents a consolidated approach to the expansion of urban land into the FIA. Because the urban expansion area is a logical and orderly extension of the established Granville FIA, there is no requirement for staging of the urban expansion area. Development can occur immediately following implementation of all necessary infrastructure requirements.

8.2.3.5 Infrastructure Requirements

Transport Infrastructure

It is a requirement of Scenario 2 that a new bridge across the Mary River be constructed prior to any developable land being made available in the Granville FIA.

Physical Infrastructure

Water Infrastructure

As the identified proposed urban residential areas are contained within the existing water supply Granville zone, no additional unplanned water supply infrastructure provision should be involved. In particular, it is assumed that the combined anticipated water demand to be generated through the combination of rural and industrial/commercial precincts, as currently strategically designated by Council, is over and above that anticipated, based on the consolidated urban style residential expansion areas indicated within this scenario. Furthermore, based on a scant review of the contour values within and across the respective areas, it appears that an adequate pressure head should also be available.

However, a review of the existing water infrastructure, as depicted on Figure 6.11, indicates no obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas, with a prevalence of 100mm diameter water mains which have limited capacity to accommodate additional demands and this observation therefore requires further investigation through a detailed analysis of Council's trunk water network planning including the applicable computer based water network model.

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area, including its sewer catchment boundaries, it appears that only a relatively small proportion of the indicated urban expansion area, as per this scenario, is included within the

existing sewerage headworks area. As the area is relatively flat, it is expected that an additional sewage pump station and associated rising main, together with a system of gravity mains, may be required to satisfactorily meet the anticipated sewer servicing demands.

It appears that this required new infrastructure could be readily integrated with that existing. However, as the majority of this demand apparently has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network is required so as to ensure that sewage is satisfactorily conveyed, treated and recycled.

Stormwater Infrastructure

In general, as existing nearby lawful points of discharge exist or can readily be established, it is considered that no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within or to be conveyed through the indicated urban expansion areas.

Community Infrastructure

The existing community infrastructure in Granville satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 2, except is absent of the following facilities:

- A community meeting room / multi-purpose hall; and
- A child care centre.

These facilities should be developed in the existing Granville neighbourhood or the Granville FIA to service the existing and future populations.

8.2.3.6 Issues Requiring Further Consideration

There are no issues requiring further consideration.

8.2.4 Scenario 3 (Urban Expansion - Constraint Weighted)

8.2.4.1 Structure Plan Concept

Settlement Pattern Scenario 3 for the Granville Further Investigation Area recognises that the FIA is severely constrained, but accepts that for urban development to occur some limited modification of particular constraints must be allowed. Overriding need for urban development is assumed to exist to allow the rationalisation of some of the FIA's valuable features. Scenario 3 envisages substantial urban development of the FIA, and acknowledges that significant infrastructure upgrades are required to service that urban development.

The urban expansion area under scenario 3 covers a large portion of the FIA, commencing adjacent the established Granville neighbourhood and extending toward the north-eastern corner. For the most part, urban development is located east of Walkers Point Road. A small area of urban development is located west of Walkers Point Road in the south-west of the FIA.

A 150 metre buffer between urban expansion areas and agricultural land (characterised by good quality agricultural land and/or existing agricultural activity)

is required to protect residential dwellings from the impacts of agriculture, and to protect agricultural operations from the reverse amenity impacts of residential development. For the urban expansion area west of Walkers Point Road the 150 metre buffer is accommodated on the rural land at the rural / residential interface, to limit the further contraction of urban land in a particularly constrained location.

The Federation Park AFL Club is retained in the Community Precinct, for open space and recreation purposes. An additional area of community precinct land, envisaged to be used for open space and recreation, is proposed in the south-eastern corner of the FIA. This land is unsuitable for urban development because of its enclosure by significant constraints – the Eastern Maryborough Bypass restricts connection to other urban land and access roads to the north, and the nature conservation network restricts connection to other urban land and access roads to the west and south.

A single industrial site, located in the south-eastern corner of the FIA is intended to continue its current operation for industrial activities.

The nature conservation network extends throughout the Granville FIA, incorporating the buffer to the Mary River corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values.

Land not included in the urban expansion area, community precinct, industry precinct, or in the nature conservation network is included in the rural precinct. The rural precinct will be used for a range of rural activities such as agricultural production and pastoral uses.

The state-controlled Eastern Maryborough Bypass extends on an east – west axis through the FIA, with only a single crossing and access point in the FIA at the intersection with Walkers Point Road.

Access to the urban expansion area is primarily from Walkers Point Road. A small part of the urban expansion area is accessed via Arnaud Street. Part of the urban expansion area is divided by the Eastern Maryborough Bypass, which segregates the southern portion of the precinct and the established Granville neighbourhood from the northern portion of the precinct. Walkers Point Road is retained as a north to south access route, allowing the northern portion of the precinct to connect to the southern portion of the precinct and the established Granville neighbourhood, despite the presence of the Eastern Maryborough Bypass.

The Structure Plan Concept for Scenario 3 of the Granville FIA is represented on **Figure 8.2**.

8.2.4.2 Modification of Constraints

Modification of the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 3:

- Part of the urban expansion area, where close to the existing Granville neighbourhood, encroaches into the desired nature conservation network. This area is recognised by the current Planning Scheme as being in the Residential Precinct or the Rural Residential Precinct therefore some commitment to residential development has already been made. Further, this part of the nature

conservation network is isolated from other ecological areas. Removal of this vegetation will not diminish the performance of surrounding ecological corridors that run north-south and east-west through the FIA. Expansion of the nature conservation network is proposed elsewhere in the FIA to balance the loss of ecological values in this location.

- Most of the urban expansion area is designated on land classified as good quality agricultural land. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists, as is assumed to be the case for Scenario 3. Development occurring in accordance with scenario 3 will require detailed justification in response to SPP 1/92.
- A 150 metre buffer between good quality agricultural land and urban land cannot realistically be located in the urban expansion area west of Walkers Point Road as it would substantially limit the amount of land available for urban development. Consequently, to reduce the further contraction of urban land in such constrained surroundings, the 150 metre buffer will be accommodated on the rural land at the rural / residential interface. In all other locations, the 150 metre buffer will be located in the potential urban expansion area to allow adjoining good quality agricultural land to function productively.
- The urban expansion area encroaches slightly into the flood prone land, in the south-western corner of the FIA. The minor encroachment is proposed to create a development parcel of regular shape. It is assumed that compensatory land for flood storage will be provided elsewhere in the FIA.

The valuable characteristics of the land elsewhere in the FIA have been retained. The desired nature conservation network will be mostly enforced and in some instances expanded, good quality agricultural land will retain the ability to operate productively where west of Walkers Point Road (which is generally the current extent of operational agricultural land), and the majority of development avoids flood prone land.

8.2.4.3 Estimated Resident Population

The proposed urban expansion area for Scenario 3 contributes 207 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 2,070 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident population of approximately 5,382 might be achieved in the Granville FIA under scenario 3.

8.2.4.4 Timing and Staging of Development

It is desirable for development of the urban expansion areas identified in scenario 3 to proceed in a logical sequence, commencing with the land adjacent to the existing Granville residential neighbourhood and progressively extending northwards, to facilitate the orderly provision and expansion of infrastructure.

Obviously, if the northern parts of the FIA develop first then they will need to accept bring forward infrastructure costs.

Infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure required to service the demands of any future urban development.

8.2.4.5 Infrastructure Requirements

Transport Infrastructure

It is a requirement of Scenario 3 that a new bridge across the Mary River be constructed prior to any developable land being made available in the Granville FIA.

An upgrade of Walkers Point Road, being the primary road servicing the FIA, will be required to amend its classification from rural collector to urban collector and to ensure sufficient capacity is provided to accommodate future vehicles associated with an increased population.

Physical Infrastructure

Water Infrastructure

As only a small proportion of the identified proposed urban residential areas are contained within the existing Granville water supply zone, significant additional unplanned water supply infrastructure provision most probably will be involved. In particular, it is assumed that the combined anticipated water demand to be generated through the combination of rural and industrial/commercial precincts as currently strategically designated by Council is inadequate to meet that anticipated based on the consolidated urban style residential expansion areas indicated within this scenario.

Furthermore, based on a scant review of the contour values within and across the respective areas together with their significant inherent areas, it appears that an adequate pressure head may not be available. A review of the existing water infrastructure, as depicted on Figure 6.11, indicates no obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas, with a prevalence of 100mm diameter water mains which have limited capacity to accommodate additional demands. This observation and the identification of any spare unallocated capacity therefore requires further investigation through a detailed analysis of Council's trunk water network planning including the applicable computer based water network model. This analysis and review is required to encompass the whole of the water supply and treatment trunk network.

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area, including its sewer catchment boundaries, it appears that only a relatively small proportion of the indicated urban expansion area, as per this scenario, is included within the existing sewerage headworks area. As the area is relatively flat, it is expected that additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required to satisfactorily meet the anticipated sewer servicing demands.

It appears that this required new infrastructure could be readily integrated with that existing. However, as the majority of this demand has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network is required so as to satisfactorily convey, treat and recycle sewage with the possibility of significant upgrades and duplications resulting.

Stormwater Infrastructure

In general, as existing nearby lawful points of discharge exist or can readily be established, it is considered that no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within or to be conveyed through the indicated urban expansion areas.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in close proximity and at risk. Potential stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/ pollutant removal. As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis. It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks. As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime. Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council.

Community Infrastructure

The existing community infrastructure in Granville satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 3, except is absent of the following facilities:

- A community meeting room / multi-purpose hall; and
- A child care centre.

These facilities should be developed in the existing Granville neighbourhood or the Granville FIA to service the existing and future populations.

8.2.4.6 Issues Requiring Further Consideration

There are no issues requiring further consideration for this scenario.

8.2.5 Scenario 4 (Urban Expansion - Constraint Modified)

8.2.5.1 Structure Plan Concept

Settlement Pattern Scenario 4 for the Granville Further Investigation Area recognises that the FIA is severely constrained, but substantially modifies those constraints to allow extensive urban development. Overriding need for urban development is assumed to exist to allow the large degree of modification of the FIA's valuable features necessary to facilitate such expansion of the urban area. Significant infrastructure upgrades are required to service the urban development proposed in scenario 4.

The urban expansion area covers the majority of the FIA, commencing adjacent the established Granville neighbourhood and extending northwards on both sides of Walkers Point Road. The urban expansion area only acknowledges the nature conservation network as a intransigent constraint, with all other constraints able to be modified through engineered outcomes in order for urban development to proceed.

Scenario 4 proposes that no rural land be retained in the FIA. Accordingly, there will be no need for buffers between urban expansion areas and agricultural land (characterised by good quality agricultural land) within the FIA. A buffer between urban expansion areas and agricultural land adjoining the FIA will not be enforced on land in the FIA, because urban development takes precedence in this scenario. To avoid deleterious impacts on future residential development, buffers to agricultural land will have to be accommodated within the rural properties adjoining the FIA.

The Federation Park AFL Club is retained in the Community Precinct, for open space and recreation purposes. An additional area of community precinct land, envisaged to be used for open space and recreation, is proposed in the south-eastern corner of the FIA. This land is unsuitable for urban development because of its enclosure by significant constraints – the Eastern Maryborough Bypass restricts connection to other urban land and access roads to the north, and the nature conservation network restricts connection to other urban land and access roads to the west and south.

A single industrial site, located in the south-eastern corner of the FIA is intended to continue its current operation for industrial activities.

The nature conservation network extends throughout the Granville FIA, incorporating the buffer to the Mary River corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values.

The state-controlled Eastern Maryborough Bypass extends on an east – west axis through the FIA, with only a single crossing and access point in the FIA at the intersection with Walkers Point Road.

Access to the urban expansion area is primarily from Walkers Point Road. A small part of the urban expansion area is accessed via Arnaud Street. Part of the urban expansion area is divided by the Eastern Maryborough Bypass, which segregates the southern portion of the precinct and the established Granville neighbourhood

from the northern portion of the precinct. Walkers Point Road is retained as a north to south access route, allowing the northern portion of the precinct to connect to the southern portion of the precinct and the established Granville neighbourhood, despite the presence of the Eastern Maryborough Bypass.

The Structure Plan Concept for Scenario 4 has not been mapped because it is not a realistic scenario for future development of the Granville FIA. The substantial modification of constraints cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.2.5.2 Modification of Constraints

Modification of the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 3:

- Part of the urban expansion area, where close to the existing Granville neighbourhood, encroaches into the desired nature conservation network. This area is recognised by the current Planning Scheme as being in the Residential Precinct or the Rural Residential Precinct therefore some commitment to residential development has already been made. Further, this part of the nature conservation network is isolated from other ecological areas. Removal of this vegetation will not diminish the performance of surrounding ecological corridors that run north-south and east-west through the FIA.
- Most of the urban expansion area is designated on land classified as good quality agricultural land. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists, as is assumed to be the case for Scenario 4. Development occurring in accordance with scenario 4 will require detailed justification in response to SPP 1/92.
- A 150 metre buffer between good quality agricultural land and urban land will not be located in the urban expansion area as it would substantially limit the amount of land available for urban development. The 150 metre buffer will be accommodated on the rural land at the rural / residential interface.
- The urban expansion area significantly encroaches into the flood prone land. Substantial earthworks will be required to modify the landform to an extent that provides flood immunity for future dwellings. Detailed engineering solutions will also be required to avoid any adverse impacts resulting from those earthworks, such as impacts on upstream properties and downstream waterway flow patterns, and will require significant compensatory flood storage.

8.2.5.3 Estimated Resident Population

The proposed urban expansion area for Scenario 4 contributes 320 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 3,200 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident

population of approximately 8,320 might be achieved in the Granville FIA under scenario 4.

8.2.5.4 Timing and Staging of Development

It is desirable for development of the urban expansion areas identified in scenario 4 to proceed in a logical sequence, commencing with the land adjacent to the existing Granville residential neighbourhood and progressively extending northwards, to facilitate the orderly provision and expansion of infrastructure.

Obviously, if the northern parts of the FIA development first then they will need to accept bring forward infrastructure costs.

Infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure required to service the demands of any future urban development.

8.2.5.5 Infrastructure Requirements

Transport Infrastructure

It is a requirement of Scenario 4 that a new bridge across the Mary River be constructed prior to any developable land being made available in the Granville FIA.

An upgrade of Walkers Point Road, being the primary road servicing the FIA, will be required to amend its classification from rural collector to urban collector and to ensure sufficient capacity is provided to accommodate future vehicles associated with an increased population.

Physical Infrastructure

Water Infrastructure

As only a small proportion of the identified proposed urban residential areas are contained within the existing water supply Granville zone, significant additional unplanned water supply infrastructure provision will be involved. In particular, it is assumed that the combined anticipated water demand to be generated through the combination of rural and industrial/commercial precincts as currently strategically designated by Council is inadequate to meet that anticipated based on the consolidated urban style residential expansion areas indicated within this scenario.

Furthermore, based on a scant review of the contour values within and across the respective areas, together with their significant inherent areas, it appears that an adequate pressure head may not be available. There may be a need for an additional water storage/reservoir with associated pump and other ancillary water supply infrastructure. A review of the existing water infrastructure, as depicted on Figure 6.11, indicates no obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas, with a prevalence of 100mm diameter water mains which have limited capacity to accommodate additional demands. This observation and the identification of any spare unallocated capacity therefore requires further investigation through a detailed analysis of Council's trunk water network planning including the applicable computer based water network model. This analysis and review is required to include the whole of the water supply and treatment trunk network.

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area, including its sewer catchment boundaries, it appears that only a relatively small proportion of the indicated urban expansion area, as per this scenario, is included within the existing sewerage headworks area. As the area is relatively flat, it is expected that additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required to satisfactorily meet the anticipated sewer servicing demands.

It appears that this required new infrastructure could be readily integrated with that existing. However, as the majority of this demand has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network is required so as to satisfactorily convey, treat and recycle sewage with the possibility of significant upgrades and duplications resulting.

Stormwater Infrastructure

In general, as existing nearby lawful points of discharge exist or can readily be established, it is considered that no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within or to be conveyed through the indicated urban expansion areas.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in close proximity and at risk. Potential stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/ pollutant removal. As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis. It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks. As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime. Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council.

Community Infrastructure

The existing community infrastructure in Granville satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 4, except is absent of the following facilities:

- A community meeting room / multi-purpose hall; and
- A child care centre.

These facilities should be developed in the existing Granville neighbourhood or the Granville FIA to service the existing and future populations. The population increase envisaged under scenario 4 may extend some existing local level community facilities to their capacity, and the creation of new facilities in the Granville FIA may need to be investigated.

8.2.5.6 Issues Requiring Further Consideration

Scenario 4 is not a realistic scenario for future development of the Granville FIA. The substantial modification of constraints, particularly intrusion into flood prone land, cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.3 Maryborough North Settlement Pattern Scenarios

8.3.1 Rationale and Key Assumptions

While all of the opportunities and constraints for the Maryborough North FIA are recognised as applicable and accurate, some assumptions must be made on how those characteristics should apply to future development of the FIA. Most of the FIA is constrained so some flexibility of constraints may need to be permitted for development to occur. Some constraints may be able to be rationalised in order to accommodate legible urban development, but such flexibility should only be entertained where there is an overriding need for the development and where the benefits of urban development outweigh the impacts on each extenuated characteristic.

The settlement pattern scenarios for the Maryborough North FIA are underpinned by the rationale and assumptions identified below.

1. Despite the limited need at present to make additional urban land available in Maryborough, due to relatively low rates of historic and projected population growth, urban development of the Maryborough North FIA may proceed. A primary assumption is that an overriding need for urban development in the FIA exists, thereby allowing flexibility for some key constraints to be substantially altered.
2. Scenarios for future urban development of the FIA will disregard the existing land uses, except where those uses demonstrate other valuable qualities that are explicitly identified in these assumptions (for example, good quality agricultural land).
3. The area identified as subject of a mining lease will not be developed for urban purposes.
4. Scenarios for future urban development of the FIA will disregard land fragmentation as a constraint, except where established subdivisions exist and they are used for their originally intended purpose.

5. The industrial subdivision on Maryborough – Hervey Bay Road, the rural residential subdivision on Maryborough – Hervey Bay Road, and the industrial use on Fazio Road will be retained in their current form and use.
6. Scenarios for future urban development of the FIA will be sensitive to topographical features of the FIA, but will not be significantly limited by slope.
7. Remnant vegetation, waterways and their buffers (100 metre buffer will be applied to Saltwater Creek and 30 metre buffers will be applied to small internal waterways), wetlands and their buffers (100 metre buffer will be applied to wetland systems) and other ecological values will be protected from encroaching urban development through inclusion in the proposed nature conservation network. Minor alterations to the proposed nature conservation network may occur at the interface with proposed urban development, where it supports the creation of a legible urban form, and where corridors can be maintained.
8. Urban development is to be located outside of identified flood prone land. Minor encroachment into the flood prone land may occur at the interface with proposed urban development, where it would create a more legible urban form, and where compensatory land for flood storage can be provided elsewhere in the FIA. Any major encroachment into the flood prone land may only occur where overriding need for urban development exists.
9. Good quality agricultural land (Class A land) will be protected from urban development. A 150 metre buffer to all good quality agricultural land will be applied and enforced. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists.
10. The impacts of potential acid sulfate soils are able to be addressed at development application stage and do not constrain urban development in the identification of settlement pattern scenarios.
11. The impacts of bushfire hazard are able to be addressed at development application stage and do not constrain urban development in the identification of settlement pattern scenarios.
12. The Northern Maryborough Bypass will be constructed to the central alignment indicated by the Department of Main Roads. The route will operate as a limited access state-controlled road, with the only major crossing / access located at Maryborough – Hervey Bay Road. Additional local access points to Maryborough – Hervey Bay Road will not be allowed, so any urban development north of the Northern Maryborough Bypass is not possible.
13. The Maryborough Airport will continue to operate, without expansion or closure. Urban development is disqualified from occurring within the 20 ANEF contours.
14. Capability exists for connection to the existing water supply network, sewerage network and stormwater network. Infrastructure upgrades required to cater for urban development will be outlined in the discussion of each scenario.
15. A large part of the Maryborough North FIA is constrained by the sewerage effluent re-use irrigation area. It is assumed that where need for urban

development exists, the area subject to effluent re-use irrigation can be relocated. Further investigation into the implications of relocation of the effluent re-use irrigation area, including amendments of Environmentally Relevant Activity approvals, is required.

16. Urban expansion areas will utilise existing community facilities in the established residential neighbourhood to the south. Urban development of the FIA will include creation of new community facilities to resolve shortfalls in the existing network and to provide additional facilities as required.
17. The existing network of schools serving the FIA has capacity, either in existing buildings or in new buildings on existing school land, to accommodate a large population increase commensurate with urban development of the FIA.
18. Urban development of the FIA will include creation of new open space and recreation facilities, either within the urban area, in designated community infrastructure land, or in the conservation network.

8.3.2 Scenario 1 (Status Quo)

8.3.2.1 Structure Plan Concept

Settlement Pattern Scenario 1 for the Maryborough North Further Investigation Area recognises that the FIA is severely constrained. Scenario 1 adopts a position of avoiding any urban development within the boundaries of the FIA, beyond that currently envisaged by the Fraser Coast (Maryborough City) Planning Scheme.

The majority of land in the FIA will be retained in the Rural Precinct.

Some land in the FIA is currently included in the Residential Precinct, the Rural Residential Precinct, or the Industrial Precinct. That land may proceed with development for that designated use because a commitment has already been made for that land to be used for those purposes.

Refer to the current Local Area Plan for Maryborough West and North, as per **Figure 5.2** for depiction of the development pattern envisaged under Scenario 1.

8.3.2.2 Estimated Resident Population

No additional urban development is proposed for the FIA therefore there will be no increase in the resident population of the FIA.

8.3.2.3 Timing and Staging of Development

No additional urban development is proposed for the FIA therefore there is no need to consider the timing and staging of development.

8.3.2.4 Infrastructure Requirements

No additional urban development is proposed for the FIA therefore there are no new infrastructure requirements arising from development of the FIA.

8.3.2.5 Issues Requiring Further Consideration

There are no issues requiring further consideration. Scenario 1 envisages that planning and development of the Maryborough North FIA will progress consistent

with the current planning directions of the Fraser Coast (Maryborough City) Planning Scheme.

8.3.3 Scenario 2 (Urban Expansion - Consolidated)

8.3.3.1 Structure Plan Concept

Settlement Pattern Scenario 2 for the Maryborough North Further Investigation Area recognises that the FIA is severely constrained. Scenario 2 aims to restrict impacts on the valuable characteristics of the site, but allows for some expansion of the urban area to occur. Only in limited circumstances is constrained land used for urban purposes. The urban expansion proposed for the FIA is restricted to consolidation of the existing urban area, to reduce the quantum of infrastructure upgrades required to service new development.

The urban expansion area is proposed adjacent to the established urban area to the south-west of the FIA, as a logical and orderly expansion of the existing neighbourhood. The urban expansion area reflects the area intended for urban development under the Bell Hilltop masterplan (which has not been endorsed by Fraser Coast Regional Council).

A 150 metre buffer between urban expansion areas and agricultural land (characterised by good quality agricultural land and/or existing agricultural activity) is required to protect residential dwellings from the impacts of agriculture, and to protect agricultural operations from the reverse amenity impacts of residential development. To limit the further contraction of urban land in such constrained surroundings, the 150 metre buffer is accommodated on the rural land at the rural / residential interface.

All existing community uses, including the Harry Booth Memorial Soccer Ground and St Helens State Primary School, are retained in the Community Precinct. Upon cessation of its current landfill operations, the landfill site will be transformed to open space and recreation and accordingly designated in the community precinct.

The industrial subdivision and industrial site, located in the centre of the FIA are intended to continue their current operation for industrial activities and will retain their current land use designation. The rural residential subdivision, also located in the centre of the FIA, is retained in its current form and with its current land use designation.

The nature conservation network extends throughout the Maryborough North FIA, incorporating the buffer to the Saltwater Creek corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values. Modification of the nature conservation network only occurs in the south of the FIA, over the land identified for urban purposes by the Bell Hilltop masterplanning exercise.

Land not included in the urban expansion area, community precinct, industry precinct, rural residential precinct, or in the nature conservation network is included in the rural precinct. The rural precinct will be used for a range of rural activities such as agricultural production and pastoral use.

The state-controlled Northern Maryborough Bypass extends on an east – west axis through the FIA, intersecting with Maryborough-Hervey Bay Road in the north of

the FIA. No other crossing or access points to the Northern Maryborough Bypass occurs in the FIA.

Access to the urban expansion area is primarily from Boys Avenue, which connects to other roads in the established urban area to the south of the FIA.

The Structure Plan Concept for Scenario 2 of the Maryborough North FIA is represented on **Figure 8.1**.

8.3.3.2 Modification of Constraints

Modification the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 2:

- The urban expansion area encroaches into the desired nature conservation network. The southern part of the urban expansion area is recognised by the current Planning Scheme as being in the Residential Precinct, therefore some commitment to urban development in this area has already been made. The northern part of the urban expansion area is included in the Bell Hilltop masterplan area, which envisages urban development. Notwithstanding the established urban intent for this land, the logical location for any expansion / consolidation of the existing urban area into the Maryborough North FIA is that suggested in scenario 2, as it allows for the efficient and orderly connection to existing urban areas and associated infrastructure. On these grounds, the nature conservation network has been modified to allow some urban development to occur. A corridor through the urban area is retained to maintain connectivity between areas of ecological value to the east and west of the urban expansion area.
- The urban expansion area encroaches slightly into the flood prone land, in the south-western corner of the FIA. The minor encroachment will enable the creation of a development parcel of regular shape. It is assumed that compensatory land for flood storage will be provided elsewhere in the FIA.
- A 150 metre buffer between good quality agricultural land and urban land cannot realistically be located in the urban expansion area as it would substantially limit the amount of land available for urban development. Consequently, to reduce the further contraction of urban land in such constrained surroundings, the 150 metre buffer will be accommodated on the rural land at the rural / residential interface.

The valuable characteristics of the land elsewhere in the FIA have been retained. The desired nature conservation network will be enforced, good quality agricultural land will retain the ability to operate productively, most development avoids flood prone land, and the sewerage effluent re-use irrigation area will not require alteration.

8.3.3.3 Estimated Resident Population

The proposed urban expansion area for Scenario 2 contributes 45 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 450 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident population increase of approximately 1,170 might be achieved in the Maryborough North FIA under scenario 2.

8.3.3.4 Timing and Staging of Development

This scenario presents a consolidated approach to the expansion of urban land into the FIA. Because the urban expansion area is a logical and orderly extension of the established residential neighbourhood adjoining the FIA to the south, there is no requirement for staging of the urban expansion area. Development can occur immediately following implementation of all necessary infrastructure requirements.

8.3.3.5 Infrastructure Requirements

Transport Infrastructure

An upgrade of Boys Avenue, being the primary road servicing the FIA, will be required to amend its classification from rural access to urban collector and to ensure sufficient capacity is created to accommodate future vehicles associated with an increased population.

Some intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street may be required to satisfy anticipated traffic flows resulting from urban expansion into the FIA.

Physical Infrastructure

Water Infrastructure

As the identified proposed urban residential area is contained within the existing high level water supply zone, the only additional unplanned water supply infrastructure provision which should be involved, on the basis of the predominantly assumed rural strategic designation as per the Maryborough City Plan 2000 Strategy Map (figure 5.1), Local Area Map (figure 5.2) and Water and Sewerage Headworks Planning Scheme Policy 6.3a, is that required to meet the increased demands based on the 1170 EP as indicated above for this consolidated scenario. Furthermore, based on the fact that this area is already included within the high level zone, it appears that an adequate pressure head should also be available.

However, a review of the existing water infrastructure, as depicted on Figure 6.11, indicates provision for connectivity between existing infrastructure and this identified urban expansion area, with a network of existing 100 and 150mm diameter water mains nearby which may have capacity to significantly contribute towards accommodated additional residential demands. However, there is a requirement to undertake a detailed analysis of Council's trunk water network planning, including the applicable computer based water network model, in order to identify what infrastructure upgrades, if any, will be required

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area including its sewer catchment boundaries, it appears that none of the indicated urban expansion area, as indicated by this scenario, is included within the existing sewerage

headworks area. As the expansion area is relatively elevated, it is expected that a system of gravity mains, may only be required to satisfactorily meet the anticipated sewer servicing demands.

It appears that this required new infrastructure could be readily integrated with that existing. However, as this demand apparently has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network required to convey, treat and recycle sewage will be necessary.

Stormwater Infrastructure

Although this residential expansion area is relatively remote from an obvious lawful point of discharge, given the relatively unconstrained nature of the surrounding land, and the prevalence of the nature conservation network to the east, it is considered that lawful points of discharge can readily be established. It is also considered that, in general, no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within the indicated urban expansion areas.

Community Infrastructure

The existing community infrastructure in the residential neighbourhoods surrounding the Maryborough North FIA (particularly to the south) satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 2.

8.3.3.6 Issues Requiring Further Consideration

While it is not reasonable to accept the outcomes of earlier masterplanning exercises blindly, this scenario relies somewhat on the intended urban designation resulting from the Bell Hilltop masterplanning exercise. It is understood that the Bell Hilltop masterplanning exercise has been stalled by Fraser Coast Regional Council and that there is no intention to progress development of Bell Hilltop in the short term. Should the Bell Hilltop masterplanning exercise be withdrawn, or its results considered extraneous to this structure planning project, then the proposed urban expansion area of scenario 2 will need to be reconsidered.

8.3.4 Scenario 3 (Urban Expansion - Constraint Weighted)

8.3.4.1 Structure Plan Concept

Settlement Pattern Scenario 3 for the Maryborough North Further Investigation Area recognises that the FIA is severely constrained, but accepts that for urban development to occur some limited modification of particular constraints must be allowed. Overriding need for urban development is assumed to exist to allow the rationalisation of some of the FIA's valuable features. Scenario 3 envisages substantial urban development of the FIA, and acknowledges that significant infrastructure upgrades are required to service that urban development.

The urban expansion area covers a large portion of the FIA, commencing adjacent the established residential neighbourhoods south of the FIA and extending northwards. The urban expansion area primarily adjoins the western boundary of

the FIA and is entirely located west of Maryborough-Hervey Bay Road. The urban expansion area only extends as far north as the proposed Northern Maryborough Bypass.

A 150 metre buffer between urban expansion areas and agricultural land (characterised by good quality agricultural land and/or existing agricultural activity) is require enforced to protect residential dwellings from the impacts of agriculture, and to protect agricultural operations from the reverse amenity impacts of residential development. For the southern parts of the urban expansion area the 150 metre buffer is accommodated on the rural land at the rural / residential interface, to limit the further contraction of urban land in such a constrained location.

All existing community uses, including the Harry Booth Memorial Soccer Ground and St Helens State Primary School, will be retained in the Community Precinct. Upon cessation of its current landfill operations, the landfill site will be transformed to open space and recreation and accordingly designated in the community precinct.

The industrial subdivision and industrial site, located in the centre of the FIA are intended to continue their current operation for industrial activities and will retain their current land use designation. The rural residential subdivision, also located in the centre of the FIA, is retained in its current form and with its current land use designation.

The nature conservation network extends throughout the Maryborough North FIA, incorporating the buffer to the Mary River corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values. Modification of the nature conservation network only occurs in the south of the FIA, over the land identified for urban purposes by the Bell Hilltop masterplanning exercise.

Land not included in the urban expansion area, community precinct, industry precinct, rural residential precinct, or in the nature conservation network is included in the rural precinct. The rural precinct will be used for a range of rural activities such as agricultural production and pastoral use.

The state-controlled Northern Maryborough Bypass extends on an east – west axis through the FIA, intersecting with Maryborough-Hervey Bay Road in the north of the FIA. No other crossing or access points to the Northern Maryborough Bypass occur in the FIA.

Access to the urban expansion area is primarily from Boys Avenue, which connects to other roads in the established urban area to the south of the FIA. A secondary access to the FIA is via Fazio Road, which connects to Maryborough – Hervey Bay Road.

The Structure Plan Concept for Scenario 3 of the Maryborough North FIA is represented on **Figure 8.2**.

8.3.4.2 Modification of Constraints

Modification of the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 3:

- The urban expansion area encroaches into the desired nature conservation network. The southern part of the urban expansion area is recognised by the current Planning Scheme as being in the Residential Precinct, therefore some commitment to urban development in this area has already been made. The northern part of the urban expansion area is included in the Bell Hilltop masterplan area, which envisages urban development. Notwithstanding the established urban intent for this land, the logical location for any expansion / consolidation of the existing urban area into the Maryborough North FIA is that suggested in scenario 2, as it allows for the efficient and orderly connection to existing infrastructure. On these grounds, the nature conservation network is modified to allow some urban development to occur. A corridor through the urban area is retained to maintain connectivity between areas of ecological value to the east and west of the urban expansion area.
- The urban expansion area encroaches slightly into the flood prone land, in the southern parts of the FIA. The minor encroachment will enable the creation of a development parcel of regular shape. It is assumed that compensatory land for flood storage will be provided elsewhere in the FIA.
- Most of the urban expansion area is located on land classified as good quality agricultural land. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists, as is assumed to be the case for Scenario 3. Development occurring in accordance with scenario 3 will require detailed justification in response to SPP 1/92.
- In the southern parts of the FIA a 150 metre buffer between good quality agricultural land and urban land cannot realistically be located in the urban expansion area as it would substantially limit the amount of land available for urban development. Consequently, to reduce the further contraction of urban land in such constrained surroundings, the 150 metre buffer will be accommodated on the rural land at the rural / residential interface. In all other locations, the 150 metre buffer will be located in the potential urban expansion area to allow adjoining good quality agricultural land to function productively.
- A large amount of the urban expansion area is located on land identified as the sewerage treatment plant's effluent re-use irrigation area. The effluent re-use irrigation area is intended to be retained for rural and agricultural uses, so that the treated effluent (non-potable) can be distributed across these areas without causing harm to humans. Urban development in the current effluent re-use irrigation area requires the irrigation area be relocated to other rural land surrounding Maryborough. The amendment of current agreements with land owners and current Environmentally Relevant Activity approvals for the effluent re-use irrigation area need to be investigated as a result of this scenario.

The valuable characteristics of the land elsewhere in the FIA have been retained. The desired nature conservation network will be mostly enforced and in some instances expanded, good quality agricultural land will retain the ability to operate productively where north of the Northern Maryborough Bypass and where east of Maryborough Hervey Bay Road, and the majority of development avoids flood prone land.

8.3.4.3 Estimated Resident Population

The proposed urban expansion area for Scenario 3 contributes 170 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 1,700 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident population of approximately 4,420 might be achieved in the Maryborough North FIA under scenario 3.

8.3.4.4 Timing and Staging of Development

It is desirable for development of the urban expansion areas identified in scenario 3 to proceed in a logical sequence, commencing with the land adjacent to the existing residential neighbourhood (south of the FIA) and progressively extending northwards, to facilitate the orderly provision and expansion of infrastructure.

Obviously, if the northern parts of the FIA develop first then they will need to accept bring forward infrastructure costs.

Infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure required to service the demands of any future urban development.

8.3.4.5 Infrastructure Requirements

Transport Infrastructure

An upgrade of Boys Avenue, being the primary road servicing the FIA, will be required to amend its classification from rural access to urban collector and to ensure sufficient capacity is created to accommodate future vehicles associated with an increased population.

Some intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street may be required to satisfy anticipated traffic flows resulting from urban expansion into the FIA.

An upgrade of Quarry Road and Fazio Road will also be required, including substantial intersection upgrades where Fazio Road intersects Maryborough – Hervey Bay Road.

An upgrade of Maryborough – Hervey Bay Road will be required.

Physical Infrastructure

Water Infrastructure

Although a significant proportion of the identified proposed urban residential expansion area is contained within the existing high level water supply zone, additional unplanned water supply infrastructure will be required not only on the basis of the predominantly assumed rural strategic designation as per the Maryborough City Plan 2000 Strategy Map (figure 5.1), Local Area Map (figure 5.2) and Water and Sewerage Headworks Planning Scheme Policy 6.3a, but also to meet

water servicing demands due to the relative extent of the residential expansion area indicated to the north of Quarry Road for this constraints weighted scenario.

A review of the existing water infrastructure, as depicted on Figure 6.11, indicates some provision for connectivity between existing infrastructure and this identified urban expansion area, with a network of existing 100 and 150mm diameter water mains nearby to the south which may have capacity to somewhat contribute towards accommodated additional residential demands. However, there is a requirement to undertake a detailed analysis of Council's trunk water network planning, including the applicable computer based water network model, in order to identify what new additional infrastructure, upgrades and/or duplications will be required

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area including its sewer catchment boundaries, it appears that none of the indicated urban expansion area, as per this scenario, is included within the existing sewerage headworks area. As the expansion area is relatively extensive, it is expected that a system of pump stations and associated rising mains together with gravity mains, will be required to satisfactorily meet the anticipated sewer servicing demands. It appears that the provision of this required new infrastructure could be difficult due to the future transport network components and other physical constraints.

On this basis, it may also be difficult to readily integrate with existing infrastructure. As it appears that this demand has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network required to convey, treat and recycle sewage will be necessary with any resulting upgrades and duplications identified.

Stormwater Infrastructure

In general, as existing nearby lawful points of discharge exist or can readily be established, it is considered that no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within or to be conveyed through the indicated urban expansion areas.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in relatively close proximity and at risk. Potential stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/ pollutant removal. As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis. It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks. As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle

impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime. Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council.

Community Infrastructure

The existing community infrastructure in the residential neighbourhoods surrounding the Maryborough North FIA (particularly to the south) satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 3.

8.3.4.6 Issues Requiring Further Consideration

While it is not reasonable to accept the outcomes of earlier masterplanning exercises blindly, this scenario relies somewhat on the intended urban designation resulting from the Bell Hilltop masterplanning exercise. It is understood that the Bell Hilltop masterplanning exercise has been stalled by Fraser Coast Regional Council amalgamations and that there is no intention to progress development of Bell Hilltop in the short term. Should the Bell Hilltop masterplanning exercise be withdrawn, or its results considered extraneous to this structure planning project, then the proposed urban expansion area of scenario 3 will need to be reconsidered.

The ability to develop on land identified for sewerage effluent re-use irrigation is unknown. The potential for the effluent re-use irrigation area to be redistributed to other parts of Maryborough, and the associated requirements for amendment of Environmentally Relevant Activity approvals, must be investigated before any development commitment can be made on land currently in the effluent re-use irrigation area.

A substantial increase in vehicles accessing Maryborough – Hervey Bay Road is inconsistent with Department of Main Roads' current planning for that state-controlled road. Further consultation with Department of Main Roads is required to determine the acceptability of the urban expansion area utilising and upgrading the intersection of Fazio Road and Maryborough – Hervey Bay Road.

8.3.5 Scenario 4 (Urban Expansion - Constraint Modified)

8.3.5.1 Structure Plan Concept

Settlement Pattern Scenario 4 for the Maryborough North Further Investigation Area recognises that the FIA is severely constrained, but substantially modifies those constraints to allow extensive urban development. Overriding need for urban development is assumed to exist to allow the large degree of modification of the FIA's valuable features necessary to facilitate such expansion of the existing urban area. Significant infrastructure upgrades are required to service the urban development proposed in Scenario 4.

The urban expansion area covers a large portion of the FIA, commencing adjacent the established residential neighbourhoods south of the FIA and extending northwards. The urban expansion area is entirely located west of Maryborough-Hervey Bay Road. The urban expansion area only extends as far north as the proposed Northern Maryborough Bypass.

The urban expansion area only acknowledges the nature conservation network as an intransigent constraint, with all other constraints able to be modified through engineered outcomes in order for urban development to proceed.

A 150 metre buffer between urban expansion areas and agricultural land (characterised by good quality agricultural land and/or existing agricultural activity) is required to protect residential dwellings from the impacts of agriculture, and to protect agricultural operations from the reverse amenity impacts of residential development. Because urban development takes precedence in this scenario, buffers to agricultural land are accommodated within the rural land in the FIA.

All existing community uses, including the Harry Booth Memorial Soccer Ground and St Helens State Primary School, are retained in the Community Precinct. Upon cessation of its current landfill operations, the landfill site will be transformed to open space and recreation and accordingly designated in the community precinct.

The industrial subdivision and industrial site, located in the centre of the FIA are intended to continue their current operation for industrial activities and retain their current land use designation. The rural residential subdivision, also located in the centre of the FIA, is retained in its current form and with its current land use designation.

The nature conservation network extends throughout the Maryborough North FIA, incorporating the buffer to the Mary River corridor, wetlands and waterways and their buffers, remnant vegetation, and other ecological values. Modification of the nature conservation network only occurs in the south of the FIA, over the land identified for urban purposes by the Bell Hilltop masterplanning exercise.

Land not included in the urban expansion area, community precinct, industry precinct, rural residential precinct, or in the nature conservation network is included in the rural precinct. Land in the rural precinct is limited within the FIA to areas east of Maryborough – Hervey Bay Road and north of the Northern Maryborough Bypass. The rural precinct will be used for a range of rural activities such as agricultural production and pastoral use.

The Structure Plan Concept for Scenario 4 has not been mapped because it is not a realistic scenario for future development of the Maryborough North FIA. The substantial modification of constraints cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.3.5.2 Modification of Constraints

Modification of the following constraints is required to enable urban development to occur in the urban expansion areas of scenario 3:

- The urban expansion area encroaches into the desired nature conservation network. The southern part of the urban expansion area is recognised by the current Planning Scheme as being in the Residential Precinct, therefore some commitment to urban development in this area has already been made. The northern part of the urban expansion area is included in the Bell Hilltop masterplan area, which envisages urban development. Notwithstanding the established urban intent for this land, the logical location for any expansion /

consolidation of the existing urban area into the Maryborough North FIA is that suggested in scenario 4, as it allows for the efficient and orderly connection to existing infrastructure. On these grounds, the nature conservation network has been modified to allow some urban development to occur. A corridor through the urban area is retained to maintain connectivity between areas of ecological value to the east and west of the urban expansion area.

- The urban expansion area significantly encroaches into the flood prone land. Substantial earthworks will be required to modify the landform to an extent that provides flood immunity for future dwellings. Detailed engineering solutions will also be required to avoid any adverse impacts resulting from those earthworks, such as impacts on upstream properties and downstream waterway flow patterns, and will require significant compensatory flood storage.
- Most of the urban expansion area is located on land classified as good quality agricultural land. Urban development of land classified as good quality agricultural land may only occur where overriding need for urban development exists, as is assumed to be the case for Scenario 4. Development occurring in accordance with scenario 4 requires detailed justification in response to SPP 1/92.
- A 150 metre buffer between good quality agricultural land and urban land is not located in the urban expansion area as it substantially limits the amount of land available for urban development. The 150 metre buffer is accommodated on the rural land at the rural / residential interface.
- A large amount of the urban expansion area is located on land identified as the sewerage treatment plant's effluent re-use irrigation area. The effluent re-use irrigation area is intended to be retained for rural and agricultural uses, so that the treated effluent (non-potable) can be distributed across these areas without causing harm to humans. Urban development in the current effluent re-use irrigation area requires the irrigation area be relocated to other rural land surrounding Maryborough. The amendment of current agreements with land owners and current Environmentally Relevant Activity approvals for the effluent re-use irrigation area need to be investigated as a result of this scenario.

8.3.5.3 Estimated Resident Population

The proposed urban expansion area for Scenario 4 contributes 265 hectares of potentially developable urban land.

Based on an assumed density of 10 dwellings per developable hectare, a total of 2,650 dwellings may be able to be developed.

Based on a median household size of 2.6 persons per dwelling, as per the 2006 census data for detached dwellings in Maryborough, an estimated resident population of approximately 6,890 might be achieved in the Granville FIA under scenario 4.

8.3.5.4 Timing and Staging of Development

It is desirable for development of the urban expansion areas identified in scenario 4 to proceed in a logical sequence, commencing with the land adjacent to the existing

residential neighbourhood to the south of the FIA and progressively extending northwards, to facilitate the orderly provision and expansion of infrastructure.

Obviously, if the northern parts of the FIA development first then they will need to accept bring forward infrastructure costs.

Infrastructure agreements may be required to facilitate the timely provision of trunk infrastructure required to service the demands of any future urban development.

8.3.5.5 Infrastructure Requirements

Transport Infrastructure

An upgrade of Boys Avenue, being the primary road servicing the FIA, will be required to amend its classification from rural access to urban collector and to ensure sufficient capacity is created to accommodate future vehicles associated with an increased population.

Some intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street may be required to satisfy anticipated traffic flows resulting from urban expansion into the FIA.

An upgrade of Quarry Road and Fazio Road will also be required, including substantial intersection upgrade where Fazio Road intersects Maryborough – Hervey Bay Road.

An upgrade of Maryborough – Hervey Bay Road will be required.

Physical Infrastructure

Water Infrastructure

Although a significant proportion of the identified proposed urban residential expansion area is contained within the existing high level water supply zone, the additional unplanned water supply infrastructure will be required not only on the basis of the predominantly assumed rural strategic designation as per the Maryborough City Plan 2000 Strategy Map (figure 5.1), Local Area Map (figure 5.2) and Water and Sewerage Headworks Planning Scheme Policy 6.3a, but also to meet water servicing demands due to the relative extent of the residential expansion area indicated generally to the north of Quarry Road for this constraints weighted scenario.

A review of the existing water infrastructure, as depicted on Figure 6.11, indicates some provision for connectivity between existing infrastructure and this identified urban expansion area, with a network of existing 100 and 150mm diameter water mains nearby to the south which may have capacity to somewhat contribute towards accommodated additional residential demands. However, there is a requirement to undertake a detailed analysis of Council's trunk water network planning, including the applicable computer based water network model, in order to identify what new additional infrastructure, upgrades and/or duplications will be required.

Sewerage Infrastructure

Based on a review of the Maryborough North sewer headworks area including its sewer catchment boundaries, it appears that none of the indicated urban expansion area, as indicated by this scenario, is included within the existing sewerage headworks area. As the expansion area is relatively extensive, it is expected that a system of pump stations and associated rising mains together with gravity mains, will be required to satisfactorily meet the anticipated sewer servicing demands. It appears that the provision of this required new infrastructure could be difficult due to the future transport network components and other physical constraints.

On this basis, it may also be difficult to readily integrate with existing infrastructure. As it appears that this demand has not been contemplated within Council's strategic sewer network planning, it should be noted that a detailed review of the existing trunk network required to satisfactorily convey, treat and recycle sewage will be necessary together with identification of the upgrades and duplications resulting. It should be noted that, due to the involvement of flood constrained land, there is increased potential for adverse environmental and ecological impacts if sewage conveyance is not effectively isolated and contained. Such requirements may result in more expensive and sophisticated sewerage infrastructure in order to eliminate the potential for leakage of sewage and/or infiltration of flood/stormwater.

Stormwater Infrastructure

In general, as existing nearby lawful points of discharge exist or can be readily be established, it is considered that no strategic impediments exist to prevent the effective and complying management of stormwater flows generated within or to be conveyed through the indicated urban expansion areas.

The usual "non-worsening" stormwater management requirements including the use of detention and/or retention should be conditioned as part of any relevant development approvals and site based stormwater management reports will be required to demonstrate that Council's stormwater quality improvement objectives are met particularly with the Mary River in close proximity and at risk. Potential stormwater quality improvement devices typically may involve bio-retention, gross pollutant trapping, sedimentation and nutrient/pollutant removal. As part of a future priority infrastructure plan, stormwater catchment management plans should be developed to guide the overall stormwater management process and include the worth of the option of establishing regionally based detention/bio-retention devices rather than on an individual development site basis. It is further noted that the provisions of the Queensland Development Code will apply to any follow on building construction including the provision of rainwater tanks. As part of structure planning, it is recommended that an integrated urban water management strategy should be undertaken in order to assess whole of water cycle impacts of existing and proposed development and to assist in establishing an associated infrastructure charges regime. Lastly, site based stormwater management and drainage systems will be established and required and conditioned on a per lot basis by Council. Stormwater detention and treatment devices are generally required to be located above the Q100 flood line.

Community Infrastructure

The existing community infrastructure in the residential neighbourhoods surrounding the Maryborough North FIA (particularly to the south) satisfies the local level requirements for the existing population and the potential population increase envisaged under scenario 4.

8.3.5.6 Issues Requiring Further Consideration

While it is not reasonable to accept the outcomes of earlier masterplanning exercises blindly, this scenario relies somewhat on the intended urban designation resulting from the Bell Hilltop masterplanning exercise. It is understood that the Bell Hilltop masterplanning exercise has been stalled by Fraser Coast Regional Council amalgamations and that there is no intention to progress development of Bell Hilltop in the short term. Should the Bell Hilltop masterplanning exercise be withdrawn, or its results considered extraneous to this structure planning project, then the proposed urban expansion area of scenario 4 will need to be reconsidered.

The ability to develop on land identified for sewerage effluent re-use irrigation is unknown. The potential for the effluent re-use irrigation area to be redistributed to other parts of Maryborough, and the associated requirements for amendment of Environmentally Relevant Activity approvals, must be investigated before any development commitment can be made on land currently in the effluent re-use irrigation area.

A substantial increase in vehicles accessing Maryborough – Hervey Bay Road is inconsistent with Department of Main Roads' current planning for that state-controlled road. Further consultation with Department of Main Roads is required to determine the acceptability of the urban expansion area utilising and upgrading the intersection of Fazio Road and Maryborough – Hervey Bay Road.

Scenario 4 is not a realistic scenario for future development of the Maryborough North FIA. The substantial modification of constraints, in particular the encroachment into flood prone land, cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.4 Comparison of Settlement Pattern Scenarios

8.4.1 Granville FIA

The following matrix compares the four scenarios for the Granville FIA, in terms of the additional population that can be achieved, the constraints that require modification, and the relevant infrastructure requirements.

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
Primary Assumptions	Urban land designated in the planning scheme can be developed for urban purposes.	Urban land designated in the planning scheme can be developed for urban purposes.	Overriding need for urban development exists. Urban land designated in the planning scheme can be developed for urban purposes.	Overriding need for urban development exists. Urban land designated in the planning scheme can be developed for urban purposes.
Additional Urban Land Area	0 hectares	47 hectares	207 hectares	320 hectares
Additional Dwellings	0 dwellings	470 dwellings	2,070 dwellings	3,200 dwellings
Additional Population	0 people	1,220 persons	5,382 persons	8,320 persons
Years of Supply³	0 years	4.4 years	19.2 years	29.6 years
Modification of Constraints	Not Applicable	Minor modification of nature conservation network. Limited urban development of isolated good quality agricultural land. Some GQAL / residential interface buffers located on agricultural land.	Minor modification of nature conservation network. Substantial urban development of good quality agricultural land. Some GQAL / residential interface buffers located on agricultural land. Minor encroachment into flood	Minor modification of nature conservation network. Substantial urban development of good quality agricultural land. All GQAL / residential interface buffers located on agricultural land. Substantial encroachment into

³ The 'years of supply' value is based on a take-up of land of 108 dwellings per year, which reflects the medium trend household production scenario in the Maryborough City Broadacre Study 2007. Years of supply is calculated for the dwellings stated per scenario per FIA, and does not consider dwelling take-up in addition to the FIA scenario-specific figure. This value does not recognise that residential land is likely to be developed simultaneously elsewhere in Maryborough City (including, potentially, in the other FIA).

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
			prone land.	flood prone land.
Transport Infrastructure Requirements	Not Applicable	New crossing of Mary River.	New crossing of Mary River. Upgrade of Walkers Point Road.	New crossing of Mary River. Upgrade of Walkers Point Road.
Water Infrastructure Requirements	Not Applicable	No additional unplanned water supply infrastructure. No obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas. Subject to further investigation.	Significant additional unplanned water supply infrastructure provision most probably will be required. Adequate pressure head may not be available. No obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas. Subject to further investigation.	Significant additional unplanned water supply infrastructure provision most probably will be required. Additional water storage/reservoir with associated pump and other ancillary water supply infrastructure may be required. Adequate pressure head may not be available. No obvious provision for connectivity between existing infrastructure and the indicated urban expansion areas. Subject to further investigation.
Sewerage Infrastructure Requirements	Not Applicable	Additional sewage pump station and associated rising main, together with a system of gravity mains, may be required. New infrastructure could be readily integrated with that existing. Subject to further investigation.	Additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required. New infrastructure could be readily integrated with that existing. Subject to further investigation.	Additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required. New infrastructure could be readily integrated with that existing. May require more expensive and sophisticated sewerage infrastructure in order to eliminate the potential for

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
				leakage of sewage and/or infiltration of flood/stormwater. Subject to further investigation.
Stormwater Infrastructure Requirements	Not Applicable	No strategic impediments as existing nearby lawful points of discharge exist or can readily be established. Subject to further investigation.	No strategic impediments as existing nearby lawful points of discharge exist or can readily be established. Subject to further investigation.	No strategic impediments as existing nearby lawful points of discharge exist or can readily be established. Subject to further investigation.
Community Infrastructure Requirements	Not Applicable	Community meeting room / multi-purpose hall. Child care centre.	Community meeting room / multi-purpose hall. Child care centre.	Community meeting room / multi-purpose hall. Child care centre. Creation of additional other local level facilities may be required.
Timing and Staging	Not Applicable	No staging limitations.	Proceed in a logical sequence, commencing with the land adjacent to the existing Granville neighbourhood and progressing northwards.	Proceed in a logical sequence, commencing with the land adjacent to the existing Granville neighbourhood and progressing northwards.
Issues Requiring Further Consideration	Not Applicable	Not Applicable	Not Applicable	Substantial modification of constraints cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.4.2 Maryborough North FIA

The following matrix compares the four scenarios for the Maryborough North FIA, in terms of the additional population that can be achieved, the constraints that require modification, and the relevant infrastructure requirements.

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
Primary Assumptions	Urban land designated in the planning scheme can be developed for urban purposes.	Urban land designated in the planning scheme can be developed for urban purposes.	Overriding need for urban development exists. Urban land designated in the planning scheme can be developed for urban purposes.	Overriding need for urban development exists. Urban land designated in the planning scheme can be developed for urban purposes.
Additional Urban Land Area	0 hectares	45 hectares	170 hectares	265 hectares
Additional Dwellings	0 dwellings	450 dwellings	1,700 dwellings	2,650 dwellings
Additional Population	0 people	1,170 persons	4,420 persons	6,890 persons
Years of Supply⁴	0 years	4.2 years	15.7 years	24.5 years
Modification of Constraints	Not Applicable	Modification of nature conservation network in accordance with the Bell Hilltop masterplan. Some GQAL / residential interface buffers located on agricultural land. Minor encroachment into flood	Modification of nature conservation network in accordance with the Bell Hilltop masterplan. Substantial urban development of good quality agricultural land. Some GQAL / residential	Modification of nature conservation network in accordance with the Bell Hilltop masterplan. Substantial urban development of good quality agricultural land. All GQAL / residential interface

⁴ The 'years of supply' value is based on a take-up of land of 108 dwellings per year, which reflects the medium trend household production scenario in the Maryborough City Broadhectare Study 2007. Years of supply is calculated for the dwellings stated per scenario per FIA, and does not consider dwelling take-up in addition to the FIA scenario-specific figure. This value does not recognise that residential land is likely to be developed simultaneously elsewhere in Maryborough City (including, potentially, in the other FIA).

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
		prone land.	interface buffers located on agricultural land. Minor encroachment into flood prone land. Substantial urban development in the effluent re-use irrigation area.	buffers located on agricultural land. Substantial encroachment into flood prone land. Substantial urban development in the effluent re-use irrigation area.
Transport Infrastructure Requirements	Not Applicable (New crossing of the Mary River may be required to service existing population)	Upgrade of Boys Avenue. Possible intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street.	Upgrade of Boys Avenue. Possible intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street. Upgrade of Quarry Road and Fazio Road, including intersection upgrade of Fazio Road / Maryborough – Hervey Bay Road. Upgrade of Maryborough – Hervey Bay Road to 4 lanes.	Upgrade of Boys Avenue. Possible intersection grading of Bryant Street, Boys Avenue, Neptune Street and Woodstock Street.
Water Infrastructure Requirements	Not Applicable	Some additional unplanned water supply infrastructure may be required. Existing infrastructure may have capacity to significantly contribute towards accommodated additional residential demands. Some provision for connectivity between existing infrastructure and this identified urban expansion area.	Significant additional unplanned water supply infrastructure provision most probably will be required. Some provision for connectivity between existing infrastructure and this identified urban expansion area. Subject to further investigation.	Significant additional unplanned water supply infrastructure provision most probably will be required. Some provision for connectivity between existing infrastructure and this identified urban expansion area. Subject to further investigation.

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
		Subject to further investigation.		
Sewerage Infrastructure Requirements	Not Applicable	Expected that a system of gravity mains may only be required. New infrastructure could be readily integrated with that existing. Subject to further investigation.	Additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required. It may be difficult to readily integrate with existing infrastructure. Subject to further investigation.	Additional sewage pump stations and associated rising mains, together with a system of gravity mains, will be required. It may be difficult to readily integrate with existing infrastructure. May require more expensive and sophisticated sewerage infrastructure in order to eliminate the potential for leakage of sewage and/or infiltration of flood/stormwater. Subject to further investigation.
Stormwater Infrastructure Requirements	Not Applicable	No strategic impediments as lawful points of discharge can readily be established. Subject to further investigation.	No strategic impediments as lawful points of discharge can readily be established. Subject to further investigation.	No strategic impediments as lawful points of discharge can readily be established. Subject to further investigation.
Community Infrastructure Requirements	Not Applicable	No additional infrastructure required.	No additional infrastructure required.	No additional infrastructure required.
Timing and Staging	Not Applicable	No staging limitations.	Proceed in a logical sequence, commencing with the land adjacent to the existing residential neighbourhood south of the FIA and progressing northwards.	Proceed in a logical sequence, commencing with the land adjacent to the existing residential neighbourhood south of the FIA and progressing northwards.
Issues Requiring	Not Applicable	Applicability of Bell Hilltop	Applicability of Bell Hilltop	Applicability of Bell Hilltop

	Scenario 1 (No Development)	Scenario 2 (Consolidated)	Scenario 3 (Constraint Weighted)	Scenario 4 (Constraint Modified)
Further Consideration		masterplanning exercise.	masterplanning exercise. Ability to develop for urban purposes in the effluent re-use irrigation area. Consultation with DMR required regarding increased vehicles accessing Maryborough – Hervey Bay Road.	masterplanning exercise. Ability to develop for urban purposes in the effluent re-use irrigation area. Consultation with DMR required regarding increased vehicles accessing Maryborough – Hervey Bay Road. Substantial modification of constraints cannot be supported until further detailed investigation into the impacts of such modifications is undertaken, and until such time as overriding need for such substantial expansion of the urban area is proven.

8.5 Implications for the Project

The four settlement pattern scenarios presented in Chapter 8 demonstrate different ways that the Granville and Maryborough North FIAs could be developed. Each scenario envisages varying development intensity, which is achieved through a greater or lesser modification of the FIA's valuable characteristics and constraints.

Scenario 1 for each FIA adopts a position of avoiding any urban development within the boundaries of the FIA, beyond that currently envisaged by the Maryborough City Plan.

Scenario 2 for each FIA recognises that each FIA is significantly constrained, and aims to restrict the impacts on valuable characteristics while allowing for only consolidated urban expansion to occur.

Scenario 3 for each FIA also recognises that each FIA is significantly constrained, but accepts that for urban development to occur limited modification of particular constraints must be allowed. Scenario 3 envisages substantial urban development of the FIA while bound by particular, absolute constraints.

Scenario 4 for each FIA significantly modifies the constrained land in each FIA to allow extensive urban development to occur.

Consolidated urban development of each of the FIAs can be realised with only limited modification to the FIA's valuable features and constraints. More intensive levels of urban development of each of the FIAs can only be achieved with extensive modification to the FIA's valuable features and constraints. Any modification of constraints, be it minor or extensive, will require justification, including demonstration of overriding need, for why urban development should be located in these areas. Overriding need for urban development in these areas should be subject to further review as part of an overall land use strategy undertaken for the Regional Council area.

Any scenario that envisages some intensification of urban development in the FIAs will require significant infrastructure creation and/or augmentation to adequately cater for future population growth.

In summary, it is possible to accommodate urban expansion into each of the FIAs but to do so requires a rationalisation of the valuable features that characterise that land and significant investments in infrastructure, the extent of which varies depending on the degree of urban expansion proposed. When a need for urban expansion is established, and considered in relation to the development of the whole of the Fraser Coast Region, scenario 2 could present an acceptable form of urban development. The adoption of Scenario 4, and to a lesser extent Scenario 3, in either of the Further Investigations Areas is considered unwise and contrary to the principles of good planning practice. In particular, allowing development to occur in areas subject to significant flooding constraints, which are accentuated when sea level rise is contemplated, is now widely accepted to be imprudent.

9. Conclusions and Recommendations

This Strategic Planning Review and Structure Plan Concepts Report has considered the suitability of and issues associated with urban development occurring in two identified Further Investigation Areas on the eastern and northern outskirts of Maryborough (at Granville and Maryborough North).

The review has outlined the strategic context for urban growth within the Fraser Coast Region and has summarised the State, regional and local planning frameworks currently applicable to development within the Granville and Maryborough North Further Investigations Areas.

The review has also summarised the existing characteristics of the FIAs and has identified a number of possible settlement pattern scenarios.

The key conclusions of the Strategic Planning Review and Structure Plan Concepts Report are as follows:-

The Preferred Pattern of Settlement and Opportunities for Urban Growth

- (a) There is no compelling or overriding need to make further urban land available in Maryborough at this time. The low level of current population growth does not create demand for substantial expansion of current urban boundaries.
- (b) The Department of Infrastructure and Planning's Broadhectare Study 2007 for Maryborough identifies that there is sufficient land currently available for residential development to accommodate between 27 and 38 years of population growth (based on high series and low series growth projections respectively). Although the Broadhectare Study has not been interrogated as part of this study (this was not within the scope of work and it was only made available towards the end of the process), it is unlikely that a more detailed assessment of land supply based on market availability (i.e. the quantum of land actually available in the market place) would result in a substantially different finding.
- (c) When the importance of Maryborough is considered in a broader context and arguments about regional patterns of settlement and the desirability of locating a greater proportion of population in close proximity to major employment, transport and community facilities is considered there may be a case to contemplate expansion of the existing urban boundaries of Maryborough. This would take advantage of and support the existing economic, transport and social infrastructure that is already established in Maryborough as well as relatively higher levels of affordability. Maryborough also displays many of the characteristics that are now being sought after in the development of major new urban communities. Consolidating an existing settlement that displays these characteristics may well be a preferable and

more efficient model of urban growth than one that is based upon the replication of similar characteristics elsewhere.

- (d) A scenario where a higher proportion of population growth is attracted to locate at Maryborough on the basis of its existing infrastructure and locational attributes is one element of a legitimate regional planning strategy. The rationale for this scenario is based around providing an attractive land supply for the growth of Maryborough to serve to reduce some of the pressure that is currently being experienced for housing in Hervey Bay. Although, these areas currently serve different housing markets, evidence from other coastal regions suggest that there can be an overlap between coastal and hinterland markets once certain price points are achieved.
- (e) Decisions about expansion of the urban boundaries of Maryborough should however be made in the context of a broader discussion about the preferred pattern of settlement for the region. In this context, inclusion of the FIAs within the urban footprint should be tested as part of the Alternative Patterns of Development being prepared as part of the Regional Plan review process and/or as part of the Fraser Coast Land Use Strategy which is intended to commence in the near future. The possibility of opening up other areas for urban expansion should also be explored as part of a broader Fraser Coast Land Use Strategy. For example, should aviation operations cease at Maryborough Airport, due to the creation of a new regional airport in an alternative location, then the Airport land could be a highly suitable and preferable location for urban development. The Airport land is well located adjacent to the existing urban area of Maryborough and may be largely free from environmental and infrastructure constraints. The suitability of the Airport land for urban development compares favourably to the suitability of the Granville and Maryborough North FIAs. The consolidation or expansion of development opportunities in Tinana should also be explored.
- (f) Further, at a fundamental statutory level, development of the FIAs at this time would appear to be substantially in conflict with the Wide Bay Burnett Regional Plan and with elements of State Planning Policy 1/92, State Planning Policy 1/03, and the State Coastal Management Plan. Overriding need for urban development, which is required to address the conflict with the state planning policies, should be addressed by a broader assessment of need and demand as part of the Regional Plan review process and/or as part of the Fraser Coast Land Use Strategy.

FIA Features, Opportunities and Constraints

- (a) There are a range of important social, environmental, economic and infrastructure characteristics of each of the FIAs that need to be addressed when considering the future development of the Granville and Maryborough North FIAs.
- (b) Both of the FIAs are significantly constrained by valuable environmental features and the need for substantial infrastructure expansion to accommodate urban development. The Granville FIA has only 218 hectares of unconstrained land (37% of the FIA). The Maryborough North FIA has only

180 hectares of unconstrained land (22% of the FIA). These unconstrained areas are typically fragmented throughout the FIAs. The ability of the unconstrained land to be developed needs to be considered in conjunction with the need for substantial infrastructure expansion and protection of valuable site features.

FIA Settlement Pattern Scenarios and Infrastructure Implications

- (a) Four settlement pattern scenarios have been developed to demonstrate different ways that the Granville and Maryborough North FIAs could be developed. Each scenario envisages varying development intensity, which is achieved through a greater or lesser modification of the FIA's valuable characteristics and constraints.
- (b) Scenario 1 for each FIA adopts a position of avoiding any urban development within the boundaries of the FIA, beyond that currently envisaged by the Maryborough City Plan.
- (c) Scenario 2 for each FIA recognises that each FIA is significantly constrained, and aims to restrict the impacts on valuable characteristics while allowing for only consolidated urban expansion to occur.
- (d) Scenario 3 for each FIA also recognises that each FIA is significantly constrained, but accepts that for urban development to occur limited modification of particular constraints must be allowed. Scenario 3 envisages substantial urban development of the FIA while bound by certain absolute constraints.
- (e) Scenario 4 for each FIA significantly modifies the constrained land in each FIA to allow extensive urban development to occur.
- (f) Consolidated urban development of each of the FIAs can be realised with only limited modification to the FIA's valuable features and constraints. More intensive levels of urban development of each of the FIAs can only be achieved with extensive modification to the FIA's valuable features and constraints. Any modification of constraints, be it minor or extensive, will require justification, including demonstration of overriding need, for why urban development should be located in these areas.
- (g) Any scenario that envisages some intensification of urban development in the FIAs will require significant infrastructure creation and/or augmentation to adequately cater for future population growth.
- (h) Given the greater infrastructure commitment required to establish urban development in the Granville FIA than in the Maryborough North FIA, primarily due to the need for creation of a new river crossing, it is reasonable to conclude that development of the Maryborough North FIA is a more realistic and feasible development opportunity to be contemplated at this stage.
- (i) Overall, it is possible to accommodate urban expansion into each of the FIAs but to do so requires a rationalisation of the valuable features that characterise that land and significant investments in infrastructure, the

extent of which varies depending on the degree of urban expansion proposed. When a need for urban expansion is established, and considered in relation to the development of the whole of the Fraser Coast Region, scenario 2 could present an acceptable form of urban development. The adoption of Scenario 4, and to a lesser extent Scenario 3, in either of the Further Investigations Areas is considered unwise and contrary to the principles of good planning practice. In particular, allowing development to occur in areas subject to significant flooding constraints, which are accentuated when sea level rise is contemplated, is now widely accepted to be undesirable.

Key Findings and Recommendation

There is no evidence of need or other compelling case that warrants allowing expansion of the urban boundaries of Maryborough at this time.

Although it is acknowledged that a comprehensive and long term regional planning strategy may provide for the significant expansion of Maryborough in the future, such a strategy should look at a broader range of factors and consider the preferred future model of urban development for the whole of the Fraser Coast Region.

Although it would be possible (and potentially feasible) to develop either one or both of the Further Investigation Areas, there are significant risks and infrastructure costs associated with those scenarios that provide for comprehensive development. When a need for urban expansion is established, and considered in relation to the development of the whole of the Fraser Coast Region, Scenario 2 could present an acceptable form of urban development. Scenario 4, and to a lesser extent Scenario 3, for both Further Investigation Areas are considered unwise and contrary to the principles of good planning practice.

If the partial or comprehensive development of the Granville Further Investigation Area and/or Maryborough North Further Investigation Area is ultimately a position supported by Fraser Coast Regional Council, such development should be undertaken in a strategic manner that recognises the opportunities presented by Maryborough as a major regional centre and acknowledges the key elements of Maryborough that contribute to its existing character and amenity. This report provides guidance in this regard.