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Tweed Shire Council

Tweed Shire Urban Land Release Strategy

February 2008





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Executive Summary

The Far North Coast Regional Strategy (2006) requires Tweed Shire Council to prepare a local growth management strategy which outlines how Council will meet the State government targets for the region's housing needs.

Tweed Shire Council currently has the Tweed Shire Council Residential Development Strategy (1992), but this document is now out of date.

The Tweed Urban Land Release Strategy has been prepared for Tweed Shire Council to guide and manage future urban development within the Shire until at least 2031. It predominantly deals with residential development but there is always some overlap with other land uses.

This Strategy examines the population profile and the likely land use demands arising from the anticipated population growth and changes in the structure of the population over time. Population growth has been consistent and remains above that of the State of NSW.

The Shire population is expected to grow to about 120,000 people by 2031. This will create a demand for approximately 16,000 houses and approximately 10,000 units, depending on household size. It will create a demand for approximately 1,350 ha of urban land.

This Strategy evaluates the supply of land for residential purposes and identifies the environmental constraints and opportunities that influence the potential suitability of land for future urban use. It identifies infrastructure issues generated by future development.

Tweed Shire has approximately 1,533 ha of zoned residential land potentially available for development which constitutes about 27 years supply of land. However, if Council wants to maintain a significant stock of zoned land in order to allow a variety of development locations it will need to commence replenishing land stocks through the rezoning process by 2011.

This Strategy estimates that in addition to already zoned land there is approximately 576 ha (net area, given assumptions about development yield) of land that can be identified as having potential for urban land release. This constitutes approximately a further 10 years supply of land. There is also potential to review existing densities in Tweed Heads, Murwillumbah and Kingscliff subject to locality plans being prepared.

The Strategy outlines a land release program that will see a replenishing stock of land available to the market to ensure the supply of land in the short, medium and long term. It also creates an urban centres hierarchy for the Tweed Shire that links to expected future population and dwelling density in its urban centres.

Readers of this Strategy are also cautioned that this document has not been prepared for anyone as a basis for investment or other private decision making in relation to land purchases, sales or other land uses. Council recommends that it not be used by anyone in this way.



1. Introduction

1.1 Purpose of this Strategy

The North Coast of NSW is under increasing pressure from strong population growth and sustained pressure for development. Due to its proximity to the high growth area of South East Queensland, the urban coastal areas of the Tweed Shire have demonstrated the strongest growth in the region over the past decade (Department of Planning, 2006).

In its "Tweed 4/24 Strategic Plan", Tweed Shire Council identified the need to prepare a new urban land release strategy to guide the preparation of a new Local Environmental Plan, Development Control Plan and ultimately development control decisions (TSC, 2004). This document is intended to replace the existing Residential Development Strategy (1992) and examine growth options that would guide Tweed Shire towards 2031.

The purpose of this Strategy is to:

- ▶ Comply with the Far North Coast Regional Strategy requirement that Councils prepare a Growth Management Strategy prior to zoning further land for urban, commercial and industrial uses;
- ▶ Comply with the North Coast Regional Environmental Plan, 1988 (cl.38) in relation to Council preparing an urban land release strategy to be agreed by the Department of Planning;
- ▶ Make provision for up to 2,000 new residents in Tweed Shire per annum over the life of the strategy;
- ▶ Provide a range of locations for new urban development to reduce pressure on the immediate Coastal Area (east of the Pacific Highway) and provide for consumer choice;
- ▶ Ensure that the limited "greenfield sites" available in the Tweed Shire are developed to their maximum capability without compromising the quality of the natural or living environment;
- ▶ Ensure that not all "greenfield sites" are used for residential development but also allow for employment land uses;
- ▶ Ensure that new development is linked to Council's physical and social infrastructure plans;
- ▶ Ensure that new development is responsive to the housing needs of existing and future populations with particular reference to affordable housing;
- ▶ Provide information relating to an urban centres hierarchy, population growth, housing supply and demand so that this may be used to guide decisions on locality plans and urban design guidelines for key centres within Tweed Shire.



1.2 Vision Statement

To guide and fashion future urban settlements within the Tweed, with certainty and coordination, that provide for sustainable urban development density and housing diversity and that capitalise on the area's natural and built attributes for present and future generations.

1.3 Strategy Timeframe and Review

This Strategy is planned to provide for the projected population growth through a staged release of "greenfield sites" over the next twenty three years to 2031. In accordance with the principles of 'intergenerational equity', this Strategy will not limit the ability of future generations to be able to have their say on the planning for the Tweed under this Strategy. To allow for this, and to ensure that planned development under this Strategy aligns with any changes in community values and thinking, a comprehensive review will be undertaken every 5 years.

1.4 Statement of Aims

The aims of this Strategy are:

- ▶ To identify "greenfield sites" of suitable environmental characteristic, size, and proximity to existing urban areas that warrant further detailed investigation for use as urban purposes;
- ▶ To provide sufficient land and its coordinated release to accommodate the projected population growth of the Tweed over a period of at least 23 years;
- ▶ To provide diversity in housing and lifestyle choice for the present and future population through the identification and release of "greenfield sites" located in a variety of localities;
- ▶ To encourage best use of available land resources by requiring all future urban communities within the "greenfield sites" identified in this Strategy to be properly master-planned; and
- ▶ To reduce the under utilisation of urban land through piecemeal and ad hoc development by requiring that each investigation area is the subject of a single master-plan for the entire site.

1.5 The Strategy Area

The strategy area (Figure 1) is the entire Tweed Shire and consists of an area of approximately 1,303 square kilometres located in the far north eastern corner of NSW. The shire is dominated physically by the McPherson Range in the north, the Tweed Range in the west and the Nightcap Range in the south, with the Pacific Ocean bordering to the east. The Tweed River floodplain occupies a major land area in the central area of the Shire.

The urban population of Tweed Shire is concentrated in the northeast corner (Tweed Heads) adjacent to the Queensland border and along the Tweed Coast. The only



major inland urban area is Murwillumbah. Approximately 85% of the population lives in urban areas and villages.

The major urban areas and villages are also identified in Figure 1.

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2. Relevant Planning Documentation

2.1 Introduction

There is a hierarchy of statutory planning instruments and policies affecting urban residential development in the Tweed Shire, including:

- ▶ Environmental Planning and Assessment Act, 1979 (EP&A Act)
- ▶ State Environmental Planning Policies (SEPPs);
- ▶ Regional Environmental Plans (REPs);
- ▶ Local Environmental Plans (LEPs);
- ▶ Development Control Plans (DCPs); and
- ▶ Section 117 directions from the Minister for Planning.

These are described in Section 2.2.

At the regional and local level there are many planning Strategies that guide the implementation of these statutory and policy documents as they apply to Tweed Shire.

These include:

- ▶ Far North Coast Regional Strategy 2006;
- ▶ NSW Coastal Policy 1997;
- ▶ Northern Rivers Farmland Protection Project, 2005;
- ▶ Catchment Action Plan (Northern Rivers Catchment Management Authority -CMA);
- ▶ Tweed Coast Strategy 1995;
- ▶ Tweed 4/24, 2004;
- ▶ Strategic Plan Tweed Shire 2000+;
- ▶ Tweed Shire Residential Development Strategy 1992;
- ▶ Burringbar Scoping Study, 2005;
- ▶ Murwillumbah Scoping Study, 2007 (draft)
- ▶ Tweed Estuary Management Plan;
- ▶ Tweed Coastline Management Plan;
- ▶ Tweed Floodplain Management Plan;
- ▶ Tweed Vegetation Management Strategy, 2004;
- ▶ Tweed Integrated Water Cycle Management Strategy, 2006;
- ▶ Tweed Shire Draft Cultural and Community Facilities Plan, 2007 and
- ▶ Tweed Shire Social Plan, 2005-2009
- ▶ Settlement Planning Guidelines, 2007
- ▶ Tweed Road Development Strategy - 2007



These are described in Section 2.3.

2.2 Relevant Statutory Documents

2.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act sets the legal basis for planning controls in NSW. This Strategy is not intended to be a statutory instrument prepared under the EP&A Act, but it will be used by Council to prepare statutory plans at a later date.

2.2.2 State Environmental Planning Policies

A number of SEPPs that may be applicable to the Tweed Shire Urban Land Release Strategy are as follows:

SEPP 14 Coastal Wetlands

The aim of SEPP 14 is to ensure coastal wetlands are preserved and protected for environmental and economic reasons. This SEPP requires consent and the concurrence of Department of Planning for clearing, draining, filling of, or constructing a levee within, the identified wetlands (Ecograph, 2004). Wetland areas are not considered available for future development.

SEPP 26 Littoral Rainforests

SEPP 26 aims to provide a mechanism for the assessment of development proposals that are likely to damage or destroy littoral rainforest areas. The policy applies to certain mapped areas and includes a 100 metre buffer zone surrounding such areas. The policy requires that consent must be granted prior to the carrying out of any development within these areas. The likely effects of the proposal must be considered in an environmental impact statement. Littoral rainforest areas are not considered available for future development.

SEPP 44 Koala Habitat Protection

SEPP 44 encourages the conservation and management of natural vegetation areas that provide habitat for koalas to ensure permanent free-living populations will be maintained over their present range. The policy applies to 107 local government areas including Tweed Shire. Local councils cannot approve development in an area affected by the policy without an investigation of core koala habitat. The policy provides the state-wide approach needed to enable appropriate development to continue, while ensuring there is ongoing protection of koalas and their habitat. Typically, koala habitat is not considered available for future development.

SEPP 55 Remediation of Land

SEPP 55 provides a state wide planning approach to the remediation of contaminated land. This policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. Contaminated land is constrained for certain types of development.



SEPP 71 Coastal Protection

This policy came into effect on 1 November 2002. It seeks to ensure that development in the NSW Coastal Zone is appropriate and suitably located, to ensure that there is a consistent and strategic approach to coastal planning and management and to ensure that there is a clear development assessment framework for the coastal zone.

This SEPP requires a greater level of scrutiny of any development proposals considered to have potential to create an adverse impact on the coastal areas of the NSW (as per Schedule 2 of the SEPP) and originally required the adoption of a Master Plan by the then Minister for Infrastructure and Planning for all major subdivisions (generally 25 or more residential lots or 5 or more rural-residential lots). These Master Plans were subsequently required to be prepared as Development Control Plans.

2.2.3 Regional Environmental Plan

North Coast Regional Environmental Plan 1988

The North Coast Regional Environmental Plan (NCREP) contains provisions specifying regional policies to control and guide the preparation of LEPs within the region and the assessment of development applications. Additionally it sets out Council's responsibilities with respect to the preparation of urban land release strategies. Although there is now also a Far North Coast Regional Strategy, the NCREP has never been repealed and still applies to the Tweed Shire.

Clause 37 of the NCREP states the Plan's objectives in relation to urban development which are to:

(a) provide for the orderly and economic release of urban land and identify growth centres, and

(b) promote the efficient commercial functioning of subregional and district centres.

Clause 38 of the NCREP requires councils to prepare an urban land release strategy for the whole of the local government area prior to preparing any LEP for significant urban growth. Any draft LEP must be consistent with such a strategy. The strategy is to:

(a) be based on a land release program and population projections agreed between the council and the Director,

(b) give preference to development resulting in urban growth on land that adjoins other land which is already being used for urban purposes and is the most economic to service,

(b1) not provide for development of land which is unsuitable for urban growth due to its agricultural capability or which adjoins land that is currently used for agriculture,

(c) not include for development land that is unsuitable due to any environmental hazard unless the council has made an assessment of the risk and considered it to be minor or alternatively has made provision for the control or reduction of that hazard,



(d) not include for development land which has conservation value or which has heritage, environmental or cultural significance,

(e) have regard to the rural character and heritage significance of villages and small coastal settlements and the need to maintain that character and significance, and

(f) provide substantial buffer areas between coastal urban centres to avoid uninterrupted coastal development.

2.2.4 Local Environmental Plan

The Tweed Shire Council's major local planning instrument is Tweed Local Environmental Plan 2000, which is a shire wide LEP.

Tweed LEP 2000 currently zones a range of areas for various urban land uses. It provides the main statutory basis for future development and is the statutory instrument that has been used to implement the existing Residential Development Strategy, 1992 (through the rezoning process). Its relevance to this Strategy is that it sets the basis for the existing stock of zoned and developed or undeveloped land that the Strategy needs to consider in assessing the long term requirements for urban land in Tweed Shire.

Tweed Shire Council is currently reviewing Tweed LEP 2000 to create an LEP that is consistent with the Standard LEP issued by the State Government in March 2006.

2.2.5 Development Control Plans

Development Control Plans (DCPs) are created by Council under the provisions of the EP&A Act. They deal in more detail with selected areas of the Shire or with selected issues that apply across all of the Shire. In 2007 Council consolidated all of its DCP's into a single document consistent with the approach recommended by the State government. It is likely that Council will review the content of its DCP's over the next few years as it updates its planning instruments. Two DCP's that take a strategic approach and are relevant to this Strategy are as follows:

DCP 2007 Section B9 (ex DCP 51 Tweed Coast Strategy). This plan summarises Council's policies for the management of the growth of the Kingscliff District of the Tweed Coast. The purposes of the DCP are to: set out Council's strategy for the Tweed Coast; identify the relevant planning controls to implement the Strategy; provide guidance to those wishing to develop within the Tweed Coast area and to indicate Council's policies with respect to that development; and have clear policies for determination of the merits of developments within Tweed Coast.

DCP 2007 Section A3 - Development of Flood Liable Land

This plan contains development standards and other provisions in respect of floodplain management in Tweed Shire and relates to the Tweed Local Environmental Plan 2000.



2.2.6 Section 117 directions for the Minister for Planning

Under the EP&A Act, the Minister for Planning also has the ability to direct Council to comply with certain directions when preparing draft LEPs. These Ministerial directions (117 Directions) relate to local environmental plan preparation by Council for specific development proposals, flood prone land, residential zones, acid sulfate soil occurrence, development near licensed aerodromes and requirements for the environmental studies within one kilometre of the coast under the New South Wales Government Coastal Policy. A revised set of 117 directions was issued on the 19 July 2007, and these have been considered for the purpose of this Strategy.

2.3 Relevant Strategic Documents

2.3.1 Far North Coast Regional Strategy (2006)

The Far North Coast Regional Strategy was prepared by the Department of Planning in 2006. It is intended to guide local planning in the six local government areas of Ballina, Byron, Kyogle, Lismore, Richmond Valley and Tweed, and inform decisions on service and infrastructure delivery. It will be reviewed every five years. The purpose of the Regional Strategy is to manage the Region's expected high growth rate in a sustainable manner (DoP, 2006).

The Strategy recognises the potential impacts on the Region from the rapid growth of South East Queensland. It sets out a regional hierarchy of centres and specifically identifies Tweed Heads as a major regional centre. The Southport /Gold Coast location in Queensland is identified as the nearest Regional City. The revitalisation of Tweed Heads Town Centre (CBD) will become the focus for the Tweed urban area enabling it to provide a high level of services, employment and housing to complement those provided in the adjoining South East Queensland Region. Tweed Heads will also continue to develop as a major regional centre for tourism and the provision of retail services and community facilities. Additionally, the strategy identifies that the Tweed LGA currently has 34,650 existing dwellings and by the year 2031 Council should be planning to provide an additional 19,100 dwellings in the Tweed LGA (DoP, 2006). Assuming an average occupancy rate of 2.4 persons per dwelling this is an average growth rate of approximately 1,800 persons per year over the next 25 years. It suggests that 60 % of this additional growth should take place in coastal locations (generally east of the Pacific Highway) and 40% in non coastal areas, however this is taken across the whole region, not just Tweed Shire.

2.3.2 Residential Development Strategy (1992)

Tweed Shire Council developed its Residential Development Strategy in 1992 to satisfy the requirements of the NCREP. The NCREP requires Councils to prepare an Urban Land Release Strategy for the Shire before preparing a LEP for significant urban growth. The 1992 strategy estimated population forecasts until 2006, and outlines existing land supply options for urban development and balances this supply against demand.



The 1992 Strategy has been the basis for a range of significant rezoning proposals. Some of the forecasts in the Strategy have been implemented and are now outdated, while others have proved to be inaccurate and need to be revised. The following is a summary of the key components of the 1992 Strategy.

The 1992 Strategy estimated a population of 125,000 by 2006, whereas the Department of Planning estimated 75,000 to 80,000 by 2006. The 2006 Census confirms a population of 79,321 for Tweed Shire. This suggests that the Department of Planning forecasting methodology is quite accurate.

This 1992 Strategy identifies nine areas in the north eastern sector of the Shire for consideration to accommodate the expected growth of this part of the Shire. These include areas to the west of Tweed Heads, Cobaki, an area between Terranora Village and Fraser Drive and a large area to the west and south west of Kingscliff. These areas have predominantly been zoned for urban purposes, but two of the largest areas (Cobaki and Kings Forest) have yet to supply land to the residential market. Land identified west of Kingscliff has been constrained by flooding while land in the Terranora area has been constrained by the need to retain good quality agricultural land in production. Conversely, coastal areas such as the Casuarina Beach and Salt developments south of Kingscliff have proceeded to development and land release.

In other parts of the Shire, proposed land release areas include Bogangar, Pottsville, Sleepy Hollow, Burringbar-Mooball and Kielvale. The coastal components of these areas have all been rezoned and largely developed with land releases in the Pottsville area approaching their final stages. Some rezonings have occurred in the inland areas, but very little residential land has been supplied to the market. The lack of reticulated sewerage at Burringbar and Mooball has been a factor in development not proceeding in this locality.

In terms of water supply infrastructure the 1992 Strategy predicted that the capacity of the Clarrie Hall Dam would allow for residential development up to approximately 115,000 equivalent persons (ep). Assuming that approximately 12,000 people will reside in the Tweed in areas not supplied with reticulated water then this equates to a Shire wide population of approximately 127,000 persons. Given the change in water management, water costs and community attitude since 1992, these supply estimates may well be achieved from the existing dam, subject to the lifting of the dam wall and treatment and distribution infrastructure being available.

In relation to sewage treatment capacity the 1992 Strategy predicted that the combined capacity of the six sewage treatment plants (STP's) in the Tweed Shire would eventually equate to a residential population of 148,000 ep. This was based on the STP's being upgraded and expanded to their ultimate capacity as population levels increased. A number of these STP's have been upgraded as planned and others are still on track for augmentation. This is discussed in more detail in the Infrastructure Section of this Strategy.



2.3.3 Settlement Planning Guidelines (2007)

These guidelines were released in August 2007 to assist Councils in preparing local growth management strategies. They document the scope and content of a local growth management strategy and the planning principles on which the work should be based.

These guidelines have been useful in preparing and evaluating the draft strategy to ensure that where possible it meets the expectations of the State government.

2.3.4 NSW Coastal Policy 1997

The NSW Coastal Policy is the State Government's policy for the co-ordinated planning and management of the NSW Coastline. The policy represents an attempt to better co-ordinate the management of the coast by identifying in a single document the various management policies, programs, and standards as they apply to a defined coastal zone (Byron Shire Council 2005).

This Policy applies to the coastal zone along NSW including coastal estuaries, lakes lagoons, islands and rivers, therefore a proportion of the Tweed LGA is covered. In relation to urban land release, this policy applies to all new developments and publicly owned lands within urban areas covered by the coastal zone. The principles in the Coastal Policy relevant to this Strategy are also covered in the Far North Coast Regional Strategy and the NCREP.

2.3.5 Regional Farmland Protection Project– Department of Planning

Agriculture is an important industry on the North Coast. Agricultural land is a finite resource and is under increasing development pressure. Population pressures have resulted in substantial urban and rural residential encroachment onto farmland. The protection of agricultural land on the NSW North Coast is a long term government initiative. The Farmland Protection Project seeks to protect important farmland from urban and rural residential development by mapping farmland and developing planning principles. The project team has endeavoured to put forward policies which can be of genuine long-term benefit to agriculture in the region without imposing unnecessary restrictions on farmers (DoP, 2005).

According to the Project, State significant farmland cannot be considered for urban or rural residential rezoning for the purpose of this Urban Land Release Strategy. An area of State Significant farmland area is located inland from Kingscliff (Cudgen) with pockets near Duranbah, Terranora and west of Terranora.

The maps provided with the Project identify a large area of regionally significant farmland located inland from Kingscliff following the Tweed River to the west. This includes areas used for sugar cane production in the Tweed River valley. Regionally significant farmland is not an absolute constraint to future urban development, but to be included it must be consistent with seven criteria documented in the Project. Councils when preparing new strategies can consider regional farmland for urban use only under limited circumstances. It is highly unlikely that all seven criteria could be achieved in the Tweed Shire. For the purposes of this Strategy, regional farmland has



been considered in the same way as State significant farmland - an absolute constraint.

2.3.6 Northern Rivers Catchment Management Authority (NRCMA) – Catchment Action Plan (2006)

The purpose of the Catchment Action Plan (CAP) is to manage natural resources within northern NSW. Local government is a key stakeholder in this management process. This Plan (NRCMA, 2006) outlines that increasing population growth and associated urban expansion is putting pressure on the present natural resources and Aboriginal cultural landscapes. All Councils in the NRCMA (including Tweed Shire) are currently revising their local planning instruments which incorporate natural resource issues. The treatment of natural resources in planning and planning instruments becomes a major influence on the resource condition and the achievement of local, state and national targets.

2.3.7 Tweed Coastal Strategy (1995)

The Tweed Coastal Strategy was prepared in response to the Integrated Planning Study, which recommended the creation of a broad-ranging coastal strategy to address the future demands placed on Council resources from coastal growth and development. It attempts to offer a more coordinated response to growth pressures amongst all stakeholders. The strategy adopts the 'vision' outlined in the NSW Government's Draft Revised Coastal Policy "A coastal environment which is conserved and enhanced for its natural and cultural values while also providing for the economic, social and spiritual well being of the community" (Tweed Shire Council 1995).

The bulk of the data presented in the Tweed Coastal Strategy 1995 is outdated with land release forecasts only extending to 2006. The Tweed Coastal Strategy 1995 is useful for comparison with present data and an analysis of the accuracy and relevance of past projected trends.

2.3.8 Tweed Coast Strategy 2003 (DCP No.51)

The Tweed Coast Strategy was originally embodied in Tweed DCP No. 51, but has subsequently been included as Section B9 of the Shire wide Tweed DCP 2007. It applies to an area that includes Kingscliff and the coast south to Casuarina (but excluding SeaSide City), and west to include Kings Forest, Duranbah, Cudgen and part of Chinderah. It aims to provide planning policies and guidelines for this important growth area of the Tweed coast that is likely to accommodate up to 25,000 people when fully developed. Significantly the Strategy introduces the concept of an urban centres hierarchy that uses retail floor space and population catchment to define centre size. Kingscliff is nominated as both a District and Local Centre, Casuarina Beach and Kings Forest will be Local Centres and Neighbourhood Centres will be located in other smaller urban areas as they develop.

2.3.9 Tweed Shire 2000+ Strategic Plan

The Tweed Shire 2000+ Strategic Plan provides the broad directions for future planning in the Tweed area. It outlines the policies and actions designed to achieve outcomes, which have been developed between the private sector, community groups and the three tiers of Government (TSC, 1997).

The Plan outlines the current situation and desired outcomes of urban development and management in the Tweed area for the next 20 years. Additionally, it outlines policies and actions in place to deal with urban development and management issues. In particular, the Plan (TSC, 1997) states that:

- ▶ There is sufficient land zoned for urban development to accommodate the expected population growth in the Tweed for the next 20 years;
- ▶ Some areas of land identified for urban development in the 1992 Residential Development Strategy are not achievable at this time due to the environmental, financial and infrastructure constraints;
- ▶ No further regional shopping centres are required in the Tweed, although subregional retail centres will be required at Tweed Heads, Tweed Heads South, Murwillumbah, and South Kingscliff; and
- ▶ Housing and subdivision designs need to be integrated.

The population projections identified in the Tweed Shire 2000+ Strategic Plan are outdated, or will be outdated by 2011. However the information and urban management issues identified are useful for the preparation of this Strategy.

2.3.10 Tweed 4/24, Strategic Plan (2004)

The 4/24 Strategy replaces and updates the Tweed Shire 2000+ Strategic Plan. It sets broad directions for the next two decades and provides a framework for more detailed plans and policies. It applies to the whole Tweed Shire. The purpose of Tweed 4/24 as outlined in the Strategy (TSC, 2004) is:

- ▶ To update the Tweed 2000+ Strategic Plan and strengthen arrangements for implementation;
- ▶ To guide sustainable growth and change;
- ▶ To safeguard the Tweed's quality of life and environment;
- ▶ To enable all key players (Council, other government agencies, businesses and community organisations) to work together in achieving shared goals; and
- ▶ To assist Council in setting priorities in its Management Plan and budgets.

Key elements of this strategy which relate to urban lands and development include:

- ▶ **Urban Development** – Implement current plans for urban expansion including Cobaki and Bilambil Heights. Complete assessments of Terranora and Kings Forest. Retain green belts or buffers between settlements;
- ▶ **Land Use Structure Plan and Urban Design Framework** – A new Structure Plan to set out more detailed proposals for urban and rural land use;

- ▶ **Housing Affordability** – New measures to provide more housing for both purchase and rental within the reach of lower and middle income groups; and
- ▶ **Regional Links** – Closer integration with planning for the Gold Coast and South East Queensland. Continued involvement with the Northern Rivers Region and Premier's Department coordination group.

A number of the Strategic directions set down by this Plan form a good basis for the Objectives of this Urban Land Release Strategy.

The Plan suggests that Council does not have a need to consider additional major release areas beyond those in the current Residential Development Strategy (1992), which are Kings Forest, Cobaki, Terranora 'Area E' and Kielvale. Additionally, the actual capacity of existing zoned residential land needs to be confirmed, and the likely extent of redevelopment for higher density housing in existing urban areas needs to be assessed (TSC, 2004). These issues were considered in the preparation of this Strategy.

2.3.11 Estuary Management Plans

Through the State Government's Estuary Management Plan, Local Governments have an opportunity to obtain technical and financial assistance for the purpose of preparing and implementing estuary management plans, undertaking works to rehabilitate the estuarine environment and improving the recreational amenity of estuarine foreshores (Ecograph, 2004).

Tweed Shire Council has many detailed management plans for the Tweed River and the Tweed Coast Creeks, these include:

- ▶ Tweed River Estuary Bank Management Plan 2000;
- ▶ Tweed Coast Estuaries Management Plan 2004/2008;
- ▶ Upper Tweed River Estuary Management Plan;
- ▶ Terranora Broadwater Management Plan;
- ▶ Cobaki Broadwater Management Plan; and
- ▶ Tweed Urban Stormwater Quality Management Plan.

2.3.12 Coastline Management Plan (2005)

TSC is required to manage the Tweed coast in a sustainable manner into the future, balancing natural, cultural, social and economic values. The Coastline Management Plan was prepared in 2005 to inform and assist TSC on Coastal issues and management measures.

Umwelt (2005) outlined that population growth of the Tweed area is high and expected to continue. The Tweed's coastline population represents a significant proportion of the Tweed Shire's population. Increased pressure for use of the Tweed coastline and the amenity it provides is predicted. This will be driven by anticipated urban growth, in particular from the retiree population, tourist development and, people's desire for a



more secluded beach experience than is available in other regional coastal destinations.

In relation to urban land release and development the Tweed Coastline Management Plan must be considered. Umwelt (2005) outlined that the majority of development on the Tweed Coast is to the west of the Coast Road, however, there are some areas zoned for residential and tourist purposes on the eastern side of the Coast Road:

- ▶ Areas zoned for residential and tourist purposes on the eastern side of the Coast Road have management problems such as encroachment and coastal hazards;
- ▶ Development pressures are increasing demand for the construction of community facilities including toilet blocks, car parks, surf life saving facilities and tourist accommodation/resorts; and
- ▶ NSW Coastal Policy 1997 supports ecologically sustainable development principles, retention of public access to foreshore areas, preservation of undeveloped headlands and
- ▶ Protection of beaches and waterfront open space from over-shadowing.

As population growth in the Tweed increases, there is an increased pressure for urban land release on the Tweed coastline. Such development brings pressure on the use of coastline resources, which may potentially impact on environmentally sensitive lands and the natural and scenic amenity valued so highly by the local community and tourists (Umwelt).

2.3.13 Tweed Valley Floodplain Risk Management Plan, 2005

- ▶ Tweed Valley Floodplain Risk Management Plan Part I establishes the “design flood level” at 1% AEP, being 2.6m AHD. Minimum floor levels for residential development shall be “design flood level” plus 0.5m. Part 2 establishes development controls to apply to various development types in mapped high flow areas of the floodplain based on existing zones in Tweed LEP 2000.
- ▶ It is generally not appropriate to direct new urban development into the floodplain. However, flooding is regarded as an absolute constraint only where high hazard areas occur. Flood impact assessment will be required for development that requires land to be filled.

2.3.14 Tweed Vegetation Management Strategy (2004) (TVM)

The TVM Strategy was initiated in 1998 after the introduction of the Native Vegetation Conservation Act 1997, which provided a number of opportunities to streamline planning and management of native vegetation.

The goals of the Tweed Vegetation Management Strategy are to:

- ▶ Encourage the protection and enhancement of regional and local native biological diversity in the Tweed by promoting ecologically sustainable management practices.

- ▶ Promote a holistic and co-ordinated planning framework in accordance with the Native Vegetation Act 2003 and the Environmental Planning and Assessment Act 1979 for the management of ecological processes and systems in the Tweed.
- ▶ Adopt a balanced and equitable approach in developing the framework that takes into account the environmental, economic, social and cultural interests of the State and the Tweed community. (Ecograph, 2004)

The TVM Strategy outlines that only a relatively small proportion of mapped bushland (1.5%) (Ecograph, 2004) that had a high level of ecological importance is likely to be threatened by development, given existing planning commitments. The most prominent of this bushland is located at Kings Forest and in the Cobaki Area. Other ecologically significant areas included parts of Tanglewood, Sea Ranch, Kingscliff and Uki.

2.3.15 Burringbar Scoping Study (2005)

This study was conducted in 2005 for the Burringbar-Mooball Sewerage Scheme to analyse the anticipated development and population growth for Burringbar and Mooball to determine the future capacity of the proposed sewerage system.

The villages of Burringbar and Mooball are mainly residential and rural residential with some commercial and non-residential development. The villages do not currently have a sewerage system with the majority of the area served by septic tanks with on-site disposal systems. Due to the growing population and the high take up rate for rural residential development there is considered a growing need for an upgrade of the sewerage facilities in the area. Septic tank overflows have occurred and this can lead to soil and groundwater pollution, surface water pollution, odours and public health risks.

The study identifies some land as being suitable for future urban and rural residential expansion based on existing zoned land and predicts that the population of the area will grow by approximately 300 people over the next 20 years based on conservative historical growth scenarios.

2.3.16 Murwillumbah Scoping Study (Draft Report)

TSC (2007) has prepared a draft Scoping Study for Murwillumbah. The key issues identified and addressed in the Study are the finite supply of suitable zoned land, the importance of the agricultural industry and the expanding population. These issues underline the need to identify additional new residential and employment lands in close proximity to the Town of Murwillumbah.

The study examines an area within a 5 km radius of the Murwillumbah town centre as the focus for the Scoping Study. The methodology used to determine this land is an analysis of existing vacant supply and potential future demand, leading to an estimate of potential additional required land and the most appropriate location for such growth to be accommodated. This involved four stages:

- ▶ Land Suitability
- ▶ Existing and Potential Demand

- ▶ Existing Supply
- ▶ Conclusions

Based on a combination of population projections, discussions with key stakeholders (such as TEDC) and published sources, the following estimations were made:

- ▶ An estimated total of 169.7 ha of land (gross) is zoned and available for residential development within the study area.
- ▶ An estimated total of 70.4 ha of land (gross) is zoned and available for industrial development within the study area.

The scoping study notes that the base data informing the study is now up to 12 years old. Additionally, the forecasts are based on a Shire-wide analysis and do not necessarily represent the specific market characteristics present in Murwillumbah (TSC, 2007).

2.3.17 Tweed Integrated Water Cycle Management Strategy, 2006

Integrated Water Cycle Management (IWCAM) is the integrated management of the water supply, sewerage and stormwater services within a whole catchment strategic framework (Hunter Water Australia, 2006). An important component of the IWCAM process is the preparation of an IWCAM Strategy. The IWCAM Strategy provides a framework and long term focus on the integrated delivery of water supply, sewerage and stormwater services.

The key *Water Resource Characteristics* of Tweed Shire are:

- ▶ The study area includes one major dam (Clarrie Hall Dam), one major supply weir (Bray Park Weir) and one minor water supply weir (Tyalgum Weir).
- ▶ The May 2002 estimate of secure yield based on “Historic No Failure Yield” methodology for the study area is 18.5 GL/a. This may reduce to as low as 14.7 GL/a, once environmental flows are set under a future water sharing plan.
- ▶ Surface water quality and health are generally fair to good across the catchment. Suspended solids and nutrient levels are generally elevated in the Upper Tweed catchment due to rural runoff, with algal blooms commonly occurring during the warmer months. Water quality and health are generally fair to good in the Lower Tweed estuary and broadwaters, which benefit from tidal flushing, but decline with distance from the river mouth, with poor health in the mid to upper estuary and the Rous River. Major pollutant sources for the Tweed Estuary include urban stormwater, effluent and rural runoff (via the Upper Tweed River). Rural runoff and urban stormwater appear to be the dominant influence on pollutant inputs to the other coastal estuaries.
- ▶ Water users in the catchment include extractions for town water (around 10 GL/a) and rural irrigation (around 4.8 GL/a surface water and 1.7 GL/a groundwater), commercial enterprises (such as fishing, oyster farming, houseboats/cruises) and recreational activities (such as fishing, boating, swimming and skiing).

The key *Urban Water Characteristics* are:

- ▶ The urban water supply system includes one major water treatment plant (Bray Park WTP) and two minor plants. Bray Park WTP is soon to be upgraded from 60 ML/d to 100 ML/d to cater for expected population growth and improve treatment processes. A new WTP is required sometime in the future for Tyalgum to improve supply security during times of low water quality.
- ▶ Current town water consumption is around 10 GL/a, with around 60% attributed to residential. Future consumption is likely to increase to around 16 GL/a by 2019 and 22 GL/a by 2034 (assuming consumption levels remain unchanged).
- ▶ The urban wastewater system includes five major sewage treatment plants (Tweed Heads, Banora Point, Kingscliff, Hastings Point and Murwillumbah) and three minor plants. Tweed Heads, Banora Point and Kingscliff STPs require future augmentation in order to cater for predicted population increases, with Murwillumbah and Hastings Point STPs being recently upgraded.
- ▶ Around 7.5 GL/a of effluent is discharged to various receiving waters (the majority to the Tweed Estuary), with less than 5% of dry weather flows currently being reused. Future effluent volumes are likely to increase to around 13 GL/a by 2019 and 19 GL/a by 2034.
- ▶ Urban stormwater runoff contributes to nutrient and sediment loads in the study area's waterways (mainly the Lower Tweed Estuary), with only limited treatment of urban stormwater currently occurring.

2.3.18 Tweed Shire Social Plan 2005-2009

The Tweed Shire Social Plan (2005-2009) is a planning document that integrates with other Council plans to implement the community component of the triple bottom line approach to planning for Tweed Shire.

It aims to assess changing community needs and the extent to which these are being met; provide information about target groups; benchmark services in the Tweed against comparable areas; identify needed services and facilities; give particular attention to the needs of children, the elderly, people with disabilities, indigenous people and minorities.

The Tweed Shire Social Plan sets out a community facilities policy and program and a community services program for a five year period from 2005.

2.3.19 Tweed Shire Draft Cultural and Community Facilities Plan 2007

The Tweed Shire Draft Cultural and Community Facilities Plan, 2007 provides a detailed review of existing community facilities in the Shire based on a service level of local, district and whole of Local Government Area. It also identifies the needs of the community through contact with community workers and service providers and compares this to established standards of services and infrastructure using community facility benchmarks referenced to population levels. It also estimates the current gaps in services and facilities that need to be filled in the short term as well as the likely community needs based on population growth estimates to 2024.



The Tweed Shire Draft Cultural and Community Facilities Plan, 2007 provides the basis for Council to prepare a works program and a Section 94 Plan for developer contributions that is linked to that works program. It makes specific recommendations about community facilities in the Kings Forest, Cobaki Lakes and Bilambil Heights localities all of which have significant areas of zoned urban land. The services and facilities benchmarks will be a good guide to the likely future demand for these services in any potential urban areas identified in this urban land release strategy.

2.3.20 Tweed Road Development Strategy – 2007

The Tweed Road Development Strategy – 2007 (Veitch Lister Consulting (VLC), 2007) examines :

- ▶ The traffic studies which have defined the Tweed Shire's long term road improvement strategy; and
- ▶ The principles, mechanisms and assumptions underlying the schedules of contributions contained in the Tweed Shire Council contributions plan.

The document suggests an ultimate development scenario based on zoned land and likely development options including detailed additions and improvements to the road network for West Tweed Heads, Banora Point, the Tweed Coast and Murwillumbah. It uses a consumption based model and generic road costs to generate the cost of accommodating anticipated development and how this might be shared among development in different localities.



3. Population Growth

3.1 Population

Rapid population growth and a trend toward coastal living have had a significant impact on the region, driving unprecedented residential and tourism development and giving rise to environmental, economic and social pressures. Despite the rapid growth, the Tweed has actually recorded population growth below that projected.

Population in the Tweed has grown at a faster rate than both NSW and Australia over the past decade. In the past five years, the Tweed has averaged 2.1% annual growth compared to State growth of 0.7%. This is reflective of the popularity of the coastal and hinterland lifestyle on offer in the Tweed and the relative attractiveness of the 'sea-change' lifestyle proximate to the major urban centres of the Gold Coast and Brisbane.

Within the Tweed, Tweed Heads has recorded the fastest growth and largest change in population, accounting for the bulk of the increase in population over the past five years, growing at over three times the average growth recorded in the State over the period.

The Tweed's population is projected to continue to grow above the level of NSW to year 2031, with the most significant growth expected to occur in Tweed Heads. Key drivers of current and future population growth include:

- ▶ In-migration from the Sydney Greater Metropolitan Region and other areas of NSW;
- ▶ Population flow from SEQ; and
- ▶ Greater accessibility due to the upgrading of the Pacific Highway.

In terms of migration trends, the national trend of sea/tree-change for those over 55 years of age has driven the considerable intra- and inter-state migration to the region. Improved accessibility to SEQ, principally through the completion of the Tugan Bypass, is likely to increase the viability of the Tweed as a place to live, offering a different lifestyle and more affordable housing than other areas in the region.

(Note: In the following population tables “Tweed” refers to Tweed Shire. Tweed Heads refers to a “greater Tweed Heads” which includes Cobaki, Terranora, Banora Point, Fingal, Chinderah and Kingscliff. Tweed Part B refers to everything else not included in “greater Tweed Heads”. These localities are constructs of the Australian Bureau of Statistics (ABS).

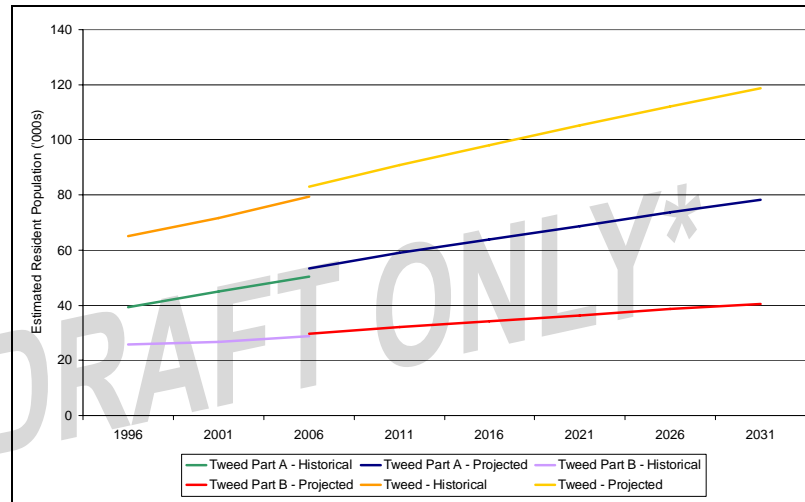
Table 3-1: Population, Usual Residents

	Tweed Heads	Tweed Part B	Tweed	Richmond- Tweed	New South Wales	Australia
Population						
1996	n/a	n/a	63,607	196,015	6,006,206	17,752,829
2001	45,051	26,568	71,618	211,884	6,326,579	18,769,249
2006	50,455	28,869	79,321	219,329	6,549,179	19,855,288
Total Population Growth						
1996-2006	n/a	n/a	24.7%	11.9%	9.0%	11.8%
2001-2006	12.0%	8.7%	10.8%	3.5%	3.5%	5.8%
Annual Population Growth						
1996-2006	n/a	n/a	2.2%	1.1%	0.9%	1.1%
2001-2006	2.3%	1.7%	2.1%	0.7%	0.7%	1.1%

Source: ABS Census 2006

The NSW Department of Planning has produced medium series population projections at the Statistical Local Area (SLA) level, published in *NSW State and Regional Population Projections, 2001-2051* (2005 Release). Tweed's population is projected to increase by 35,000 persons over the next 25 years to 2031, relatively consistent with the estimated yield of 1.9 persons per dwelling from the target of 19,100 additional dwellings outlined in the *Far North Coast Regional Strategy*. The projected average growth rate of 1.4% is below the 2.2% growth rate historically recorded between the 1996 and 2006 Censuses.

Diagram 3-1: Historic and Projected Estimated Resident Population, 1996–2031



Sources: ABS 2006 Census; Department of Planning (2005)

Table 3-2: Population Projections

	Tweed Heads	Tweed Part B	Tweed	Richmond-Tweed	New South Wales
Population Projections					
2006	53,317	29,706	83,023	229,359	6,843,858
2011	58,932	31,939	90,871	242,700	7,145,170
2016	63,928	34,167	98,095	255,321	7,437,260
2021	68,795	36,388	105,183	267,715	7,725,260
2026	73,629	38,547	112,176	279,686	8,002,499
2031	78,147	40,607	118,754	290,769	8,259,181
Total Growth					
2006-2031	46.6%	36.7%	43.0%	26.8%	20.7%
Annual Growth					
2006-2031	1.5%	1.3%	1.4%	1.0%	0.8%

Source: Department of Planning (2005)

The population projections released by the Department of Planning in 2005 projected the population of the Tweed in 2006 would be 83,023. The preliminary Census data indicates that the population of the Tweed was 79,321, almost 5% lower than the projected population. The discrepancy with the 2005 projections can be explained by



their marking to the ABS' estimated resident population series which was also different from the Census actuals. The incorporation of the additional information gathered during the 2006 Census would be expected to improve the accuracy of the base from which population projections are made. However, the discrepancy highlights the considerable variability in population projections that can exist over relatively long forecast horizons.

Table 3-3: Projected and Usual Resident Population (for 2005 Projections)

	Resident Population in 2006		Difference	
	Projected	Actual Census	Number	Percentage
Tweed Part A	53,317	50,455	-2,862	-5.7%
Tweed Part B	29,706	28,869	-837	-2.9%
Tweed	83,023	79,321	-3,702	-4.7%

Sources: ABS, Census 2006; Department of Planning

This issue is further illustrated by the accuracy of the population projections produced in 1999. The 2005 projections differ from the projections released in 1999 as updated information was used in developing the newer projections, including more recent fertility and migration trends. The 1999 release projected the population of Tweed Part A at 53,700 in 2006, whereas the actual population as measured by the Census in 2006 was 50,455. The difference between the projected population and the actual population is about 3,300 residents, or 0.4 percentage points of growth between 2001 and 2006. While the projected level for Tweed Part B was higher than the Census actual in 2006, the actual population growth rate was actually lower than projected. Overall, for the 10-year period 1996-2006, the projected population growth of 2.5% was 0.3 percentage points higher than the actual experience as measured by the Census.

Table 3-4: Projected and Usual Resident Population (for 1999 Projections)

	Resident Population			2001-2006		1996- 2006	
	1996	2001	2006	Change	Avg Annual Growth	Change	Avg Annual Growth
Tweed Part A							
Projected	39,100	47,100	53,700	6,600	2.7%	14,600	3.2%
Actual (Census)	N/a	45,051	50,455	5,404	2.3%	N/a	N/a
Tweed Part B							
Projected	25,900	27,700	29,700	2,000	1.4%	3,800	1.4%
Actual (Census)	N/a	26,568	28,869	2,301	1.7%	N/a	N/a



	Resident Population			2001-2006		1996- 2006	
	1996	2001	2006	Change	Avg Annual Growth	Change	Avg Annual Growth
Tweed							
Projected	65,000	74,577	82,955	8,378	2.2%	17,955	2.5%
Actual (Census)	63,607	71,618	79,321	7,703	2.1%	15,714	2.2%

Sources: ABS, 3218.0, 2006 Census; Department of Planning

3.2 Age Distribution

The Tweed has recorded an increasing average age and a high proportion of persons over 55 years of age, primarily due to the popularity of the region as a 'sea/tree-change' retirement destination. This can impact the local availability of skilled labour.

Over the past 10 years, the average age of residents of the Tweed has grown more rapidly than the NSW average and is now almost 20% higher than the State average. This is most likely attributable to a high proportion of over 55 aged persons reflecting the national trend toward sea/tree-change communities, particularly for retirement aged persons and a low proportion of youth in the Tweed compared to NSW, reflecting the trend for youth to move to nearby metropolitan areas (Brisbane and the Gold Coast) in search of education, employment opportunities and urban lifestyles. The rapidly increasing average age is most prominent in Tweed Heads, which currently sits at 45.3 years. Tweed Part B has retained the greatest proportion of persons aged 15 to 24 years, but is still below the levels recorded for Richmond-Tweed and NSW overall.

Table 3-5: Age Distribution, Usual Residents

	Tweed Heads	Tweed Part B	Tweed	Richmond - Tweed	New South Wales	Australia
Average Age						
1996	n/a	n/a	39.4	37.1	35.5	35.1
2001	43.8	37.3	41.4	39.0	36.5	36.3
2006	45.3	38.6	42.5	40.5	37.6	37.4
2006 Population Breakdown						
0-14 years	16.8%	21.3%	18.4%	19.5%	19.8%	19.8%
15-24 years	10.2%	11.5%	10.7%	11.7%	13.3%	13.6%
25-34 years	8.8%	9.2%	8.9%	9.5%	13.6%	13.5%



	Tweed Heads	Tweed Part B	Tweed - Tweed	Richmond - Tweed	New South Wales	Australia
35-44 years	11.7%	14.6%	12.7%	13.4%	14.6%	14.8%
45-54 years	12.9%	16.8%	14.3%	15.6%	13.8%	13.9%
55-64 years	13.1%	11.9%	12.7%	12.3%	11.0%	11.0%
65+ years	26.5%	14.7%	22.2%	18.0%	13.8%	13.3%

Note: In the 2006 Census, Tweed Part B was separated into two parts, Tweed Coast and Tweed Part B
Source: ABS, Census 2006

The percentage of the population over 55 years of age in Tweed Heads is 40%, compared with 27% in the remainder of the Tweed Shire, 30% in Richmond-Tweed and 25% in NSW. This trend is expected to continue, with the median age in Tweed Heads forecast to rise from 46 in 2006 to 56 in 2031, and in the rest of Tweed rising from 41 to 50. By comparison, Richmond-Tweed is forecast to increase from 42 to 51, and NSW is forecast to increase from 37 to 42.

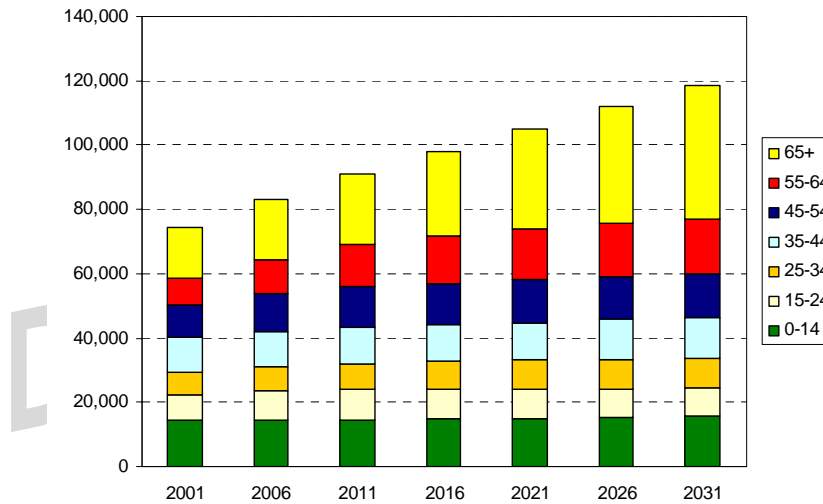
Table 3-6: Forecast Median Age

	Tweed Heads	Tweed Part B	Richmond-Tweed	New South Wales
Median Age				
2006	46	41	42	37
2011	48	44	44	38
2016	50	45	46	39
2021	52	47	48	40
2026	55	49	50	41
2031	56	50	51	42

Source: NSW Department of Planning (2005)

Tweed's population is projected to skew further toward the older age groups, with the number of persons aged over 65 years projected to more than double to 41,000 persons by 2031. The population in the primary working age groups between 25 and 54 years is projected to average growth of 0.6%-0.7% per annum over the period. The 15-24 years age group is projected to remain unchanged in number.

Diagram 3-2: Projected Population by Age, Tweed Shire



3.3 Population Distribution by Urban Area

Table 3-7 shows the population distribution of Tweed Shire between its urban areas (ABS State Suburbs) based on the 1996, 2001 and 2006 census information. There are limitations with comparisons between census periods because the census collection districts are changed as areas grow and this can skew figures. However, the figures do reflect the land release areas in the northern areas of Banora Point, Terranora and Bilambil and the slowing of growth in the established areas of Tweed Heads in the last five years in particular. It also shows the relatively stable population of Murwillumbah and inland areas while there has been strong growth on the Tweed coast, particularly around Kingscliff and Pottsville. About 12 -15 % of the Tweed population lives outside of urban areas on farms and in rural residential development. This proportion is likely to stabilise and then slowly fall as the Tweed Shire population increases in predominantly urban locations.

Table 3-7 Tweed Shire Population by Urban Area 1996 - 2006

	1996	2001	2006
Urban North			
Tweed Heads	7,660	7,547	7,125
Tweed Heads West	4,782	4,752	5,870
Tweed Heads South	6,778	8,538	7,321
Banora Point	8,800	11,168	14,682
Cobaki	634	713	700
Cobaki Lakes	452	723	227
Bilambil (Inc Bilambil Heights)	2,552	2,935	3,691



Terranora (Inc Area E)	1,905	2,423	3,137
Total	33,563	38,799	42,753
Coastal			
Fingal Head	584	656	575
Chinderah	1,663	1,636	1,341
Kingscliff	3,960	4,779*	6,017
Kingscliff West (Cudgen)	505	505	535
Casuarina			890
Kings Forest			402
Cabarita/Bogangar	2,733	3,082	3,050
Hastings Point	681	722	614
Pottsville	1,930	2,553	3,781
<i>Total</i>	12056	13933	17205
Murwillumbah (Inc Sth M'bah)	7,471	7,340	7,696
Other Urban and Rural	10517	11546	11667
Tweed Shire	63,607	71,618	79321

Sources: ABS, Census 2006; Core Economics , 2005

4. Existing Housing Types and Densities

4.1 Average Household Size

Table 4-1 shows the change of average household size for Tweed Shire over the last four census periods. The average household size has dropped from 2.6 to 2.4 persons on a Shire wide basis but has stabilised at 2.4 for the last two census periods. At the 2006 census the average household size ranged from 2.3 to 2.6, demonstrating that there is some variation in the Tweed. In particular, Tweed Heads had the lowest average household size at 2.3 persons, while the highest average household sizes were at Banora Point, south of Kingscliff, and Bogangar/Cabarita. The Australian average household size for 2006 was 2.6 and this has also been in decline from previous years. By comparison, the Far North Coast Regional Strategy assumed an average household size of 1.9 for its long term projections. However, this is likely to be too low for the Tweed given current trends.

Recent work undertaken by the Tweed Shire Strategic Planning Unit indicates that household size varies from 2.7 for a single family dwelling down to 1.3 for a one bedroom unit. Townhouses and villas have an average household size of 2.3. An average unit development containing between one and four bedrooms would be 1.95.

Table 4-1 Average Household Size, Tweed Shire LGA

Census Year	Occupied Dwellings	Persons in Occupied Dwellings	Average Household Size
1991	20,943	54,080	2.6
1996	26,279	64,719	2.5
2001	30,283	72,024	2.4
2006	31,121	74,444	2.4

Source: ABS census, 1991, 1996, 2001, 2006

4.2 Typical Dwelling Yields and Population Density

The following information (sourced from the Urban Development Advisory Service) is provided to demonstrate the typical dwelling yields that can be achieved from various forms of housing. The densities referenced are net densities (excludes roads and footpaths etc):

- ▶ Large detached house on a large lot (>1000m²) <9 dw/Ha
- ▶ Large detached house on a large lot (700m²) 10-13dw/Ha
- ▶ Detached house on a medium size lot (575m²) 14-16 dw/Ha
- ▶ Small lot housing with reduced setbacks (450m²) 17-19dw/Ha
- ▶ Semi-detached one and two storey houses (360m²) 20-24dw/Ha

- ▶ Two storey attached townhouses (300m²) 25-30dw/Ha
- ▶ Two storey attached houses with rear car/courtyards (225m²) 30-34dw/Ha
- ▶ Small lot two and three storey townhouses (200m²) 35-40dw/Ha
- ▶ Three storey terrace houses with shared wall (200m²) 41-60dw/Ha
- ▶ Three to four storey apartments 60-79 dw/Ha
- ▶ Five to eight storey apartments 80-99 dw/Ha
- ▶ High-rise apartments >8 storeys 100+ dw/Ha

Similar work undertaken in the Tweed Shire by its Strategic Planning Unit indicates similar dwelling yields if development, and in some cases redevelopment, were to proceed in accordance with current planning controls. Tweed LEP 2000 requires a minimum of 450sq m for a single dwelling and 450 sq m per dwelling for a duplex dwelling meaning the maximum dwelling yield for both will be the same (Table 4-2). Higher density development such as town houses can deliver around 16-28 dwellings per hectare while apartment buildings in the Tweed (typically in the order of three storeys) can deliver 74 to 94 dwellings per hectare. Apartments over four storeys yield between 94 and 200 dwellings depending on how tall the building is.

Table 4-2 Tweed Shire Dwelling Yields and Household Size

Dwelling Type	Maximum Dwelling Yield per net Hectare	Assumed Household Size by Dwelling Type
Dwelling /Duplex	6-12	2.6
Town house/Villa	16-28	2.3
Apartment to 3 storeys	74-94	1.95
Apartments 4 storeys and over	94-200	1.95

In order to apply these dwelling yields to existing zoned areas, assumptions need to be made about the proportion of each dwelling type that can occur. Not all dwelling types are permitted in all zones and the objectives and location of each zone also affects the likely dwelling type. Table 4-3 shows the ratio of each dwelling type in each zone based on the experience of Tweed planners and observations of existing development.

Table 4-3 Tweed Councils Density Ratios by Dwelling Type and LEP Zone

Zone under LEP 2000	Dwelling Type	Proportion of Dwelling Type
2(a)	Dwelling/Duplex	95%
	Townhouse/Villa	5%
2(b)	Dwelling/Duplex	10%
	Townhouse/Villa	30%

	Apartment (3 storeys)	60%
2(c)	Dwelling/Duplex	70%
	Townhouse/Villa	15%
	Apartment (3 storeys)	15%
2(d)	Dwelling/Duplex	100%
	Townhouse/Villa	0%
	Apartment (3 storeys)	0%
2(e)	Dwelling/Duplex	60%
	Townhouse/Villa	15%
	Apartments (3 storeys)	25%
2(f)	Dwelling/Duplex	40%
	Townhouse/Villa	0%
	Apartments (3 storeys)	60%
3(a)	Dwelling/Duplex	0%
	Townhouse/Villa	0%
	Apartments (3 or 4 storeys) *	100%
3(b)	Dwelling/Duplex	0%
	Townhouse/Villa	0%
	Apartments (3 or 4 storeys) *	100%

* 3 storeys in all areas except Tweed Heads (4 storeys or over)

4.3 Dwelling Stock and Dwelling Production

The 2006 ABS census revealed that Tweed Shire's existing housing stock was 63% single family dwellings, 18% semi detached dwellings, 11% flats or units and 8% other dwellings. This compares to the Australian figures of 75%, 9%, 14% and 2% respectively. This probably reflects the older demographics of the Tweed, the popularity of duplex units among a range of age groups and the traditional resistance to unit development outside of metropolitan areas.

The ABS Building Approvals statistics for Tweed Shire over the last five years (Table 4-4) indicate that multi unit dwellings (semi detached dwellings and flats or units) account for between 22% and 49% of all new dwellings approved (an average of approximately 35%). This suggests that overall Tweed Shire is achieving a reasonable mix of dwelling types in new development. It is important that the Council's Planning



controls continue to provide a range of housing types consistent with its ageing population and the strategic directions of Tweed 4/24 (TSC, 2004).

These building approval statistics indicate there is a large and consistent demand for both houses and units in Tweed Shire with an average demand of 851 dwellings per annum over the last five years. This can then be compared to the likely future supply of land to give an idea of the shortfall or surplus over time. However, this is based on the premise the demand for dwellings will remain as it has over the last five years and this may not be the case.

Table 4-4 Dwelling Approvals in Tweed Shire 02/03 – 06/07

	Number of Dwellings		
	Houses	Units	Total
2002-03	756	430	1,186
2003-04	563	160	723
2004-05	451	437	888
2005-06	434	323	757
2006-07	401	303	704
Average	521	330	851

Source: ABS, 8731.0 – Building Approvals, Australia

4.4 Holiday Letting of Dwellings

Even though Tweed Shire is a well known tourism and holiday destination the 2006 census revealed that there was a 91.5% occupancy rate for all dwellings. This suggests that the use of dwellings for holiday lettings is not currently a major threat to the residential housing stock on a Shire wide basis. By comparison, areas such as the Great Lakes (Forster –Tuncurry) or Byron Shire, which have a high incidence of holiday letting, experience 20% or greater vacancy in the winter months in residential housing and therefore need to increase the housing stock in order to meet demand from permanent residents. Tweed Shire Council allows tourism in most of its residential zones and has specifically catered for it in its Residential Tourist 2(e) and Tourism 2(f) Zones in coastal locations. By allowing tourism uses in a controlled manner Council has been able to meet genuine demand, yet still maintain its residential stock.

However, it is reasonable to anticipate that tourism (and some other non residential uses) will increase in residential zones as the Tugun Bypass makes it even easier to commute from South East Queensland to a holiday home in Tweed. It is suggested that maximum population densities be discounted by 50% in the 2(e) and 2(f) zones (where tourism is required by Council to balance the residential component) by 20% in coastal located residential zones, and 10% in residential zones west of the Pacific Highway.

4.5 Residential Lot Production

Table 4-5 shows that on average over the last five years Tweed Shire Council has approved 306 lots per year while over the same period “releasing” 450 lots per year. “Releasing “ refers to Council agreeing that the conditions imposed by it on the subdivision have been met and the landowner can then register the lots with the State government as property able to be sold to consumers. The numbers are different because of the lead time required by different subdivisions to satisfy the conditions imposed by Council. Observations and anecdotal evidence from local property developers indicates that many new urban release areas in Tweed Shire are in strong demand and there is increasing interest from South East Queensland residents.

These lot approval statistics indicate that there has been a strong and steady demand for residential land in Tweed Shire over the last five years. As with dwelling approval statistics, lot consumption can be compared with the likely future supply of land to give an idea of the shortfall or surplus over time. However, as previously stated, this is based on the premise the demand for residential land will remain as it has over the last five years. This may not be the case.

Table 4-5 Residential Lot Approvals and Registrations

Year	Residential lots given approval	Residential lots where linen plan released by Council	Residential lots registered with the NSW Government (LPI)
02/03	711	585	746
03/04	284	435	269
04/05	105	801	611
05/06	222	322	142
06/07	211	102	N/A
Average	306	449	442 (4 yrs only)



5. Housing Affordability

5.1 Introduction

“Affordable housing is housing for low to moderate income earners that is priced at such a level that allows them enough income after paying housing costs to meet other basic needs such as food, clothing, transport, medical care and education. While the term can encompass public and community housing (generally called social housing) it is more often used to describe other forms of assistance targeted to people who are either not eligible for social housing or who tend not to be able to access it.” (Source: National Housing Strategy 1992).

The term ‘affordable housing’ expresses the notion of reasonable housing costs in relation to household income. The 1992 National Housing Strategy identified the housing affordability benchmark as households in the lowest 40% of income distribution spending more than 30% of household income on housing costs.

Additional background information on housing affordability is included in Appendix C.

5.2 Demand for Affordable Housing in Tweed Shire

The UDIA State Reports on housing affordability (UDIA, 2007) found that the median detached house price in the Ballina/ Lismore/ Tweed area had more than doubled in the period 2001 to 2006. Increases occurred in all other localities reviewed in NSW but the Northern Rivers is now in the least affordable category of the affordability index (similar to Sydney). Not surprisingly, affordable housing was in the top 5 issues provided in community feedback to the 2006 Tweed Shire Social Plan Review (TSC, 2006).

5.3 The Need to Address the Affordable Housing Issue

Tweed Shire has relatively high levels of unemployment, retirees on fixed incomes and low-income earners, thus placing increased demand on the provision of affordable and special needs housing. It is also home to an increasing number of families, especially single parent families.

There are a number of reasons why immediate actions are needed to address the affordable housing issue:

- ▶ The Tweed Shire area has a high proportion of population over 65 years of age and this situation is projected to continue;
- ▶ The Tweed Coast will continue to attract more holidaymakers and tourism investors. Those seeking to invest in holiday accommodation are looking for reasonably priced units close to entertainment (shops, restaurants and beaches). This takes a percentage of residential accommodation out of the market for fulltime housing and pushes rental prices up for rental accommodation which needs to return a rate competitive with holiday rentals;

- ▶ As older areas redevelop, those families that previously occupied the older housing stock are being forced out of town or at least to the fringe locations away from services and amenities;
- ▶ As the population in the area increases and the retired population becomes older and less financially secure, the demand for smaller forms of housing will correspondingly increase;
- ▶ The aging of the general population of Australia is inevitable and plans to accommodate those people in their later years must be initiated now before the opportunities are lost;
- ▶ A lack of diversity in housing choice may lead to the creation of gaps in the labour supply as the lower income groups (with working age occupants) are forced to leave the area due to rising house prices.

5.4 Land Supply

Many local commentators and real estate industry representatives cite raw land supply as a critical issue in demand and supply relationship that affects the market price of housing. Although Tweed Shire does not currently have a shortage of zoned residential land, it is important that a residential land supply is identified for the long term to ensure shortages do not occur in this growth area over time. One of the significant roles of this Strategy is to identify that land to provide supply options.

5.5 Implications for Tweed Shire Council

Council needs to look at ways to facilitate an increase in the availability of public housing in Tweed Shire and also to seriously consider mechanisms to increase the availability of affordable housing that is outside the traditional public housing sector.

Implementation of a range of measures intended to improve housing affordability should be a major goal of Council. Such implementation will be the responsibility of a range of stakeholders in the housing industry – including public sector housing agencies, the private sector (covering housing finance, design and construction) and government at all levels. The Council can be both a facilitator and implement actions to provide sustainable affordable housing.

Such measures include:

- ▶ preparation of an Affordable Housing Strategy;
- ▶ inclusion of affordable housing objectives and special provisions in its revised local environmental plan;
- ▶ inclusion of a range of opportunities for potential residential release areas in this Strategy in the short, medium and long term;
- ▶ negotiation of planning agreements at the rezoning and development application stage with a view to affordable housing outcomes; and
- ▶ negotiate with the State Government on paying for more infrastructure costs in agreed growth areas required to supply genuine demand for housing.



6. Land and Dwelling Demand

6.1 Introduction

Land and dwelling demand can be estimated using a variety of methods. Each method has merit and can be useful. The outcomes from each method are influenced by the assumptions made and these need to be stated.

Applying a range of methods gives a good overview of the range of demand that may occur over the nominated time frame.

6.2 Population Projections Method

The NSW Department of Planning has produced medium series population projections at the Statistical Local Area (SLA) level, published in *NSW State and Regional Population Projections, 2001-2051* (2005 Release). Tweed's population is projected to increase by 35,000 persons over the next 25 years to 2031. Assuming that 35% will live in units at an average household size of 1.95 persons per unit then there will need to be an additional 6,282 units constructed. Assuming the remaining 65% will live in dwelling houses then at an average household size of 2.4 persons per dwelling there will need to be an additional 9,480 dwellings constructed. If it is assumed that all of the units will be constructed in existing urban areas such as Tweed Heads, Murwillumbah and Kingscliff then the predicted demand for new residential land will be dependant on the density of new urban areas.

If densities are at the low end, say 6 dwellings per net ha then 1,580 ha of residential land will be required. If densities are in the mid range, say 12 dwellings per net ha then 790 ha of residential land will be required. If dwellings are at the upper end of the range, say 16 dwellings per net ha then 593 ha of residential land will be required. (Table 6-1)

6.3 Far North Coast Regional Strategy Targets

The Far North Coast Regional Strategy indicates that the North Coast Region is likely to grow by about 60,400 persons by the year 2031. In order to house its share of this expanding population the Tweed Shire is expected to provide 19,100 new dwellings at a ratio of 40% units and 60% dwelling houses (State Government targets). Assuming that the 7,640 units to be constructed will all go into existing urban areas such as Tweed Heads, Murwillumbah and Kingscliff then the predicted demand for new residential land will be dependant on the density of new urban areas.

Assuming the 11,460 dwelling houses are accommodated at say 6 dwellings per net ha then 1,910 ha of residential land will be required. If densities are mid range, say 12 dwellings per net ha then 955 ha of residential land will be required. If dwellings are at the upper end of the range, say 16 dwellings per net ha then 716 ha of residential land will be required. (Table 6-1)



6.4 Dwelling Approvals Method

Another approach to defining the demand for land and dwellings is to assess the past approved dwellings over a period of say five years and project this demand forward over a given time frame to give an estimate of future demand. This methodology is outlined in the State Government's publication, Urban Settlement Strategies – Guidelines for the North Coast (DUAP, 2000).

It is known that the average number of dwellings approved by Council over the last five years is 520 dwelling houses and 330 units per year. Projecting this as a constant demand until the year 2031 then Council will need to give approval to 12,480 dwelling houses and 7,920 units.

Using these dwelling projections it could be assumed that the 7,920 units required to meet the projected demand will all go into existing urban areas such as Tweed Heads, Murwillumbah and Kingscliff. The predicted demand for new residential land will be dependant on the density of new urban areas.

Assuming the 12,480 dwelling houses are accommodated at say 6 dwellings per net ha then 2,080 ha of residential land will be required. If densities are mid range, say 12 dwellings per net ha then 1,040 ha of residential land will be required. If dwellings are at the upper end of the range, say 16 dwellings per net ha then 780 ha of residential land will be required. (Table 6-1)

It is common with this method to build in a percentage on top of current demand to ensure that long term supplies are maintained and to allow for unknowns that may affect demand. In high growth locations an allowance of up to 30 % more than projected demand can be used.

6.5 Lot Approvals Method

Another approach to defining the demand for land (and therefore dwellings) is to assess the past demand for land over a period of say five years and project this demand forward over a given time frame to give an estimate of future demand. This methodology is outlined in the State Government's publication, Urban Settlement Strategies – Guidelines for the North Coast (DUAP, 2000).

It is known that the average production of residential land in Tweed Shire is say 450 lots per year and it might be assumed that the majority of these lots are in new urban areas and are to be used to construct dwelling houses. Projecting this as a constant demand until the year 2031 then Council will need to release 10,800 lots in order to satisfy the current level of demand from the market.

Taking these lot production estimates and assuming 6 lots per net ha then 1,800 ha of residential land will be required. If lot densities are mid range, say 12 lots per net ha then 900 ha of residential land will be required. If lot density is at the upper end of the range, say 16 lots per net ha then 675 ha of residential land will be required. (Table 6-1)



These numbers are based on the assumption of constant demand. It is common with this method to build in a percentage on top of current demand to ensure that long term supplies are maintained and to allow for unknowns that may affect demand. In high growth locations an allowance of up to 30 % more than projected demand can be used.

6.6 Strong Regional Growth Scenario

A further approach that has been put forward by the property development industry is to view the future of Tweed Shire as part of a broader picture of growth and change in South East Queensland and Northern NSW.

Matusik (2007) notes that the Gold Coast is the fastest growing municipality in Australia and is the largest city in Australia outside of the capitals. The Gold Coast grows by about 13,000 persons per year and has approximately 525,000 permanent residents. He suggests that the Gold Coast and Tweed regions combined will require an additional 227,000 new dwellings over the next 25 years to accommodate expected population growth. The implication of this is that the demand for additional land and dwellings in the Gold Coast may be transferred south to the Tweed Coast over that 25 year period as land supply issues in the Gold Coast change. He also suggests that the opening of the Tugun Bypass road link from South East Queensland into the north of Tweed Shire (in mid 2008) combined with the recent upgrading of the Gold Coast Airport may be a catalyst for an increase in population growth by 30% on current levels. Another factor that may also support this position is the connection of the Gold Coast Airport to Brisbane by heavy rail by 2026 and a rapid transit system of public transport in place for all of the Gold Coast by 2015. All these factors make commuting from the Tweed Shire more attractive to people with employment in South East Queensland.

It is also noted that Tweed Shire has a reliable supply of potable water and even though South East Queensland is investing in desalination on the Gold Coast, the water that is obtained from this method will be expensive by comparison to traditional methods.

Converting this approach into a demand for land and dwellings could be done in two ways. One way is to take the medium series population projections by the NSW Department of Planning and add 30% (say), then apply the population projection method as above. The other is to take the current dwelling approval statistics and add 30% (say) and apply the dwelling approvals method as above.

The population projections option would assume that Tweed Shire's population will grow by about 45,500 persons between now and 2031. Assuming that 35% will live in units at an average household size of 1.95 persons per unit then there will need to be an additional 8,167 units constructed. Assuming the remaining 65% will live in dwelling houses then at an average household size of 2.4 persons per dwelling there will need to be an additional 12,323 dwelling houses constructed. If it is assumed that all of the units will be constructed in existing urban areas such as Tweed Heads, Murwillumbah



and Kingscliff then the predicted demand for new residential land will be dependant on the density of new urban areas.

If densities are at the low end, say 6 dwellings per net ha then 2,054 ha of residential land will be required. If densities are in the mid range, say 12 dwellings per net ha then 1,027 ha of residential land will be required. If dwellings are at the upper end of the range, say 16 dwellings per net ha then 770 ha of residential land will be required. (Table 6-1)

The dwelling approval option would take the average number of dwellings approved by Council over the last five years (520 dwelling houses and 330 units per year) and project this until the year 2031 with a 30% increase. In this method Council will need to give approval to 16,224 dwelling houses and 10,296 units.

Using these dwelling projections it could be assumed that the 10,296 units required to meet the projected demand will all go into existing urban areas such as Tweed Heads, Murwillumbah and Kingscliff. The predicted demand for new residential land will be dependant on the density of new urban areas.

Assuming the 16,224 dwelling houses are accommodated at say 6 dwellings per net ha then 2,704 ha of residential land will be required. If densities are mid range, say 12 dwellings per net ha then 1,352 ha of residential land will be required. If dwellings are at the upper end of the range, say 16 dwellings per net ha then 1,014 ha of residential land will be required. (Table 6-1)

6.7 A Preferred Approach to Estimating Demand

Table 6-1 summarises the range of demand statistics outlined previously. These options indicate that the number of new units required will be between 6,282 and 10,296, dwelling houses required range between 9,480 and 16,224, and land required ranges between 593 net ha and 2,704 net ha.

In determining its preferred approach Council needs to be mindful that underestimating the demand has greater impacts on the community than overestimating demand. Accordingly it is recommended that the strong regional growth –dwelling approval option with new residential land required at the mid range of residential density (12 dwellings per net ha) be adopted as the preferred approach in estimating future demand in the Shire.



Table 6-1 Summary of Land and Dwelling Demand Options

Demand Method	Units Required	Dwelling Houses Required	Residential Land Required at Low Density (net ha)	Residential Land Required at Mid Range Density (net ha)	Residential Land Required at Upper Range Density (net ha)
Population Projection	6,282 units	9,480	1,580	790	593
Far Nth Coast Regional Strategy Targets	7,640 units	11,460	1,910	955	716
Dwelling Approvals	7,920 units	12,480	2,080	1,040	780
Lot Approvals	N/A	N/A	1,800	900	675
Strong Regional Growth - population	8,167 units	12,323	2,054	1,027	770
Strong Regional Growth – dwelling approval	10,296 units	16,224	2,704	1,352	1,014



7. Land and Dwelling Supply

7.1 Introduction

The supply of land and housing to meet future demand will come from a combination of sources:

- ▶ Vacant lots within existing zoned residential subdivisions;
- ▶ Residential zoned land that is yet to be subdivided;
- ▶ Redevelopment of existing residential or other properties;
- ▶ Rezoning of new land for residential purposes (“Greenfield sites”).

The following sections provide details as to the likely land supply to be generated from the various sources, redevelopment opportunities and the anticipated population growth and timing.

7.2 Vacant Subdivided Land

In preparing a strategy that is to be implemented over the short term it would normally be appropriate to survey existing vacant lots within zoned and subdivided residential areas. However, given that this strategy is Shire wide and is looking at urban land availability over a 25 year period, there is limited value in providing a snap shot of vacant land in existing residential areas that would quickly become out of date.

However, in the case of Tweed Shire there are some significant areas which are zoned for residential development and have been given development approval for subdivision. In some cases these areas have delivered land to the market over stages and there are still some stages yet to be delivered. In other cases, the consent for subdivision has been issued, but no land has been delivered to the market. In all cases these areas have valid and “commenced” consents for subdivision. A summary of these areas is shown in Table 7-1.



Table 7-1 Residential zoned land with approval for subdivision

Urban Release Area	Approximate area zoned Residential that remains vacant (ha)	Approximate Maximum No. of Dwellings	Approximate Maximum No. of Persons
Cobaki Lakes	350	5,500*	12,000
Pottsville (Seabreeze)	16	170	450
Pottsville (Black Rocks)	11	90	250
Casuarina/Salt/Seaside City	41	750	2,000
West Murwillumbah	10	80	200
Cudgen (Heights)	8	125	290
Total	436	6,685	15,137

There is a substantial area of land zoned and subdivided that has yet to reach the market. The majority of this is in one site at Cobaki Lakes that has been in progress now for over a decade. It was identified in the 1992 Strategy and subsequently rezoned and a subdivision consent issued. This consent was activated. The development has strong links into south east Queensland and the finalisation of the Tugun Bypass by the end of 2008 is likely to increase the desire to provide land in this location. The current owners are reviewing their development consent through a Part 3A process which is expected to be dealt with by the Minister by mid 2008. The owners consider that residential lots should be available to the market by 2009 with approximately 300 lots being made available each year thereafter. However, this land has been zoned and subdivided for a considerable time and given the major road, water and sewerage infrastructure costs that will need to be incurred before land can be released, it cannot be guaranteed that this land will be available within the next five years. It is likely that some of the land currently zoned for residential purposes will be used for employment purposes as well as for non residential support facilities.

Other land in this category includes the final stages of the Sea Breeze and Black Rocks residential developments, both in the vicinity of Pottsville. These lands are in the process of being developed and it is assumed that they will deliver the remainder of the residential zoned land to the market over the next two years. There is also the final stage of residential development on the northern edge of Cudgen (Cudgen Heights) from a residential subdivision given consent in the mid 1990's.

7.3 Residential Zoned Land yet to be Subdivided

This category of land applies to areas that are currently zoned under Tweed LEP 2000 for residential purposes but have not yet been subject to an application for subdivision. Such land can be withheld from the market because the owner has no interest in undertaking the development or it may be that development in that location is not cost effective due to physical, infrastructure or other constraints. Sometimes land can be held at this stage because its value has been significantly increased through the rezoning process yet the costs of maintaining the land have remained at relatively low levels. If land values in an area such as Tweed are known to be increasing even without any development taking place then withholding the land from the market can actually be a way of increasing its value further. This tactic can be employed as part of a wider investment portfolio, but has the down side from a Council perspective of making it difficult to predict when land will be subdivided and made available to the market.

Some Councils have used “sunset “ clauses attached to rezonings to ensure that land is developed within a reasonable amount of time or it reverts to a rural zone. This is an option that Council could consider with future rezoning.

A summary of the more substantial areas of land zoned for residential purposes, but not currently subdivided is shown in Table 7-2.

Table 7-2 Residential zoned land yet to be subdivided

Urban Release Area	Approximate Area zoned Residential that remains vacant (ha)	Approximate Area zoned Residential that remains vacant less 20% unless otherwise known (net ha)	Approximate Maximum No. of Dwellings	Approximate Maximum No of Persons
Tanglewood	78	62	650	1,500-3,000
Kings Forest	495	396	4,500	10,000
West Murwillumbah and Kielvale	170	136	2,500	3,900*
Bilambil Heights	370	296	2,500	7,500**
Area 'E' (Terranora)	188	150	1,600	4,000
Kunghur (Nightcap)	43	20***	400 – 450***	750 – 1,200



Urban Release Area	Approximate Area zoned Residential that remains vacant (ha)	Approximate Area zoned Residential that remains vacant less 20% unless otherwise known (net ha)	Approximate Maximum No. of Dwellings	Approximate Maximum No of Persons
village)				
West Kingscliff	47	37	1,375****	3,460****
Other lands	86	Discounted	Discounted	Discounted
Total	1,477	1,097	13,525	31,110

* Architectus, 2007 **DAC , 2007 ***Nightcap Village et al, 2006, ****DGP, 2008

Table 7-2 indicates that Tweed Shire has approximately 86 ha of “other” land currently zoned for residential purposes and held in lots greater than 1 ha. This figure represents the total area zoned for residential purposes that is still held in lots greater than 1ha (an area of 1,913 ha as at Jan 2008) less the total of the known residential areas either with or without consent for subdivision (Table 7-1and Table 7-2). This is an indication of land that may have subdivision potential scattered throughout the Shire. Much of this land is unlikely to be developed to any significant level due to physical site constraints such as aircraft noise, flooding, poor drainage and steepness. As well as environmental constraints such as significant vegetation and servicing limitations such as the absence of reticulated sewerage in some village areas. There is also a proportion of this land that is not subdivided (in terms of Torrens Title), but is already used for residential development such as Strata and Community Title developments and caravan parks. A further proportion of this land is zoned for residential purposes but may be part of publicly owned remnant bushland or in drainage reserves or public parks. Given that it is not known how many dwellings this land may yield (if any) it is assumed that it will not contribute to the supply of land for residential purposes and is therefore discounted.

For a number of these sites (such as Kings Forest, Area E and Bilambil Heights) it is likely that some of the land zoned for urban purposes will be used for employment as well as other non residential support facilities.

7.4 Maximum Population Capacity of Urban Areas

Using the observations and assumptions discussed previously such as dwelling density, average household size, density ratio by dwelling type, LEP zoning, and knowing the area of existing zoned land within urban localities, it is possible to estimate the maximum population capacity of existing urban areas (Appendix A).

However, caution needs to be taken when using these figures as the factors that affect development within each locality make it difficult to predict with any certainty how or if population density might change and if it does over what area or time frame. In addition to this, the major areas of zoned and vacant residential land that have been assessed in this Strategy individually (eg Kings Forest and Cobaki Lakes) are also counted in the zoned areas of the maximum population capacity. So it is important in assessing land supply for future growth that these large areas of residential zoned land are not counted twice.

The approach taken to establishing the maximum capacity of existing zoned urban areas is to apply a range of dwellings per ha and a range of maximum persons per ha and multiply these by the net zoned area. In most cases this provides a population estimate that is realistic compared to the existing population. However in three cases (Tweed Heads West, Terranora, and Chinderah), the existing 2006 population of these ABS state suburbs actually exceeds the estimated maximum population. The reasons for this are that in the Terranora locality there are large areas of established rural residential development that contributes to population, but is not zoned for urban purposes. In Chinderah there are three densely populated mobile home/caravan parks that add significantly to population density. In West Tweed Heads there are two densely populated mobile home/caravan parks plus a precinct of two and three storey unit developments at relatively high densities.

Using these estimates suggests that the existing zoned urban areas of Tweed Shire have a population capacity of between 92,000 and 146,000 depending on how the density of development and redevelopment takes place. Given the 2006 urban population was around 67,500 (assuming approximately 15% of residents live outside of urban areas) then there is clearly room for substantial growth within existing zoned urban areas. The majority of this growth is likely to take place in the undeveloped parts of these zoned areas rather than through redevelopment. As stated previously, these undeveloped areas are specifically counted in the land supply calculations of this Strategy.

7.5 Redevelopment of Existing Residential Properties

A portion of potential housing supply is feasible through urban renewal. Specifically, increases in housing density and redevelopment of deteriorated housing stock. This is a difficult area to quantify as it is subject to many factors including land ownership and the financial merits of redeveloping individual sites. Architectus (2007) in its Murwillumbah scoping study concluded that as little as 10% of residential demand is likely to be taken up by redevelopment because of the lack of options for higher densities in the inner centre of town.

It may be more than this in Tweed Heads (or South Tweed or West Tweed) given existing planning controls that allow tall buildings in commercial zones, but the last three census periods have shown little evidence of increased population in these census suburbs. However, this is likely to change as land prices rise and the housing stock in places such as Tweed Heads ages to the point where redevelopment to higher densities becomes more attractive. One of the limiting factors will be the existing strata

units that are in multiple ownership. Typically these locations may be zoned and suitable for tall buildings, but the restrictions of Strata Title and multiple ownership make demolition very difficult. Similarly, not all commercial sites will be redeveloped as there is business resistance by some operators to running a major retailing operation with residential towers above.

In coastal locations such as the Tweed coast villages, there will be increasing pressure to redevelop larger residential lots for either duplex dwellings, villas or units up to three storeys. This has already happened in places such as Marine Parade in Kingscliff where the views and proximity to the ocean and town centre services has been the driving force. However, in coastal locations it is likely that a significant percentage of these redeveloped dwellings will be used for tourism rather than residential and will not actually contribute to housing the growing Tweed population.

In some locations redevelopment may result in a loss of dwellings as areas that are currently low density residential are used for retail, industrial or commercial uses. One such location in Tweed Heads is land zoned residential that is affected by noise from aircraft to an ANEF level of greater than 25. Such areas are better suited to non residential uses and over time are likely to be rezoned and then redeveloped for those purposes. Any such redevelopment would have to consider the height limitations on structures in the airport flight path.

7.6 Greenfield Sites

Using the land suitability analysis in this report and the scoping studies and strategic work undertaken previously by Tweed Shire Council there are a number of areas that, subject to further investigation may be suitable for rezoning to accommodate future urban growth. These areas are summarised in Table 7-3 and shown in Figure 13 to Figure 17.

Table 7-3 Potential Residential Areas in Tweed Shire

Location	Gross Potential Area (ha)	Comment
East Kielvale (Area 1)	370	Located east of and adjoining the Kielvale village zone.
West Murwillumbah (Areas 2 and 3)	73, 13	One area along North Arm Road and one area along Tyalgum Road, both in proximity to existing residential development. These areas provide logical extensions to the west Murwillumbah growth areas
West Kings Forest (Areas 4)	214	A large area located west and adjoining the existing Kings Forest residential



Location	Gross Potential Area (ha)	Comment
		Kings Forest residential zoned land
North of Seabreeze estate (Area 5)	27	Adjoins the northern edge of the existing residential zoned Seabreeze estate near Pottsville. Provides a link between Sea breeze and Koala Beach estates
West of Seabreeze estate (Area 6)	3	Small area adjoins the western edge of the existing residential zoned Seabreeze estate near Pottsville
Dunloe Park (Area 7)	224	Large area in a rural location west of Black Rocks estate near Pottsville
Burringbar (Area 8)	11	One area located immediately adjacent to residential zoned land north of the railway line at Burringbar.
Mooball (Area 14)	46	Adjoins the southern boundary of the Mooball village.

7.6.1 East Kielvale (Area 1)

This area lies to the east of the existing Kielvale Residential 2(d) land and includes the area identified for potential residential development in the Murwillumbah Scoping Study (Architectus, 2007). It is mostly cleared of native vegetation and is currently predominantly grazing land that is elevated from the floodplain. It is important that areas such as this are identified for long term growth options. This location is likely to become more attractive as the employment lands in the Wardrop Valley are further developed and as existing residential land in West Murwillumbah and Kielvale is consumed. The intersection with the Reserve Creek Road and the old Pacific Highway (Tweed Valley Way) has capacity limitations and will need to be upgraded. Alternatively, a new residential link road could be constructed if a suitable route can be established. The Tweed Road Development Strategy (Veitch Lister, 2007) indicates that the Tweed Valley Way between Alma Street and Clothiers Creek Road will reach capacity without any additional development in this location. Upgrading of this road may also be required. Sewerage options will need to be examined, including the possibility of a package STP. Upgrading of the Murwillumbah STP may be an option particularly if the treated water can be supplied to the Condong sugar mill. The opportunity for dual reticulation should also be canvassed.



7.6.2 West Murwillumbah (Areas 2 and 3)

These areas lie to the west of the existing Murwillumbah residential zones and include one of the areas identified for potential residential development in the Murwillumbah Scoping Study (Architectus 2007). They are mostly cleared of native vegetation and are currently predominantly grazing land that is elevated from the floodplain. Area 3 is accessed off the Kyogle and Tyalgum Roads, while Area 2 is accessed off North Arm Road. Area 3 is an extension of the existing residential zones while Area 2 is slightly more isolated. It is important in long term growth planning to provide a range of options for potential development where possible to avoid the situation where a limited number of landowners can restrict the availability of land and cause land shortages. The biggest issues with land west of Murwillumbah is traffic capacity problems as vehicles funnel back into town and across the Murwillumbah bridge. The Tweed Road Development Strategy (Veitch Lister, 2007) indicates that traffic from these localities will affect the Tweed Valley Way in a north bound direction and require network upgrades. Water and sewerage issues in this location are adequate and/or can be augmented.

7.6.3 West Kings Forest (Areas 4)

This large area is bordered by Duranbah Road to the west and the residential zoned land of Kings Forest to the east. It contains some vegetated areas and small areas of steep slopes that are unlikely to be suitable for development. The current land use is grazing and mixed horticulture including some orchards and hydroponic operations. It is not a regionally significant red soil area. As the land in the Kings Forest locality is developed this area may be viewed as a long term extension to it. Access through Area 4 may provide a better opportunity to access Duranbah Road for traffic coming from the Kings Forest site. Road network upgrades would include widening and partial realignment of Duranbah Road. Upgrading of the proposed Kings Forest Parkway may be required to cater for additional traffic at the western end trying to get access to the coast via Kings Forest. Flooding issues and drainage from the site generally will need to be managed to avoid creating problems in proposed nearby Kings Forest residential areas. Water supply and sewer options will be dependent on the infrastructure capacity in the adjacent land.

7.6.4 North of Seabreeze Estate (Area 5)

This area is located south of the Koala Beach estate and north of the Seabreeze estate on the western edge of Pottsville. It is immediately adjacent to an area identified in the Far North Coast Regional Strategy (Sheet 1, page 48) as a proposed future urban release area. It is an elevated cleared area of land that provides a logical link between the two existing urban areas. A buffer is likely to be required for the western edge of this land to separate it from the adjacent sugar cane production area and a bushfire buffer is likely to be required to the eastern edge. Although this is a relatively small site it will potentially add traffic to feeder roads in both neighbouring residential areas. This will need to be managed to preserve residential amenities. Sewerage augmentation will depend on the capacity at the Hastings Point STP. If this STP cannot handle the



extra load then separate arrangements are going to have to be made. This could include a package STP.

7.6.5 West of Seabreeze Estate (Area 6)

This small triangle of land lies immediately to the west of the existing Seabreeze residential zone and is bounded by the Pottsville-Mooball Road to the south and Cudgera Creek to the west. It is unlikely to yield a significant number of residential lots but will provide a logical finish point to the residential development in this location. It is a very small area and unlikely to require any significant water, sewerage or transport upgrade. No additional road access to Cudgera Creek Road will be allowed. Traffic will be required to use existing access points.

7.6.6 Dunloe Park (Area 7)

This area is located to the west and south of the Black Rocks Estate and lies to the west of Mooball Creek. It is accessed off the Pottsville –Mooball Road and Kellehers Road. The northern part of this area is identified in the Far North Coast Regional Strategy (Sheet 1, page 48) as a proposed future urban release area. Some of the area contains patches of remnant vegetation and will be unsuitable for urban development. A major sand quarry is proposed for the southern part of this area and this may limit the urban potential of this part of the locality until this resource is exhausted. An existing quarry (Taggets) is located in the northern portion of the area but the extent of the resource in this location is not known. Access will be critical for the logical development of any of this area particularly in relation to Pottsville Road and Cudgera Creek Road and on to the Pacific Motorway to the north and through Kellehers Road to the Tweed Coast Road to the east. Access will need to work in with the proposed sand quarry and any employment lands development in this area west of Pottsville.

Given the size of this area and its proximity to a proposed employment lands area, a new STP will be required to service this development. There is insufficient capacity in the Hastings Point STP and little opportunity for augmentation.

7.6.7 Burringbar (Area 8)

Area 8 is located on the north side of the railway line along Station Street and provides an extension option to the existing strip of houses in this location. It was identified in the 1992 Residential Development Strategy as being suitable for rural residential development, but this use has not taken place. Rural residential was favoured by Council at the time because the village of Burringbar was unsewered. Provision has now been made to sewer the village. Any land that is capable for development and identified in this Strategy should be used for residential development to maximise its contribution to paying for sewerage infrastructure and consolidate the village. Upgrade of the Station Street intersection with Tweed Valley Way will be required. More recently this area was identified as having development potential in the Burringbar Scoping Study (GHD, 2005). This study identified a larger area that includes land that is now recognised as regionally significant farmland by the NSW government. Area 8



does not include any regionally significant farmland. A new STP has been agreed as a priority by Council and a site has been identified. However licensing of any treated waste disposal options will be a difficult process and reuse options will need to be examined. Any residential development is dependent on this STP proceeding.

7.6.8 Mooball (Area 9)

This area is located immediately to the south and adjacent to the existing village of Mooball. It is an elevated area that is mostly cleared and is mainly used for grazing. It has in the past and is still in part used for banana production. Some of the land may be affected by steep slopes or banana land contamination that will limit the lot yield. It was identified in the 1992 Residential Development Strategy for rural residential development, but this was before the village was to be seweraged. Now that sewerage is proposed this area should be used for urban expansion. It is also identified in the Burringbar Scoping Study (GHD, 2005) as being potentially suitable for urban development. This area has good potential to generate development that can assist in paying for the new STP that will also service existing dwellings. Dual reticulation should be canvassed as a treated water reuse option. The proposed STP for this locality may not have sufficient capacity to provide sewerage to all of the area identified and either an augmentation or a package STP will need to be investigated.

7.7 A Preferred Estimate of Supply

Based on the supply statistics outlined previously the existing residential zoned land in Tweed Shire that is not currently being used for residential development and is likely to yield residential lots in the time frame of this Strategy is estimated at 1,533 ha. (This figure is based on 436 ha of zoned land with subdivision approval plus 1,097 ha of zoned land without subdivision approval (after discounting)). Preliminary estimates of dwelling yield suggest that these lands could supply 20,210 dwellings (units and dwelling houses) and accommodate approximately 46,247 persons.

In addition to this there is an opportunity to provide further residential land from Greenfield sites. An estimate of the lot yield potential of the areas identified in this Strategy will vary from site to site, but will probably be in the range of 50% to 80% dependant on physical, infrastructure and ownership constraints. The potential yield of these areas is discussed later in this Strategy.



8. Infrastructure

It is important that new residential areas can be economically and efficiently serviced in terms of water, sewer, roads and public transport and that the cost of providing such services does not impose an unacceptable burden on existing residents.

Social infrastructure is not always within Council's control, but it needs to be considered alongside the physical infrastructure in order to match the expected population for urban areas as they grow and change demographically.

Issues relating to the servicing of the growing Tweed Shire population and proposed release areas are discussed in the following sections.

8.1 Water Supply

The Tweed River catchment is the bulk source for all town water supplies in the study area. Almost all of the town water supplies are sourced directly from Bray Park Weir and treated at Bray Park Water Treatment Plant. The exceptions to this are the township of Uki which uses the Tweed River at Uki as the source for the Uki Water Treatment Plant and the township of Tyalgum which uses the Oxley River (a tributary of the Tweed River) at Tyalgum as the source for the Tyalgum Water Treatment Plant. Average runoff rates for the catchment are very high due to a combination of steep ranges in the upper catchment and relatively short stream lengths in the lower catchment (TSC, 2006 c).

The secure yield of the Tweed water supply system has previously been assessed at 27,500 Ml/year, capable of sustaining a future population of 189,000. In December 2006, Tweed Shire Council as an interim measure revised this figure down to an estimated 13,750 Ml/year supporting a population of 94,000 at the current demand rate of 145 kilolitres per person per year. This reduction in estimated yield has been brought about by improved modelling techniques, accounting for recent drought events and allowing for release of environmental river flows.

The above assessment whilst useful as an assessment of the current status of the bulk water supply does not allow for the impacts of climate change, the need for improved supply security and improved demand/recycling management. As an example the secure yield of 13,750 Megalitres per year could be reduced by 20% to 11,000 Megalitres per year to allow for climate change and the resultant need for extra system security. Simultaneously however it is envisaged that implementation of additional demand management and recycling initiatives may reduce extraction to say 125 kilolitres per person per year. The combined impact of these two factors would produce a system yield that would sustain a population of 88,000. This is slightly less than the current estimated yield of 94,000

The current **connected** population is estimated at 73,000 (about 90% of total population), with population growth of around 40,000 expected in the next 20 years there is a need to address the shortfall in bulk water supply expected in coming years.



The shortfall will be addressed by a combination of actions which include demand management (reduction) and recycling as well as the provision of additional bulk water supply sources. These matters and others are being addressed by Council's Tweed Integrated Water Cycle Management (IWCM) process (TSC 2006 c).

Council has been proactive in attempting to secure new water supply sources. Much of the land for the proposed Byrrell Creek Dam has already been acquired and Council has commenced investigating the potential yields of both the new Byrrell Creek Dam and the potential raising of Clarrie Hall Dam. At this stage raising Clarrie Hall dam is seen as the most likely preferred option.

The IWCM process will rigorously investigate these supply options as well as the options for demand reduction and recycling to produce a balanced and integrated water supply strategy. Whilst demand reduction and recycling will buy Council some time before bulk water supply becomes critical, there is a need to act now to progress the approval process for a new water supply source. The potential system yield of an enlarged Clarrie Hall Dam or a proposed Byrrell Creek Dam will also be dependant on the environmental flow requirements of the NSW State government.

Due to the long lead time in bringing new bulk water supply sources onto line (particularly the environmental planning approval process), it is proposed to immediately commence environmental and detailed yield investigations into the raising of Clarrie Hall Dam so that once (and if) this supply strategy is confirmed, construction of the dam raising can be fast tracked. An early estimate of yield from a raised Clarrie Hall Dam is 16,000 ML/year which if achieved would equate to a population of around 110,000 persons.

Council needs to consider a water supply worst case scenario such as increased environmental flows, inadequate demand management and worst case climate change scenarios such as back to back droughts with no increase in bulk water supplies. These are significant risks. In this situation, Tweed Shire may not have enough bulk water to supply existing urban zoned lands let alone additional potential urban areas.

However, the IWCM process is under way and Council is committed to bringing new bulk water supply sources to secure water for projected population increases over the long term. There are significant financial and environmental risks in securing these additional water resources and Council is well aware that the ultimate population capacity of Tweed Shire is dependant on a successful outcome.

8.2 Sewerage Supply

The Tweed Shire wastewater system includes five major sewage treatment plants (Tweed Heads, Banora Point, Kingscliff, Hastings Point and Murwillumbah) and three minor plants. Tweed Heads, Banora Point and Kingscliff STPs require future augmentation in order to cater for predicted population increases, with Murwillumbah and Hastings Point STPs being recently upgraded (Refer to Table 8-1).

Around 7.5 gegalitres per annum of effluent is discharged to various receiving waters (the majority to the Tweed Estuary), with less than 5% of dry weather flows currently



being reused. Future effluent volumes are likely to increase to around 13 gegalitres per annum by 2019 and 19 gegalitres per annum by 2034 (TSC, 2006c).

Approximately 80% of the total Shire population is connected to reticulated sewerage and approximately 98% of the urban population are connected (TSC, 2006 c).

Table 8-1 Current and Ultimate Capacity of Tweed Shire Sewage Treatment Plants

Sewage Treatment Plants	Current Capacity (persons)	Ultimate Capacity (persons)
Uki	600	600
Tumbulgum	700	700
Mooball / Burringbar (proposed)	Zero(yet to be constructed)	620
Tyalgum	500	500
Murwillumbah	16,000	16,000
Hastings Point	16,000	18,000
Tweed Heads West / Banora Point	62,500	80,000
Kingscliff	25,000	50,000
Total	121,300	166,420
Less 10% for non residential uses	109,170	149,778

Across the Shire the trade waste volume of effluent (i.e. non residential related effluent) is about 810 ML/a from a total volume treated of 7,810 ML/a (TSC, 2006c). If a similar capacity is required in the future then this would reduce the treatment capacity available for residential development by about 10%.

Banora Point STP and Tweed Heads STP service the major urban area of Tweed Heads and surrounding suburbs. Both plants will require future augmentation in order to cater for predicted population increases. Council has also adopted an effluent disposal strategy for the plants, which will involve enhanced effluent treatment via improved nutrient levels in effluent discharged to the Terranora Inlet. The ability to augment any STP is contingent on obtaining a licence to dispose or reuse the treated water in an environmentally acceptable manner. Although significant augmentation is planned they may not happen if this cannot be achieved.

The new Kingscliff STP has just been commissioned to cater for predicted population of 25,000 equivalent persons.. Effluent quality from this plant has been significantly improved in order to more consistently achieve the EPA's effluent quality criteria for the plant and in conjunction with augmentations proposed for Tweed Heads STP and Banora Point STP, will help to improve water quality in the lower estuary.



Hastings Point STP was augmented in 2004 with a view to achieving its ultimate capacity of 18,000 persons. To date it is estimated that the real capacity of the plant is 16,000 persons. The current method of disposing treated water into the coastal dune system is not ideal and may be a limitation that cannot be overcome. Although Council is investigating opportunities for providing effluent to a nearby turf farm and/or for irrigation of local sporting fields these options are not certain. If these disposal issues cannot be overcome then this STP may not reach its projected capacity. Urban development on the lower Tweed Coast that exceeds the capacity of this STP will more than likely require a new STP and effluent disposal system.

Murwillumbah STP was upgraded in 2001, with improved quality effluent being discharged into Rous River. The new plant has dramatically reduced nutrient and bacteria loadings on the Rous River and downstream estuary. However, nutrient accumulation still occurs downstream of the STP during dry periods due to poor flushing of the river. The Condong Sugar Mill Co-generations plant will soon be commissioned. This plant will utilise the average dry weather effluent discharges from the Murwillumbah STP for cooling tower water. This will significantly reduce the nutrient loading on the Rous River.

Tumbulgum STP was commissioned in 1996 and generally has a reliable effluent quality. Some effluent is currently used to irrigate taro crops on an adjacent farm. There is a current NSW Government Approval for Turf Farm to reuse a substantial proportion of the effluent from this plant.

Tyalgum STP performance is at times unreliable. Tertiary ponds are used for disinfection of secondary treated effluent, with the effluent from tertiary ponds being used to irrigate adjacent pastures. Pastures are not currently used for grazing. Investigations have identified that the reuse area could potentially be expanded with the planting of woodlots adjacent to the existing irrigation area. During extended wet periods, the irrigation ponds overflow into Brays Creek, upstream of the Oxley River confluence.

Uki STP was commissioned in 2004, with effluent being used to irrigate nearby koala feed trees. Any overflows, resulting from extended wet periods, from the irrigation ponds would discharge into Smiths Creek and eventually the Upper Tweed River.

The Tumbulgum, Tyalgum and Uki STP's are all not affected by the outcome of this Strategy.

There are several smaller villages, including Burringbar and Mooball, which are currently not serviced by reticulated sewerage systems. Council has now made a commitment to construct a STP to service Burringbar and Mooball. A location for the STP has been chosen but the timing of its construction will be dependent on Council funding. A major hurdle with this STP will be to construct a system that produces treated water that is suitable for re-use or disposal in an environmentally responsible manner. The licensing of this STP and its disposal options presents Council with a significant challenge. It is not guaranteed at this stage that the system will have capacity to treat effluent beyond the existing population of the village areas of Burringbar and Mooball and this requires further investigation.



8.3 Transport

The Tweed Economic Growth Management Strategy 2007 – 2010 identified the following transport infrastructure issues that provide opportunities for economic growth in the Tweed:

- ▶ The planned \$3 billion to be spent of the upgrading of the Pacific Motorway (Highway) between Sydney and Brisbane. This includes the road connectivity between Queensland and New South Wales to significantly improve inter-regional and regional traffic flow between the Tweed and Gold Coast (the Tugun bypass project in particular).
- ▶ The Tweed and Gold Coast is a major entry point for non-bulk road freight from Sydney to Brisbane, with the Pacific Highway carrying over 70% of the Sydney to Brisbane traffic.
- ▶ Ready access to two of the busiest and fastest growing airports in Australia – Gold Coast and Brisbane.
- ▶ The extension of the Gold Coast Airport runway to provide the opportunity and potential for growth in airfreight and passenger capacity to international destinations.
- ▶ Retention of the Murwillumbah rail corridor alignment provides future growth opportunities particularly in the area of freight movements to and from southern states.

The main Sydney-Brisbane rail corridor passes through the western part of the Region linking the Far North Coast to the east coast passenger and freight rail network, the capital cities and major shipping ports. The South East Queensland Infrastructure Plan and Program 2007- 2026 has identified the future extension of the Gold Coast rail link to Coolangatta airport by 2026 as a major infrastructure initiative. (Queensland Department of Infrastructure, 2007). It also indicates that a public transport corridor will link Helensvale railway station to Broadbeach and Coolangatta by 2015 (Queensland Department of Infrastructure, 2007).

South East Queensland Infrastructure Plan and Program 2007- 2026 identifies the Pacific Motorway Upgrade as one of four major issues in the Gold Coast area. The Pacific Motorway is a critical link for the South East Queensland region and its use for inter-regional and intra-regional trips must be preserved. Additional lanes between Nerang and Tugun, and improved local transport connections, are essential investments.

The Pacific Motorway complements other modes of transport like the Gold Coast rail line. It links to the South East Busway and transit lanes to the north providing ease of travel to the centre of Brisbane.

The Tugun Bypass is a major road project planned for the Gold Coast / Tweed Heads Region. It extends from Stewart Road in Currumbin to the Tweed Heads Bypass just north of Kennedy Drive, passing to the west of the Gold Coast Airport. It is due for completion in mid 2008.



On the Tweed Coast the main focus is on distributor and collector roads for local traffic generated by new residential development and tourism opportunities. The Tweed Coast Road will be the main distributor road for local traffic and is being considered for upgrading to four lanes from the Chinderah roundabout to at least Casuarina and perhaps Bogangar (TSC, 2003). Consideration is also being given to a West Kingscliff east-west aligned link road; the Kings Forest Parkway to link the Kings Forest development area to Durambah Road; and maintaining the Casuarina Way as a north south link for Tweed Coast villages.

Inland, the main link is the Tweed Valley Way (old pacific highway), which provides a high speed connection between Murwillumbah and the employment lands on its outskirts (Kielvale and Wardrop Valley) with the Pacific Motorway. It also provides an adequate road link to Burringbar and Mooball and smaller villages to the south. Council has also modelled a number of options for alleviating the traffic pressure on the Murwillumbah bridge including bridge duplication (VLC, 2007).

The ultimate road network based on existing zoned land has been estimated by Council (VLC, 2007) and forms the basis of its current S. 94 contributions plan. Any significant changes to this ultimate road network as a result of the potential development areas identified in this Strategy will need to be modelled to gauge the traffic impacts.

8.4 Social

As the population of Tweed Shire expands, many more facilities will be needed. Given the nexus between the demand for additional facilities and the additional population it is reasonable that the new facilities should be funded by contributions from development as it occurs, rather than from general revenue when the need arises later. Appropriate contributions provided pursuant to Council's Section 94 plan can reduce the need for direct funding. A detailed draft Policy & Programme for Community Facilities 2000-2011 has been prepared by Tweed Shire Council separately (Tweed Shire Council, 2004).

Recently, progress has been made with the upgrading of the Les Burger Centre at Cabarita, construction of Banora Point Community Centre, and planning for expansion of the Murwillumbah Community Support Centre. The established Pottsville Beach Neighbourhood Centre has expanded by addition of a house for the CTC project, using its own resources. There is now a focus on providing improved community facilities for the Kingscliff area, and a youth facility for Pottsville. High priority facilities are included in the Strategy actions below. Council will plan, fund, construct and manage in conjunction with the community a program of facilities to meet community needs.



Table 8-2 Strategy Actions for Community Facilities: for Interaction and Self Support

Projects and Actions	Implementation	Financial Implications*	Priority
Finalise Council's Community Facilities Policy & Program, including a Sustainable Local Transport Plan and a Disability Discrimination Action Plan, to enable timely provision through a S.94 Plan Tweed Futures Priority Actions Nos. 15 & 16	SPU, E&CS	Utilise existing staff resources	2004-6
Tweed Library Strategy - implement actions in 2000 Strategy for libraries at Kings Forest and Cobaki	E&CS	Utilise existing staff resources S.94	Depends on land release programs
Tweed Open Space Strategy - implement actions in 2002 Strategy and S.94 Plan to increase local provision and develop regional facilities	RSU	Utilise existing staff resources S.94	2004-9
Banora Point Community Centre - build Centre and facilitate community based management through an Establishment Officer	CP&D E&CS	S.94 \$1.8m	2004-5
Murwillumbah Community Support Centre Expansion - consult with the community, design and build	MCSC, CP&D E&CS	TSC, HACC \$0.7m	2004-5
Kingscliff Community Support Centre, and Civic & Cultural Centre - consult with the community, design and build	CP&D E&CS	TSC	2005-6
Cobaki Community Centre – Consult with the community, design and build	CP&D E&CS	S.94 \$1.28m	Depends on land release
Casuarina Neighbourhood Centre –consult with the community, design and build	CP&D E&CS	S.94 \$0.775m	2005-6
Kings Forest Community Centre and Neighbourhood Centres – consult with the community, design and build	CP&D E&CS	S.94 \$1.944m \$1.272m	Need to review as part of Kings Forest



			planning review
Youth Centres facilitate community projects in growing urban areas	CP&D E&CS	\$0.4m Pottsville State/Federal S.94	2004-9
Goori funerals - Investigate land for	CP&D E&CS	Unknown	2005
Country Public Transport and similar infrastructure programs - Implement to develop sustainable transport	E&ODU, SPU	DIPNR NSW \$0.095m	2004-9
Implement footpath, crossing, and similar urban space pedestrian infrastructure programs	E&ODU SPU	TSC, RTA \$0.25m	2004-9
Implement Council Cycleway Plan	E&ODU	TSC, RTA \$0.575m	2004-9

Services selectively benefiting particular groups in the community help people to cope with any disadvantages and distribute social benefits more equitably.

A proportion of these services is traditionally provided by Councils, but the majority are provided directly by State and Federal Governments, indirectly through community organisations (including churches), or by private organisations. The broad categories of services cover the following purposes:

- ▶ Children, youth support, family support
- ▶ Education, health, age support
- ▶ Social, recreation, lifestyle.

Council has included its funded services in programs in the Management Plan, 2004/2007. These are monitored, and may be amended annually as part of the Budget process.

8.4.1 Service Capacity

It is likely that some of the community programs are under-funded because of the strong growth of population, and will not achieve their targets in a reasonable timescale unless supplemented. This applies both to Government funded services, which have frequently under-estimated growth rates in Tweed, and some of Council's own services. Further resourcing has to be balanced against a wide range of demands on revenue.

8.4.2 Priority Groups

The difficult decision about which groups should be prioritised can be answered by reference to the numbers; there will be more older people needing assistance than other age groups. Many older people are experienced and have accumulated resources, however, and the most neglected age group may be young people who have to contend with issues like unemployment and education expenses with little experience and few resources.

These two priorities are reflected in the 'Priority' column of the table below. The actions to engage a 'Worker to support Aged People' and a 'Youth Worker' are prioritised ahead of the other recommendations.

8.4.3 Service Coordination

Most of the funding for services comes from Government sources, but the Council often needs to take the initiative to make submissions that ensure there is a local service. In other cases, a Government service may be 'injected' into Tweed without regard for any similar, complimentary or even conflicting existing services, or the local circumstances, and Council needs to act as coordinator to integrate these with the local service structures.

Limited progress has been made towards providing the three additional community workers previously identified as priorities – for Older People, for the Aboriginal Community, and for Youth. These are serious weaknesses in the community support structure.

Some progress has been made with services at the new Community Health Centre in Kingscliff, additional funding for Community Options, more Families First programs becoming operational, planning towards improved Early Intervention facilities, and building of Multicap respite facilities in Murwillumbah.

Council will maintain and support the community services necessary to meet the needs of Tweed's growing population, prioritising services for older people and for young people.

Table 8-3 Strategy Actions for Community Facilities: for Community Groups

Projects & Actions	Implementation	Financial Implications*	Priority
Expand resources for existing community services in line with population growth, by seeking grants and additional workers	CP&D	State/Fed agencies	2004-9 for older persons
	E&CS	E&CS	
		CDSE	
Encourage investment in new services by agencies previously unrepresented in Tweed, such as Multicap or Canowindra respite for older	CP&D	E&CS	2004-9 for young and older persons
	E&CS	community fund raising/volunteers	
	community/church organisations		



people, or church youth and community programmes	State/Fed agencies		
Worker to support Aged People within TSC - seek funding for (separate from disability)	CP&D E&CS	HACC	2005-6 for older pers, Ab'l comm.
ATSI Worker within TSC, and seek funding for projects, including action to conserve Aboriginal heritage	CP&D E&CS	Government sources	2006-7 for Ab'l community, women
Participate in the Families First Program , to maximise early intervention services for young families	Premiers Dept Regional Coordinator CP&D	Premier's Dept. \$0.787m over 3 years	2004-9 for children, women, Ab'l comm.
Collaborate with the Family Centre in Tweed Men's Project , to establish a Men's Resource Centre and maintain support for men and families in Tweed	CP&D Family Centre	Federal – FACS Dept \$0.19m	2004-9 for men, women, families
Support efforts to prevent violence against women , including staff training and promotional programs to increase public safety and social support opportunities for women	CP&D TS Women's Service Lifeline Comm. Health Police Service	Safer Communities Funding TSC	2004-9 for women, children
Expand early intervention services for young children with a disability , and improve facilities	CP&D E&CS	State (Dept. of Ageing, Disability & Home Care) CDSE	2004-9 for children
Youth Worker to increase Young People's support services and information , by facilitating community based projects and activities.	YDO Family Centre Lifeline	TSC, State Gov't \$0.055m p.a.	2005-6 for youth, women
HIV /AIDS specialist service for Tweed – seek funding for	CP&D E&CS	State/Federal agencies	2004-9
Anti-homophobia projects - programs to provide support, and avoid discrimination on the basis of sexual preferences	ACON CP&D HR Unit	Area Assistance Scheme \$0.032m	2004-9

8.4.4 Priority Facilities Post 2007

In its study of facilities and services and the future demand from population growth, SGS (2007) found that the Tweed Heads urban catchment had a projected need for 16 additional facilities, the Tweed Coast had a need for 19 additional facilities and the rural areas had adequate capacity. This is shown in more detail in Table 8-4.

Table 8-4 Indicative Community Facility Infrastructure Required Post 2007

Level	Facility	Benchmark for provision (# per population)	No. of Needs Urban	No. of Needs Coastal	No. of Needs Rural
Local	Community Meeting Room/Multi purpose hall	1:6-10,000	3	2	0
	Childcare centre	1:4-8,000	1	4	0
	Preschool	1:7,500-10,000	2	2	0
	Primary School	1:4,500-5,000	1	0	0
District	Multi purpose Community Centre / Civic Centre	1:20-30,000	1	1	0
	High School	1:14,000-18,000	0	1	0
	Youth Facility	1:20,000	1	1	0
	Branch Library	1:15,000-30,000	1	1	0
	Aged Care Service / Respite Centre	1:10-20,000	2	2	0
	Neighbourhood Centre	1:20-30,000	1	1	0
	Community Health Centre	1:20-30,000	1	1	0
	Police	1:20-30,000	1	1	0
	Fire & Rescue	1:25,000	0	0	0
	Ambulance	1:25,000	0	1	0
	State Emergency Service (SES)	1:25,000	0	1	0
Whole of Shire	Art Gallery	1:30-150,000	0	0	0
	Museum	1:30-120,000	0	0	0
	Performing Arts / Exhibition / Convention Centre	1:50-200,000	1	0	0



Level	Facility	Benchmark for provision (# per population)	No. of Needs Urban	No. of Needs Coastal	No. of Needs Rural
	Hospital – Public	2.6 beds/1,000 people	0	0	0
	TAFE District Facility	1:150,000	0	0	0
	University	1:150-200,000	0	0	0
	Cemetery	1:50-200,000	0	0	0
	TOTAL		16	19	0

Source: SGS Economics and Planning, 2007



9. Environmental Constraints and Opportunities and Land Suitability

9.1 Introduction

The Tweed Urban Land Release Strategy has identified a number of environmental constraints and opportunities applicable to land in the Tweed Shire.

9.2 Flood Liable land

Flood liable land presents a constraint to development as it has implications with regard to the provision and cost of infrastructure, roads and services located within floodplains. In high hazard situations it presents a threat to life and property. Filling of flood areas (not high hazard) is possible in some situations but needs careful assessment to avoid causing problems elsewhere.

Flooding is a major constraint for urban land in the Tweed Shire. Figure 2 illustrates the areas of flood prone land in the Shire, located along the Tweed River from Tweed Heads to Murwillumbah. There are also floodprone areas along the Tweed Coast and Council is currently undertaking work to identify the extent of this constraint. The Tweed Coast data was not available at the time of preparing this Strategy.

9.3 Topography

Slope is a significant factor influencing soil erosion, drainage and bushfire hazard. It also has implications with regard to the provision and cost of infrastructure, roads and services. Slope is a major constraint for urban land in the Tweed Shire. Figure 3 illustrates the extent of steeply sloping land in Tweed Shire particularly around the volcanic features of the Border Ranges and Mt Warning.

9.4 Vegetation Management

Wetlands (SEPP 14)

The aim of SEPP 14 is to ensure coastal wetlands are preserved and protected for environmental and economic reasons. These areas have been identified and protected since 1985.

SEPP 14 Wetlands are associated with the lower floodplain and estuary of the Tweed River and the estuaries on the Tweed Coast, particularly surrounding Cobaki and Terranora, Broadwater, Cudgen Lake and Pottsville. Refer to Figure 4.

Littoral Rainforest (SEPP 26)

SEPP 26 aims to provide a mechanism for the assessment of development proposals that are likely to damage or destroy littoral rainforest areas. It has protected littoral rainforest since 1988.



Figure 4 shows there are very small areas of SEPP 26 littoral rainforest located sporadically along the Tweed coast from Wooyung to Tweed Heads.

Threatened Species and Vegetation Management

There are a number of vegetation communities present within the Tweed Shire that have the potential to pose constraints to urban development.

Koala Habitat

As shown in Figure 5, known koala habitat is located primarily in the eastern half of the Shire, particularly along the coast near Bogangar and Hastings Point and inland near Fernvale and Burringbar. However, the data on this constraint is limited by the extent of the original koala study which was confined to the eastern half of the Shire.

Vegetation Management Categories

Kingston et al, (2004) undertook a major vegetation study which identified high conservation value vegetation and ecologically sensitive vegetation throughout the Shire (Figure 4). The vegetation of value is spread throughout the Shire with the exception of areas that have been subject to intensive agricultural production such as sugar cane areas and grazing areas.

9.5 Acid Sulfate Soils (ASS)

ASS commonly occurs on coastal floodplains below 5 m AHD. The Tweed Shire is no exception with ASS occurring along the majority of the eastern part of Tweed Shire. ASS also occurs inland following the Tweed River towards Murwillumbah (Figure 6). ASS can be effectively treated, depending on how severe the problem is.

9.6 Groundwater

A high water table in combination with certain soil types can have implications for foundation design and road and drainage construction. Further geotechnical investigations would be required to ascertain the implications for development in locations where groundwater and reactive soil types are likely to be present.

Figure 7 shows the spread of high groundwater vulnerability in the Tweed Shire. These areas generally follow the Tweed River and also tributaries in the western part of the Shire.

9.7 Agricultural Land

In 2004 the State Government adopted a position that land identified in its Farmland Protection Project as either State Significant or Regionally Significant should not be regarded as being available for urban or rural residential use unless it had already been identified for such a purpose in an agreed strategy.

Figure 8, shows that State Significant or Regionally Significant Farmland is located between Tumbulgum and Murwillumbah along the Tweed River and following tributaries towards Tyalgum. Additionally there are scattered areas near Burringbar,



west of Bogangar and Pottsville Beach, and west of Tweed Heads again primarily following tributaries. There are also the highly significant red soil areas of Cudgen and Duranbah and in the vicinity of Terranora and Bilambil.

9.8 Bushfire Hazard

In planning development in rural areas or on the fringes of urban areas it is necessary to take into account the potential threat from bushfire. Bushfire hazard can be a major development constraint given the likelihood for extreme fire events periodically. The slope of the land, aspect and the vegetation types present, determines the level of bushfire hazard.

Figure 9 shows that bushfire hazard affects a large portion of Tweed Shire. The main hazard areas occur in the west, south-west and northwest of the Shire. Additionally, there are scattered areas within or near Fernvale, Burringbar and west of Bogangar.

9.9 Land Susceptible to Climate Change

Climate change affects all land in one way or another through impacts on weather patterns, storm frequency and severity, flooding behaviour, reliability of water supply and rising sea levels. However, it is low lying areas that are affected directly by any changes to sea level and any increases in flood depth should they occur. For the purposes of this study, areas below 5 metres above sea level and between 5 and 10 metres above sea level have been identified as a way of visually gauging one of the potentially direct impacts of climate change. It should be noted that a 5 metre rise in sea level has not been predicted and is used in this study to illustrate the extent of low lying areas.

As can be seen in Figure 10 a considerable part of the Tweed Shire is below 5 metres above sea level including the entire Tweed River valley, the areas around the Cobaki and Terranora Broadwater and the areas in the vicinity of the Tweed Coastal creeks floodplains. Considerable parts of the existing urban areas are below this level.

9.10 Contaminated Lands

Portions of the Tweed Shire have been identified as potentially contaminated land due to the former use or current use of the land for banana cultivation. Cattle tick dip sites, are also scattered throughout the Tweed Valley and Tweed Coast and these are subject to a 200m radius of land suspected of contamination.

Figure 11 shows a fairly even spread of cattle tick dip sites across the Shire and banana lands are sparsely located throughout the Shire particularly near Burringbar and north of Uki.

9.11 Biting Midges and Mosquitoes

Some areas of Tweed Shire are potentially affected by biting midges and mosquitoes, which may pose issues for urban development.



The main areas of biting midges and mosquitoes occur within the northeast portion of the Shire, surrounding Terranora Broadwater, Cobaki Broadwater and at small sections along the Tweed River (Figure 11). Council has a DCP to address this issue and it can be managed with varying degrees of success.

9.12 Garbage Tips and Sewage Treatment Works

Garbage Depots and Sewage Treatment Works exist within Tweed Shire. These facilities and areas should be regarded as contaminated sites.

Figure 11 shows the small area affected by Garbage Tips and/or Sewage Treatment Works at Stotts Island, which is located between Murwillumbah and Tweed Heads. A waste transfer facility and tip is also located in the Murwillumbah industrial estate off Wardrop Valley Road.

9.13 Extractive Industries

Extractive industries should be protected from encroachment by incompatible land uses (including urban development) until the resource has been exhausted. In the Tweed Shire these include both hard rock and sand resources.

There are scattered areas of extractive industries primarily in the eastern half of the Shire. Refer to Figure 11.

9.14 Airport Noise

The Gold Coast airport is located at the northern edge of the Tweed Shire and has recently been expanded and upgraded. As can be seen in Figure 12, airport noise affects the north eastern section of the Shire, in close proximity to Tweed Heads. This includes some areas that are already zoned for a range of urban uses.

9.15 National Parks, Nature Reserves and State Forests

Tweed Shire has three National Parks (or part there of) and numerous Nature Reserves (Figure 13). These are largely focussed on the Caldera of the Tweed Valley, Mt Warning itself and some smaller areas scattered along the coast.

9.16 Land Suitability Analysis

Using this information on constraints and opportunities a land suitability analysis was undertaken for Tweed Shire. The methodology used in this Strategy aims to identify and evaluate a range of constraints, which will impact upon the ability of the Shire to accommodate further residential and industrial development.

The identification of a sound methodology will also enable the community and landowners to better understand the process of planning, site selection and development.



Ultimately, the application of a sound methodology will help the development industry to invest in and develop appropriate sites within Tweed Shire that best serve the needs of the local and regional community and economy.

Appendix B outlines the methodology in detail and how environmental constraints were ranked and examined.

DRAFT ONLY*



10. Balancing Demand and Supply of Land and Dwellings

10.1 A Time Frame

One of the key aspects of this Strategy is to bring together current estimates of supply and predicted estimates of demand for residential land and dwellings. Normally this is done using a range of time periods (short, medium and long term) in order to assess how supply will diminish over time (based on demand assumptions). This gives Council an opportunity to replenish supply through the rezoning of greenfield sites and to assess development densities and yields to see if they are meeting expectations.

After discussions with Tweed planners, it is suggested that the time frame for assessing the balance of supply with demand should be:

- ▶ 0-10 years (Short term)
- ▶ 10-20 years (medium term)
- ▶ 20 years plus (long term)

Urban land has a long lead time between initial identification within a strategy and then ultimately being rezoned to allow development, having a development application approved, and then having lots released onto the market. This 'pipeline' period is assumed to be six years from initiating a rezoning process to release of lots on to the market. This is consistent with other north coast Councils (Lismore City, 2003).

As previously stated, it is Council's intention to keep a stock of approximately 25 years supply of zoned land available to ensure there is a reasonable opportunity for a constant supply of residential land to the market from a range of locations.

10.2 A Residential Land Balance Sheet

A residential land balance sheet allows Council to estimate how the supply of residential zoned land will be used up over time given certain demand assumptions. This allows Council to take action at the appropriate time to assure the long term supply of land to the market.

The residential land balance sheet in Table 10-1 is based on the discounted estimate of zoned residential land in this report (1, 533 ha) and the adopted estimate of demand for land up until 2031, assumed to be a constant annual consumption of 56.5 ha per year. Although the assumption of constant demand is simplistic it provides an opportunity to assess how land stock is likely to diminish over time.

If Council wants to maintain a 25 year supply (approximately) of residential zoned land then it will need to commence the process of replenishing land stocks through the rezoning process by 2011.



Table 10-1 Residential Land Balance Sheet 2006 - 2031

Time frame	Residential Land Stock at start of period (ha)	Estimate of Demand over period (ha)	Residential Land Stock at end of period (ha)	Estimate of Years of Supply Remaining at end of period
2006-2011	1,533	282.5	1,250.5	22
2011-2016	1,250.5	282.5	968	17
2016-2021	968	282.5	685.5	12
2021-2026	685.5	282.5	403	7
2026-2031	403	282.5	120.5	2



11. Major Directions for Urban Land Development

Tweed Shire is at a significant cross roads in its long term planning for urban land development. In particular, it is facing continued pressure from increasing population, an ageing population living in reduced household sizes, increasing attraction for redevelopment of its coastal villages and a narrowing of its economic base.

Council has put itself in a relatively good position in relation to water and sewerage capacity through long term planning and past investment. However with climate change and uncertainty about environmental flows and treated water disposal options, future capacity is never completely certain. There are problems emerging in relation to transport as the links to South East Queensland are improved and traffic volumes increase from existing zoned areas. The NSW government has yet to make definite commitments to public transport upgrades to link in with the Queensland initiatives. Affordable housing is also emerging as a major issue in the Tweed as land prices reflect the attractiveness of the location to the “sea changers” on the east coast of Australia and land options for South East Queensland are used up.

While some of these issues are Council’s responsibility, the State and Federal governments and the private sector and community organisations have to play their roles in funding and co-ordination of transport, social and community infrastructure in particular.

Council could take a range of planning approaches or a combination of planning approaches to deal with growth and change over the next 25 years. A number of these are briefly outlined as follows.

11.1 Rely on Existing Zoned Areas

This option would see Council not rezone any more land for residential development over the life of the Strategy (till 2031) relying on existing zoned land to meet the demands of the market. It is really a “do nothing “ approach to strategic planning. Given the amount of land that Council has already zoned and the predicted growth rates, it is an option that would have some advantages. These would include allowing Council to concentrate on servicing the existing established areas and current zoned lands with infrastructure and social services; allow Council to focus on urban design issues; and allow Council to review existing planning controls (particularly DCP’s) to better address local issues. It may also lead to better use of existing zoned areas as the market responds to a limited number of options to house a growing population.

However, it would create a situation where five major sites dominate the long term supply of residential land to the market (West Kingscliff, Cobaki Lakes, Kings Forest, Bilambil Heights and Area ‘E’). None of these sites are currently producing significant amounts of residential land and the lead times to achieve this are always uncertain. The perception of restricting (or not providing for) the long term market may put upward pressure on land prices. If some of these large sites don’t proceed then there will be no identified large scale alternatives.



As outlined in the housing balance sheet in this Strategy, this option would see land stocks run down over time with land supplies being exhausted in about 2033. As this date is approached it can be expected that there will be significant increase in the cost of housing and shortages in the rental housing market.

11.2 Rely on Existing Zoned Areas and Increase the Residential Yields from Rural Residential Areas

This option would see Council maintain the existing residential zoned lands and in addition to that rezone any existing rural residential areas that are capable of being serviced with urban services such as reticulated water and sewerage to assist with meeting the demands of the market.

In undertaking the land suitability analysis for this Strategy, it became apparent that a number of sites that are physically suitable for residential development have already been used for rural residential lots at yields of around one lot per hectare. Landowners from two rural residential areas participated in stakeholder consultation to support this option. The option is based on the premise that these areas are often physically suitable; are wide spread throughout the Tweed; are not currently required for agriculture or other rural uses; in some cases can be serviced; and are technically large lot residential areas at the moment. The advantages of this option are that it would make better use of this already “developed” land; allow a greater number of landowners to benefit financially from the land development process; assist with the provision of affordable housing to some groups such as family members; and provide a different option to the new residential areas or redeveloped higher density urban areas.

However, it is unlikely to result in significant yields as the fragmented nature of the land will limit the number of lots that can result from any one subdivision; the large number of landowners will produce a patchy response and subsequently a poor urban layout; the difficulty in servicing areas with water and sewer will result in Council taking on holding costs in order to allow some lots to be created; there will be neighbourhood resistance from landowners protecting their “lifestyle lots”; and the community may react to the change in the rural landscape as dwelling numbers increase. It is an option that would not extend the life of existing land stocks by any significant amount of time.

11.3 Rely on Existing Zoned Areas and Increase the Density of Development in Key Urban Areas

This option would see Council maintain the existing residential zoned lands subject to a review of residential density in key urban areas such as Tweed Heads Town Centre, Murwillumbah and Kingscliff through a process of locality planning. This would likely involve increasing the height limits in these areas to accommodate the additional expected population. The advantages of this option would be that it could be used as a tool to revitalise these centres (especially Tweed Heads) and bring investment into these areas that can also contribute to public infrastructure. It would also increase the likelihood of these centres achieving higher order social and infrastructure services (eg health and education) commensurate with the larger population. Given the existing



level of unit production in Tweed Shire is around 35% of new dwellings there is scope to increase this to the 40% target suggested by the State government in the Far North Coast Regional Strategy.

However, higher densities often lead to increased social issues (this would need to be carefully monitored) and would change the social fabric of these areas as they evolve and grow. It would also have immediate visual impacts as taller buildings appear and the urban form changes. Traffic and public transport issues will increase in importance as density increases and congestion problems occur.

11.4 Rely on Existing Zoned Areas and Delay the Release of Greenfield Sites

This option would see Council maintain the existing residential zoned lands and densities and effectively take a “wait and see” approach to Greenfield sites over the next (say) 10 years. The sites would still be identified, but no action would be taken to bring any of them towards development over that period. The advantages and disadvantages of this approach would be the same for the first ten years as for the option to just rely on existing zoned areas. After that Council would need to redirect its resources to commence the planning process on the Greenfield sites. This option would require careful monitoring to ensure that the supply of land to the market was not being limited to the point that land prices became overly inflated. Based on the housing balance sheet in this report, this option would see residential land stock come down to about 17 years supply. At this point Council would definitely need to review its position and commence the process of rezoning additional land for residential development.

11.5 Rely on Existing Zoned Areas and Identify and Release Greenfield Sites

This option would see Council maintain the existing residential zoned lands and densities but also adopt a short, medium and long term approach to potential Greenfield release areas. Given that some of the potential Greenfield sites are not specifically identified in the Far North Coast Regional Strategy, it would be appropriate that the Far North Coast Regional Strategy be amended (in due course) with a view to Council’s additional potential release areas being recognised.

This option recognises that Tweed wants to take a supply based approach to long term urban planning and not be restricted by the current levels of demand for residential land. The advantages of this approach is that there could be no perception that the long term residential market is constrained; it would allow a variety of landowners to look at supplying the market with residential land over a range of time periods; it would encourage existing zoned areas to be developed before the “competition” was brought on line; and it would allow for the long term service planning for water supply, sewerage and transport (in particular) where long lead times and large infrastructure costs need planning over several decades.



The disadvantages of this option is that it may spread Council resources thinly between planning for existing zoned areas and the potential areas; it may raise expectations of development for land in the short term when that land is earmarked for much longer term development; and it may create an impression that Tweed is over supplied with urban land options.

It should be noted that the short, medium and long time frames means that most of this land would not be zoned for urban development up front. However, it may need to be identified in a Local Environmental Plan as an investigation area so it is not under pressure for uses that are inconsistent with its potential future urban use.

11.6 A Preferred Direction

One of the most important things this Strategy can do is give long term guidance to growth and change in Tweed Shire. A strategy based solely on existing zoned areas is unlikely to provide this even in the situation in Tweed Shire where a lot of land is already zoned for development. The 1992 Residential Development Strategy has provided Council planners with a tool to deal with pressure for rezonings and provided Council engineers with a tool to plan for services and infrastructure. This Strategy will need to look beyond zoned areas if it is to be used in the same way.

Although all of the above options have merit the preferred option is to rely on existing zoned areas and identify and release Greenfield sites in the short, medium and long term.

Council should also consider reviewing the density of key urban areas in order to ensure a variety of housing forms, and to revitalise its urban centres and provide for good urban design outcomes. Any density increases will also supply additional dwellings to the residential land market.



12. An Urban Centres Hierarchy and Urban Land Release Program

12.1 Urban Centres Hierarchy

In preparing its metropolitan strategy for Sydney the NSW Government has published work on the role and definition of urban centres (Dept of Planning, 2005). Much of the centres definition work in this Strategy is based on that structure. This is consistent with the Urban Centre Hierarchy outlined for the Kingscliff coast in the Tweed Coast Strategy (DCP 2007, section B9). It is also largely consistent with the urban centres hierarchy contained in the Far North Coast Regional Strategy (Dept of Planning, 2006). However, in light of the findings of this Strategy it is suggested that the Far North Coast Regional Strategy may need to be reviewed to recognise this more recent work.

12.1.1 Centre Types

Defining the different centre types helps to guide planning and development in the different places in which we live and work. We need a common language to be able to talk about places as they are and what they might become. For example, a Village may evolve to become a District Town Centre in the future.

The key differences between centre types are the density of residential development, the amount of employment and the amount and type of retail and services that are provided in a centre. These are not hard and fast definitions and are not intended to be used to 'standardise' different places. Some centres have more employment, less residential or other differences. The numbers of dwellings and commercial and retail elements is a function of development and redevelopment over a number of decades. Therefore these attributes do not necessarily fit with existing centres in newer, outer or less dense places. The role of centres is the most reliable and constant feature across the Tweed Shire and surrounds.

Table 12-1 Urban Centres Hierarchy

Regional Cities

Regional Cities will offer a full range of business, government, cultural, entertainment and recreational activities, taking advantage of their location as a focal point for regional transport and providing jobs closer to home for people living in their catchment. These Regional Cities will also develop stronger mixed use villages around the centres to provide space for supporting activities

The nearest regional city is the Gold Coast City.

- ▶ Important role as major employment centre—major health (teaching hospital) and education facilities (university/TAFE) are commonly located in or on the fringe.
- ▶ Planning instruments for each centre emphasise the importance of core commercial areas to support forecast employment growth.
- ▶ Major administrative, retail, government, business, cultural, entertainment, recreational, community and transport focus for large, ~~existing settlement areas~~

and residential communities.

A commercial core is recommended for the most accessible part of the centre, without a residential component. The Regional Cities aim to provide a focal point for high quality jobs in the region, and current trends suggest a high proportion of residential uses within the core may adversely affect the continued development of a commercial office market. The commercial core should provide capacity for growth and change in commercial and retail uses.

Mixed use zoning is recommended for areas surrounding the commercial core, to cater for a range of support services and activities. A significant proportion of residential development in this area adjacent to the commercial core may be a catalyst for revitalising the central areas of a Regional City, including waterfront redevelopment with river/parkland or ocean views.

Major Regional Centres

Major Regional Centres are the main shopping and business centre for a district, usually with a full scale shopping mall, council offices, taller office and residential buildings, and central community facilities, with over 8,000 jobs defining these centres. Large firms are increasingly choosing to locate in, or split operations and employment among decentralised locations. Tweed Heads City Centre has an opportunity to capture some of this demand for office space.

growing catchment areas.

- ▶ Typical dwelling range 35,000–50,000.
- ▶ Typical population range is 500,000 plus.
- ▶ Accommodates a growing residential population in non–core areas.
- ▶ Focal point for regional and local public transport networks.
- ▶ Major collection of sporting assets and regional parkland.
- ▶ Focus for social and community cultural development policies and facilities.
- ▶ Requires significant investment from government and private organisations.
- ▶ Governing bodies: State and local government.

Tweed Heads is the Major Regional Centre for Tweed Shire.

- ▶ A minimum of 8,000 jobs are located in these centres, by 2031 they will generally contain over 10,000 jobs.
- ▶ The main shopping and business centre for a subregion, with a full scale shopping mall, council offices, regional education and health facilities, taller office and residential buildings and central community facilities.
- ▶ Typical dwelling range 9,000—28,000.
- ▶ Typical population range is 20,000 to 60,000
- ▶ Residential units will be focussed in the Tweed Heads Town Centre with a minimum of 40 % of all new dwellings to be units. Unit density will decrease radiating out from this centre but with

Increasingly Major Regional Centres are dominated by large retail malls which are typically owned by financial institutions often backed by superannuation funds. The nature of the funds management industry means these significant assets will regularly seek to expand and refurbish, to ensure returns to shareholders. Long-term planning for Major Centres needs to understand this cycle, and plan to achieve the best outcomes for the whole centre, surrounding activities and streets if these malls expand.

Major Regional Centres should retain a commercial core zone, able to accommodate projected commercial office space and other retail uses. Capacity should be maintained for some commercial office growth in the long-term. Mixed Use Zones should be located around the commercial core, and this may be a significant proportion of the centre. Residential components of a mixed use building can form an important element in revitalising the major centres and provide more housing choices for the area.

District Town Centres

A District Town Centre is a larger group of shops and services generally with one or two supermarkets, sometimes a small shopping mall, a variety of specialist shops, community facilities such as a local library, and a medical centre. They are a focus for a large residential population and must strive for a highly liveable atmosphere.

District Town Centres need to balance activities including

a target of 30% overall for Tweed Heads, Tweed Heads South and West Tweed Heads.

- ▶ Commercial core is located on a heavy or light rail network, serviced by strategic bus corridors and local bus networks.
- ▶ Major Centres provide employment close to public transport which helps minimise the negative environmental impact of private vehicle use.
- ▶ Accessible to significant parklands, a civic square, cinemas and sporting facilities.
- ▶ Governing bodies: State and local government.

District Town Centres include Murwillumbah, Kingscliff and Banora Point

- ▶ Large group of more than 50 retail and other services with one or two supermarkets, sometimes a small shopping mall.
- ▶ More a medium or high density residential origin location than employment destination.
- ▶ Have some community facilities, specialist medical care, schools and restaurants.
- ▶ Typical dwelling range 5,000–9,000.
- ▶ Typical population range is 10,000 to 20,000

customer parking, service vehicles and through-traffic whilst making a pleasant residential and pedestrian environment. They also have to integrate malls/large stores into the main outdoor centre.

- ▶ Medium and high density housing mixed within the commercial centre and within walking distance of shops, services and transport. Between 20% and 40% of dwellings will be units.
- ▶ Strategic bus and local bus networks.
- ▶ Need to balance parking, service vehicles and through-traffic with making a pleasant residential and pedestrian environment.
- ▶ Town square, main street, library, sports facilities, reasonable access to parkland.
- ▶ Governance body: local government.

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Villages

A Village is a small group of shops for daily shopping which typically includes a small supermarket or general store, butcher, hairdresser, restaurants and take away food shops. Villages also need to develop an enjoyable public environment with a mix of uses and good physical links with the surrounding area.

Villages include Bilambil, Chinderah, Bogangar, Casuarina and Pottsville.

By 2031, Cobaki Lakes, Kings Forest and Kielvale will also be villages.

- ▶ 10–50 retail spaces.
- ▶ May include a butcher, bank, hairdresser, café, restaurants and take-away food and a supermarket.
- ▶ Child care centres, schools and other compatible activities in the immediate vicinity.
- ▶ Strip of shops and residential area within a 5–10 minute walk serving daily shopping needs.
- ▶ Typical dwelling range 750 – 5,000
- ▶ Typical population range is 2,000 to 10,000
- ▶ Medium density housing in and around the main streets and neighbourhood business area, including shop top housing. Between 20% and 40% of dwellings will be units.
- ▶ Strategic bus and local bus services.
- ▶ Villages need to develop an enjoyable public environment with a mix of uses and good physical links with the surrounding neighbourhood.
- ▶ Villages need to manage air quality and amenity by locating a block away from very busy roads/ enterprise corridors.
- ▶ Access to a local park, may have a market which shares space in school grounds out of school hours.
- ▶ Governance body: local government.

Small Villages

A Small Village is a cluster of shops for daily shopping. It has more shops than a Neighbourhood Centre but does not have a supermarket. Small villages and other small local centres are serviced with bus stops, schools and small parks.

Small villages include Hastings Point, Uki, Fingal, Tyalgum, Terranora, Cudgen, Mooball, Burringbar, Condong, Tumbulgum.

By 2031, Tanglewood and Kunghur (Nightcap) will also be small villages.

- ▶ 1–15 shops and services.
- ▶ Similar to village only smaller and without a supermarket.
- ▶ A small strip of shops and surrounding residential area within a 5 to 10 minute walk serving daily shopping needs.
- ▶ Typical dwelling range 50 - 750.
- ▶ Typical population range is 500 to 2000
- ▶ Medium density housing, including shop-top dwellings in and around the main street. Less than 10% of dwellings will be units.
- ▶ Local bus network.
- ▶ Access to pocket parks or small urban outdoor space.
- ▶ Governance body: local government.

12.2 Population and Dwelling Targets for Urban Areas

Using this urban centres hierarchy (Table 12-1) the Strategy identifies population and dwelling targets for the different size urban areas within Tweed Shire. This enables the residential density controls and urban design controls to be set by Council at the right level to achieve the sort of built environment that the community wants. Targets are not fixed or absolute and are usually presented as a range to indicate the size a centre will grow to over time. Clearly Council can't make development happen, but in a growing community it is Council's role to guide development to achieve sustainable urban environments that are good places to live, work and play. Targets are also very important in long term infrastructure planning such as water, sewerage and transport.

12.3 The Urban Land Release Program

The purpose of the urban land release program is to guide the location of future urban development over the life of the Strategy. It includes a time frame of short (0-10 years), medium (10-20 years) and long term (20 years plus) to give an idea when this land should be considered for rezoning. These time frames refer to the period in which rezoning should commence if the land is to supply lots to the market at a future date. It



is assumed that land takes up to six years to reach the market from commencement of the rezoning process.

Table 12-2 outlines each of the potential urban areas and provides an indication of when the rezoning process will need to be considered if these areas are to supply residential land to the market at the appropriate time.

Table 12-2 Tweed Shire Urban Land Release Program

Potential Urban Locality	Gross Area (ha)	Net Area (ha)	Approximate Years supply (@ 56.5 ha per nt of rezoning yr shire wide demand)	Timing for commencement	Comment
East Kielvale (Area 1)	370	185	3.3	Long Term	Assumes only 50% of land will yield lots due to agricultural use and vegetation buffers
West Murwillumbah (Area 2)	73	51	0.9	Medium Term	Assumes only 70% of land will yield lots due to vegetation buffers and non residential uses
West Murwillumbah (Area 3)	13	10	0.18	Medium Term	Assumes 80% of land will yield lots.
West Kings Forest (Area 4)	214	107	1.9	Long Term	Assumes only 50% of land will yield lots due to agricultural use and vegetation buffers
North Sea Breeze (Area 5)	27	22	0.4	Short Term	Assumes 80% of land will yield lots.
West Sea Breeze (Area 6)	3	2.5	0.04	Short Term	Assumes only 80% of land will yield lots as an extension to



Potential Urban Locality	Gross Area (ha)	Net Area (ha)	Approximate Years supply (@ 56.5 ha per yr shire wide demand)	Timing for commencement of rezoning	Comment
					existing urban area
Dunloe Park (Area 7)	224	157	2.8	Short Term	Assumes only 70% of land will yield lots due to vegetation buffers and non residential uses
Burringbar (Area 8)	11	5.5	0.09	Medium Term	Assumes 50% will yield lots due to bushfire and rail buffers
Mooball (Area 9)	46	37	0.65	Short Term	Assumes 80% of land will yield lots

Collectively this land release program identifies 218 ha (net) or approximately 3.9 years supply of land for the Short Term, 66 ha or 1.2 years supply for the Medium Term and 292 ha or 5.2 years supply for the Long Term. The distribution of land areas across the time frames reflects the large areas of land in Tweed Shire that are already zoned for residential purposes.

Ideally a strategy should be reviewed every five to seven years to check whether areas were developed as expected and to assess any changes in demand or services and infrastructure. If needed, areas can be brought forward if development exceeds expectation or other areas are withheld from supply. If development falls short of expectation then some areas can be deferred to a later time frame.

The strategy includes areas that have been identified in the land suitability analysis as having ecological and physical characteristics that may make it suitable for urban development. Areas less than 2km from an existing residential zone were also given preference over isolated lands. The strategy also considers the need to provide land in a range of locations in the Shire, particularly west of the Pacific Highway to meet the requirement of the Department of Planning that a greater proportion of new development take place away from the coast.

This process is not exhaustive and is limited by the amount and quantity of available data and issues of scale. In most cases cadastre has not been a major influence, so some properties are partly identified in the strategy and partly not. In these cases the entire property should be considered in any detailed analysis to ensure that the best land is ultimately identified for future urban use.



Readers of this strategy are also cautioned that this document has not been prepared for anyone as a basis for investment or other private decision making in relation to land purchases, sales or other land uses. Council recommends that it not be used by anyone in this way.

Refer to Figure 14 to Figure 17 for the areas identified in the urban land release program as being potentially suitable for residential development.

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13. Strategy Evaluation, Implementation and Review

13.1 Strategy Evaluation

It is useful to evaluate this urban release strategy against the settlement planning principles in the State government's Settlement Planning Guidelines (Department of Planning, 2007). The headings that follow are taken from Chapter 3 of that document.

13.1.1 Location

The potential urban release lands nominated in this Strategy are predominantly within the growth areas nominated in the Far North Coast Regional Strategy. In cases where there is variation in the boundaries to these areas this is because of the better quality land use suitability information available to Council. All nominated areas build on existing zoned urban areas.

Where this Strategy nominates an area outside of the growth areas identified in the Far North Coast Regional Strategy they are either:

- ▶ areas identified in Councils 1992 Residential Development Strategy for either urban or rural residential development, or
- ▶ areas that will have minimal environmental impact and will satisfy the sustainability criteria in the Far North Coast Regional Strategy.

13.1.2 Land Suitability

Based on the best available information a land use suitability analysis was undertaken to ensure any areas nominated in this Strategy are predominantly located on land that is suitable for urban use.

Significantly, the areas nominated in this strategy avoid the State and regional farmland mapped by the Department of Planning, avoid the 1% floodplain, are located above areas likely to be affected by long term predicted sea level rise, avoid lands that contain high biodiversity, are not affected by high bushfire hazard and are not excessively steep lands.

13.1.3 Land Release

The potential urban release lands nominated in this Strategy are considered in a short, medium and long term land release program based on a 0-10 year, 10-20 year and 20+ year time frame.

This Strategy recognises the large existing supply of zoned land located predominantly at Kings Forest, Cobaki Lakes, Bilambil Heights, Area E and West Kingscliff and the role that these lands will play in supplying the residential needs of the Tweed over the next 10 years in particular.

This Strategy also examines existing dwelling density and emphasises the need to maintain at least a 40% multi unit housing in the dwelling mix for Tweed Shire.

13.1.4 Settlement Form and Hierarchy

This Strategy builds on existing hierarchies of settlement identified in the Far North Coast Regional Strategy as well as Council's own strategic work and comes up with an urban centres hierarchy from regional cities down to small villages. This includes typical dwelling and population ranges as well as commercial and employment characteristics of the centres.

13.1.5 Urban Design and Heritage

Council has already embarked on a program of preparing locality based DCP's and design guidelines to recognise and protect the local and regional attributes that contribute to centres such as Tweed Heads, Kingscliff and Pottsville and Murwillumbah. This Strategy has been prepared with this in mind, but does not specifically contain design guidelines.

13.1.6 Infrastructure Provision

This Strategy builds on existing urban centres and where possible looks to the augmentation of infrastructure such as water and sewerage rather than stand alone systems. However, in some locations it will be necessary to provide considerable additional infrastructure and any rezoning will be dependant on the proper arrangements being in place. Similarly with traffic and public transport it is acknowledged that different sites may be dependant upon bridge or road upgrades or duplication and there will be a need to ensure that these can happen as the demand becomes apparent.

Infrastructure provided by the State government will also be needed including additional hospital, public transport and school services. Council acknowledges that potential development areas need to set aside sites for such services (and they will), but the provision of them is subject to State government programs. Importantly the infrastructure programs in South East Queensland are widely known (such as heavy rail links to the Gold Coast Airport) so it will be possible for the NSW government to work with Queensland to extend such services south of the border, if it chooses to.

13.1.7 Employment Lands

This issue is addressed in the Tweed Shire Employment Lands Strategy which is being prepared at the same time as this Strategy. Tweed Shire Council is committed to ensuring that employment lands are made available for the long term to broaden the economic base of the Tweed Shire.

The economic, employment and transport relationship between Tweed Shire and South East Queensland is acknowledged in both this Strategy and the employment lands strategy.

13.1.8 Tourism Opportunities

This Strategy addresses the issue of tourism in the context of its impact on affordable housing and the residential housing market in coastal locations. It is not intended that



this Strategy identify tourism opportunities in new locations, but it is acknowledged as a significant part of the Tweed economy and as an employment generator it creates a demand for residential development.

13.2 Strategy Implementation and Master Planning

Areas that are already zoned for residential development will continue to supply land to the market over the life of this Strategy. The intention of the Strategy is to replenish these stocks of zoned land to ensure a continuous and long term supply. It is not appropriate that all areas identified in this Strategy proceed to rezoning at the same time and Council does not have the resources to do this. Only those areas within the identified time frame will be considered by Council.

The Strategy will be implemented by the rezoning process. It is Council's decision as to whether a rezoning should proceed, but in the first instance an interested landowner will need to contact Council's Director of Planning to confirm the timing of the proposed rezoning and whether Council has the resources to proceed. Council will need to advise on the type and extent of studies required to support a rezoning and whether Council wishes to undertake this work (at the applicant's expense).

Each potential land release area (or group of areas) will require an amendment to the Tweed LEP, and may require Development Control Plan provisions, a Section 94 contributions plan and/or a planning agreement with Council. A local environmental study may be required by the NSW State government.

All investigation areas identified in this Strategy need to be designed to maximise the density yield of the land. It is expected that greenfield sites located in the more remote rural areas, such as Burringbar (Area 8), Mooball (Area 9), and West Murwillumbah (Area 2 and 3), will achieve a net density between 7 – 13 dwellings per hectare. In the areas of Kielvale (Area 1), Seabreeze (Area 5 and 6), and Kings Forest (Area 4), the expected density is 10 – 15 dwellings per net hectare, whereas Dunloe Park (Area 7), is expected to yield 12 – 18 dwellings per net hectare.

In order to achieve the best development outcome for the site and its surrounds and so as to ensure the full utilisation of the land, each area must have a Master Plan/Concept Plan prepared for the entire investigation area and must address all facets of the urban layout, mix and design. Council will work to produce a development control plan for each Master Plan at the cost of the proponent.

13.3 Strategy Review

It is recommended that Council review the Strategy every five to seven years to check whether areas were developed as expected and to assess any changes in demand or changes in services or infrastructure capacity.



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Appendix A
**Urban and Village Area Likely Maximum
Population Range**

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1 Urban Areas

Tweed Heads

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	77	61	7-13	429-796	17-33	1040-2020	20	832-1616
2b	53	43	50-66	2135-2818	100-132	4270-5636	20	3416-4509
2c	22	18	18-27	317-475	39-59	686-1038	20	5492-831
2e	0.5	0.4	24-35	10-14	51-75	20-30	50	10-15
3a	11	9	94-200	827-1760	183-390	1610-3432	20	1288-2746
3b	12	10	94-200	902-1920	183-390	1757-3744	20	1405-2995
Total	175	140	N/A	4619-7783	N/A	9384-15900	N/A	7501-12711



Tweed Heads South

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	56	45	7-13	312-580	17-33	758-1472	20	607-1177
2b	40	32	50-66	1590-2099	100-132	3180-4198	20	2544-3358
2c	131	105	18-27	1892-2838	39-59	4099-62019	20	3279-4961
2e	54	43	24-35	1039-1516	51-75	2208-3248	20	1767-2598
3b	13	10	94-200	978-2080	183-390	1903-4056	20	1523-3245
Total	294	235	N/A	5811-9112	N/A	12149-19174	N/A	9719-15339

Tweed Heads West

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	119	96	7-13	669-1243	17-33	1625-3155	10	1463-2840
2b	5	4	50-66	190-251	100-132	380-502	10	342-451
2c	24	19	18-27	344-516	39-59	745-1127	10	670-1014
3b	1.1	0.88	94-200	83-176	183-390	161-342	10	145-309
Total	149	119	N/A	1286-2185	N/A	2912-5127	N/A	2620-4614



Banora Point

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	184.2	146.3	7-13	1030-1915	17-33	2503-4861	20	2003-3889
2c	317.5	254.0	18-27	4572-6856	39-59	9906-14986	20	7925-11989
2e	0.8	0.6	24-35	13-21	51-75	31-45	20	24-36
3b	0.3	0.24	74-94	18-23	144-183	35-44	20	28-35
Total	502.5	402.0	N/A	5636-8815	N/A	12475-19936	N/A	9980-15949

Bilambil and Bilambil Heights

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	75	60	7-13	419-776	17-33	1017-1972	10	915-1776
2b	8	7	50-66	335-441	100-132	670-883	10	603-796
2c	182	145	18-27	2614-3922	39-59	5667-8573	10	5100-7715
2d	14	11	6-12	66-132	16-31	176-341	10	157-307
3b	0.4	0.32	74-94	24-30	144-183	46-59	10	41-53
Total	279	223	N/A	3459-5305	N/A	7575-11830	N/A	6818-10647



Terranora

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	67	53	6-12	318-636	16-31	848-1643	10	763-1479
Total	67	53	N/A	318-636	N/A	848-1643	N/A	763-1479

Cobaki

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2c	47	38	18-27	681-1022	39-59	1477-2235	10	1330-2012
Total	47	38	N/A	682-1023	N/A	1477-2235	N/A	1330-2012

Cobaki Lakes

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2c	296	237	18-27	4266-6399	39-59	9243-13983	10	8319-12585
2e	9	7	24-35	173-252	51-75	367-540	50	184-270
Total	305	244	N/A	4439-6651	N/A	9610-14523	N/A	8502-12855



Fingal Head

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	27	21	7-13	150-278	17-33	364-706	20	291-565
3b	0.4	0.32	74-94	24-30	144-183	46-59	20	37-47
Total	27	22	N/A	173-308	N/A	410-765	N/A	328-612

Chinderah

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	22	18	7-13	123-228	17-33	298-578	20	238-462
2c	14	11	18-27	202-302	39-59	437-661	20	349-529
Total	36	29	N/A	324-530	N/A	734-1238	N/A	587-991



Cudgen

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	19	15	7-13	106-196	17-33	257-498	20	205-399
2c	23	19	18-27	333-500	39-59	722-1092	20	577-873
2e	1	1	24-35	19-28	51-75	41-60	50	20-30
Total	43	34	N/A	458-724	N/A	1019-1650	N/A	803-1302

Kingscliff

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	54	43	7-13	301-559	17-33	731-1419	20	585-1135
2b	32	26	50-66	1275-1683	100-132	2550-3366	20	2040-2693
2c	57	46	18-27	824-1237	39-59	1786-2702	20	1429-2162
2e	29	23	24-35	554-809	51-75	1178-1733	50	589-866
2f	96	77	47-61	3600-4673	93-123	7124-9422	50	3562-4711
3b	6	5	74-94	367-466	144-183	714-908	20	571-726
Total	274	219	N/A	6922-9426	N/A	14083-19549	N/A	8776-12293



Casuarina

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2e	116	92	30-43	2772-3973	51-75	4712-6930	50	2356-3465
Total	116	92	N/A	2772-3973	N/A	4712-6930	N/A	2356-3465

Kings Forest and Duranbah

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2c	374	299	18-27	5382-8073	39-59	11661-17641	20	9329-14113
2e	122	97	24-35	2328-3395	51-75	4947-7275	50	2474-3638
Total	496	397	N/A	7710-11468	N/A	16608-24916	N/A	11803-17751



Bogangar and Cabarita Beach

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	63	51	7-13	354-658	17-33	860-1670	20	688-1336
2b	9	7	50-66	340-449*	100-132	680-898	20	544-718
2c	17	14	18-27	248-373	39-59	538-814	20	431-651
2e	4	3	24-35	67-98	51-75	143-210	50	71-105
3b	2	2	74-94	142-180	144-183	276-351	20	221-281
Total	95	76	N/A	1152-1758	N/A	2498-3943	N/A	1955-3091

Hastings Point

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	2	2	7-13	13-25	17-33	32-63	20	26-50
2b	7	6	50-66	275-363	100-132	550-726	20	440-581
2c	4	3	18-27	58-86	39-59	125-189	20	100-151
2e	7	6	24-35	132-193	51-75	281-413	50	140-206
Total	20	16	N/A	478-667	N/A	988-1390	N/A	706-988



Pottsville

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	92	74	7-13	515-956	17-33	1250-2426	20	1000-1940
2b	23	19	50-66	935-1234	100-132	1870-2468	20	1496-1975
2c	140	112	18-27	2021-3032	39-59	4380-6626	20	3504-5301
3b	3	3	74-94	189-241	144-183	369-468	20	295-375
Total	259	207	N/A	3660-5462	N/A	7868-11988	N/A	6294-9590

Murwillumbah, South Murwillumbah and Bray Park

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	207	166	7-13	1159-2153	17-33	2815-5465	10	2534-4918
2b	13	10	50-66	505-667	100-132	1010-1333	10	909-1200
2c	120	96	18-27	1723-2584	39-59	3732-5646	10	3359-5082
2d	12	9	6-12	56-112	16-31	149-288	10	134-259
3b	8	7	74-94	497-632	144-183	968-1230	10	871-1107
Total	359	287	N/A	3940-6147	N/A	8674-13962	N/A	7807-12566



2. Villages

Mooball

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	8	6	6-12	38-77	16-31	102-198	10	92-179
Total	8	6	N/A	38-77	N/A	102-198	N/A	92-179

Burringbar

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	30	24	6-12	145-289	16-31	386-747	10	347-672
Total	30	24	N/A	145-289	N/A	386-747	N/A	347-672

Tyalgum

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	37	29	6-12	175-350	16-31	467-905	10	420-815
Total	37	29	N/A	175-350	N/A	467-905	N/A	420-815



Uki

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	25	20	6-12	120-240	16-31	320-620	10	288-558
Total	25	20	N/A	120-240	N/A	320-620	N/A	288-558

Stokers Siding

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	5	4	6-12	24-48	16-31	64-124	10	58-112
Total	5	4	N/A	24-48	N/A	64-124	N/A	58-112

Kielvale

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	82	66	6-12	395.4-791	16-31	1054-2043	10	949-1839
Total	82	66	N/A	395.4-791	N/A	1054-2043	N/A	949-1839



Condong

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2a	11	9	7-13	60-111	33-60	281-510	20	224-408
2c	2	2	18-27	31-46	39-59	66-100	20	53-80
Total	13	10	N/A	91-156*	N/A	347-610	N/A	277-488

Tanglewood

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	78	63	6-12	376-751	16-31	1002-1941	20	801-1552
Total	78	63	N/A	375.6-751	N/A	1002-1941	N/A	8018-1552

Tumbulgum

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	13	11	6-12	64-128	16-31	171-332	10	154-299
Total	13	11	N/A	64-128	N/A	171-332	N/A	154-299



Kunghur

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	43	34	6-12	206-412	16-31	549-1063	10	494-957
Total	43	34	N/A	206-412	N/A	549-1063	N/A	494-957

Chillingham

Zone under Tweed LEP 2000	Area (ha)	Area less 20% (ha)	Range of Dwellings/ha	Predicted Maximum Dwellings	Predicted Maximum Persons/ha	Theoretical Maximum Population	Discount for Tourism and other uses (%)	Likely Maximum Population Range
2d	16	13	6-12	77-157	16-31	210-406	10	189-365
Total	16	13	N/A	77-157	N/A	210-406	N/A	189-365



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Appendix B
Land Suitability Analysis



Land Suitability Analysis

1. Introduction

This report provides a methodology for the assessment of environmental constraints within Tweed Shire. The methodology aims to identify and evaluate a range of constraints, which will impact upon the ability of the Shire to accommodate further residential and industrial development. This process is called a land suitability analysis.

The identification of a sound methodology will also enable the community and landowners to better understand the process of planning, site selection and development.

Ultimately, the application of a sound methodology will help the development industry to invest in and develop appropriate sites within Tweed Shire that best serve the needs of the local and regional community and economy.

2. Methodology

The methodology for determining appropriate land use focuses on those features of the landscape that pose limitations to development. These areas may be divided into the categories of economic, social and environmental limitations.

Natural features primarily define the environmental limitations. These constraints will strongly influence the preparation of a 'land constraints map'. The land constraints map is a composite map containing a number of overlays. These overlays include but are not limited to maps of environmental protection areas, bushfire hazard area, flood prone land, steep land and the location of prime agricultural land. The integration of the overlays enables the user to recognise areas of varying suitability for different land uses.

Some environmental constraints create prohibitions to development, for example, high hazard floodway. Other constraints identify less desirable areas that generate the need for mitigation measures, for example, bushfire hazards. A suitability analysis eliminates lands where development is prohibited and identifies land that is limited in the type or density of development that may be carried out based on agreed criteria.

Economic and social limitations don't always lend themselves to being mapped in the same way as natural features. However, once Council has determined areas of low environmental limitations at a broad scale, this information can subsequently be used by investors to target areas for further investigation as part of their risk assessment and decision making process. Residential development and employment lands have a range of economic and social requirements which include the location of the site, its size, price, accessibility and the availability of infrastructure and services.

The land suitability approach used in this study identifies and ranks key environmental factors that are important for development. In assessing further economic and social factors, a number of elements must be considered to determine whether sustainable development can be achieved. These economic and social elements are based on industry standards relating to the final land use and are shown in Appendix Diagram 1.

In determining the areas that are potentially suitable for urban lands sites were preferred if they were within 2 km of an existing urban zone (at least in part) and were preferably greater than 5 ha in area. Areas already nominated in the Far North Coast Regional Strategy were also preferred.



Appendix Diagram 1 Land Suitability Analysis Framework





The following assessment of environmental constraints determines the supply of land. Some of the constraints below create prohibitions against future development. Other constraints merely require further investigation or mitigation measures that may influence the location, type and density of development.

In determining land suitable for residential and employment development purposes a ranking system has been formulated and applied to the various constraints that apply to Tweed Shire. This identifies which constraints are limiting and highlights the constraints that can be overcome through mitigation measures and management. The ranking for each constraint can then be mapped for each land unit in the Tweed Shire.

The environmental constraints ranking system includes the following:

1. Most suitable for development (relatively unconstrained);
2. Suitable for development with some controls;
3. Marginally suitable for development – may require further investigation and / or specific engineering solution or exclusion of certain areas;
4. elective development only – subject to further assessment, limited and appropriately designed development may be possible; and
5. Not suitable for development.

A summary of the ranking as it relates to each constraint is located in Appendix Table 1.

2.1. Multi-Criteria Analysis

Multi-Criteria Analysis requires consideration of the relative importance of each criterion compared to other criteria. A paired comparison method was selected for weighting of criteria. This approach required each criterion to be compared to each of the other criteria to determine which of the two (paired) criteria is considered more important, and by how much. By considering the number of times any particular criteria is rated as more important than any other, and the levels of importance, the criteria can then be ranked as a set in terms of importance. For this project, only environmental criteria were compared to each other. Weightings were normalised so that they are between 1 and 100 for each criteria.

2.2. GIS Analysis

Once evaluation criteria and weightings were undertaken, a GIS modelling and analysis technique was used to overlay geographic data for each of the evaluation criteria.

The steps involved in the GIS analysis to identify areas that are overall more or less suitable for the urban or employment lands development are described below:

- ▶ Datasets were sourced from Tweed Shire Council and were imported into an ESRI geodatabase;
- ▶ The data applied for each evaluation criterion were compiled and analysed according to the performance ratings on a series of grids across the study area. In general, the grids were in the order of 5 m x 5 m cells, however in some cases the grid size was varied to ensure the data will be properly represented;
- ▶ The weightings were applied to each criterion and the overall score for each evaluation criterion in each grid calculated. The GIS model then compiled scores across all the evaluation criteria for each grid and identified areas that are more or less suitable for urban or employment lands development.



The weighted overlays were added together and multiplied by a specified weighting. As a result, an overall sensitivity map was produced. The lower the score, the more attractive the site for development;

- ▶ The Multi-Criteria Analysis was performed using ESRI's ArcGis Version 9.1.

2.3. Limitations

While the Multi-Criteria Analysis technique is a powerful tool for screening broad study areas, it must be noted that there are a number of limitations including:

- ▶ Inability to represent all of the critical aspects that determine suitability for development in a geographic format;
- ▶ Accuracy and currency of some data;
- ▶ Absence of data for some locations (eg flood data not available for entire Tweed river catchment and not available for the coastal creeks and waterways);
- ▶ Coarseness of some of the assumptions that may be made in determining performance ratings and weightings for evaluation criteria; and
- ▶ Coarseness of some of the 'rounding off' of areas that are identified by the modelling process as having some suitability for development

3. Environmental Criteria

3.1. National Parks, Nature Reserves, State Forests and Public Open Space

National Parks, Nature Reserves, State Forests and Public Open Space areas are not available for development regardless of physical characteristics and a ranking of 5 will be used for the purposes of this study.

3.2. Acid Sulfate Soils

Acid Sulfate Soils (ASS) generally occur in low lying areas below 5m A.H.D. The term ASS refers to soils that are producing acid (actual acid sulfate soils) and those that could become acid producing (potential acid sulfate soils).

Potential acid sulfate soils are naturally occurring soils containing iron sulfides (pyrite). They become actual acid sulfate soils when the pyrite is exposed to air, often because of human activity. Once oxidised the addition of water results in the production of sulfuric acid.

In July, 2000, The National Working Party on ASS released the *National Strategy for the Management of Coastal Acid Sulfate Soils*. The Strategy provides a framework for governments, industry and the community to manage development on these soils. It seeks an integrated approach to management and provides general background about the impacts of acid drainage.

Tweed Local Environmental Plan 2000 (LEP) generally states that when more than one ton of acid sulfate soil is disturbed it will require Council's consent and an acid sulfate soil management plan in accordance with the Acid Sulfate Soil Manual. Acid sulfate soil areas are divided into 5 classes which indicate the risk of encountering problems with it and the depth in the soil profile at which it is likely to occur. Given the adverse impacts of exposed acid sulfate soils and the need for appropriate management within any development, areas of potential or actual acid sulfate soil (in accordance with



the acid sulfate soils mapping) within ASS classes 1 will have a ranking of 4, ASS classes 2 and 3 will have a ranking of 3, while areas within ASS classes 4 and 5 will have a ranking of 2.

3.3. Vegetation Management

Wetlands

Wetlands are a key component of the water cycle, playing critical roles in maintaining the general health of rivers, estuaries and coastal waters. They assist in mitigating the effect of floods through water storage and retention, absorb pollutants and improve downstream water quality and provide habitats for animals and plants, include a number of species that are threatened or endangered.

State Environmental Planning Policy (SEPP) 14 –Coastal Wetlands identifies areas where the habitat values, ecological and hydrological process of wetlands need to be conserved and managed from the impact of development. Therefore, any SEPP 14 wetland will be ranked 5.

Littoral Rainforest

Littoral rainforests are areas of high biodiversity and on the Tweed coast and typically contain threatened or endangered species. They are identified in State Environmental Planning Policy (SEPP) 26 which applies strict management controls. Therefore, any SEPP 26 areas will be ranked 5. Littoral rainforests also include a buffer zone of 100 metres from the edge of the mapped area to protect the core area from edge effects. Therefore, any mapped buffer area will be ranked 4.

Threatened Species and Vegetation Management

Kingston et al (2004) noted that Tweed falls within the northern zone of the NSW North Coast Biogeographic Region. The Region has a rich assemblage of plant species forming complex mosaics of vegetation communities that includes the greatest diversity of rainforest types in NSW, some areas of which have been World Heritage listed. Over ninety species of *Eucalyptus* occur in the bioregion making it one of the richest areas on the continent for this genus.

Over the whole North Coast Biogeographic Region, large changes to the landscape have occurred due to European activities. In the past 150 years, over 44 % of the original vegetation cover has been cleared or heavily disturbed. Clearing on the coastal lowlands has been particularly extensive leaving only fragmented remnants on the steeper slopes. Most clearing has concentrated on the areas of low to moderate slope, fertile soil, higher rainfall and higher temperature. Other major disturbances include logging, grazing, drainage works, and the use of fire. The ecological consequences of such extensive habitat fragmentation and disturbance have resulted in major floristic and structural changes to the vegetation (and faunal) communities of the Region (Kingston et al, 2004).

Tweed LGA contains important habitat for a diverse array of native fauna and flora. Certain areas have high conservation value and contain a number of endangered ecological communities and regionally significant vegetation communities. The retention of remnant vegetation and their associated buffers establishes the basis for a network of habitat links and/ or corridors within the area.

The *Threatened Species Conservation Act 1995* and *Environment Protection and Biodiversity Conservation Act 1999* aim to protect threatened species and significant flora and fauna corridors. It is also a requirement of the Far North Coast Regional Strategy (2006) and the North Coast REP, 1988 that significant vegetation be protected. It is therefore necessary to incorporate appropriate constraints for vegetation management in any land suitability analysis.



The Tweed Vegetation Management Strategy identifies 10 broad vegetation communities and 56 vegetation types within those communities. It then uses a very detailed methodology to assess the ecological status, ecological sensitivity and threatened species requirements of each area of remnant vegetation. It concludes that a combination of ecological attributes be used to determine priority areas that can be described as areas of High Conservation Value (HCV), Ecologically Sensitive Areas and Degraded Habitats.

HCV consists mainly of vegetation types of high regional status, bushland associated with riparian, estuarine, or wetland ecosystems or Critical Habitat. While many of these areas may not require immediate attention, this category includes the most valuable ecological assets in the Shire. It should be ranked 5.

Ecologically sensitive areas can be categorized as high, medium and low. For the purposes of this study those areas categorized as high will be ranked 4, medium will be ranked 3 and low will be ranked 2.

Degraded habitats may be in key locations such as dunes or riparian areas that are unsuitable for development for other reasons. In the absence of site specific information to the contrary degraded habitats will be ranked 2.

Koala Habitat

In 1996 the AKF prepared the Tweed Coast Koala Habitat Atlas (Phillips & Callaghan 1996) for the eastern section of the Shire. The 37608 hectare study area comprises approximately 29 % of Tweed Shire. The remainder of the Shire has not yet been studied in this way.

The Koala Habitat Atlas describes the following four categories of Koala Habitat:

1. Primary Koala Habitat (2.5% of study area). Tree species preferentially utilised by koalas in which tree utilisation is independent of tree density. Preferred trees are a dominant or co-dominant component of the overstorey vegetation.
2. Secondary Koala Habitat (10.7 % of study area) (Secondary (A) Habitat). Tree species preferentially utilised by Koalas, on average, constitute less than 35 % of the overstorey vegetation.
3. Marginal Koala Habitat (10.3 % of study area) (Secondary (B) Habitat). Tree species preferentially utilised by Koalas are largely absent or otherwise occur at very low densities (<10%).
4. Habitat Value "Unknown" (0.7% of study area). Composition of the vegetation remains unknown, but where it is possible for one or more preferentially utilised tree species to occur as a dominant or co-dominant component of the overstorey.

The remainder of the study area has either been cleared of native vegetation (66.3 %) or contains other categories of vegetation not listed above (9.5%).

As Primary Koala Habitat is likely to be critical in supporting breeding colonies of koalas it is important to prevent further clearing, disturbance, fragmentation or isolation of this habitat it will therefore be ranked 5.

Secondary Koala Habitat is likely to play a support role in the survival and distribution of koalas and it is important to minimise further loss, fragmentation or isolation of this supporting habitat it will therefore be ranked 4.

Marginal Koala Habitat will be ranked 2.



3.4. Agricultural Land

In 2004 the State Government adopted a position that land identified in its Farmland Protection Project as either State Significant or Regionally Significant should not be regarded as being available for urban or rural residential use unless it had already been identified for such a purpose in an agreed strategy.

The objectives of this Farmland Protection Project are to ensure that the best agricultural land will be available for current and future generations to grow food and fibre; and to provide more certainty on the status of the best agricultural land, thereby assisting councils with their local strategic settlement planning (DIPNR, 2004). This has been further reinforced by the Far North Coast Regional Strategy (DoP, 2006).

State and Regionally significant farmland will be ranked 5. Locally significant farmland will be ranked 2.

3.5. Bushfire Hazard

The *Rural Fires Act 1997* requires the identification of bushfire-prone land areas based on bushfire hazard mapping and the provision of Asset Protection Zones (APZ's).

Bushfire hazard can be a major development constraint given the likelihood for extreme fire events periodically. The slope of the land, aspect and the vegetation types present, determines the level of bushfire hazard.

Tweed Shire Council categorises bushfire prone land into Vegetation Category 1 and Vegetation Category 2. Vegetation Category 1, bushfire prone land that is within (or within 100 m) of a high bushfire hazard area. Category 2, bushfire prone land that is within (or within 30 m) of a medium bushfire hazard area.

Opportunities exist to manage the interface between new development and surrounding vegetation, including perimeter roads, fuel reduction and building design. More detailed site based assessment of bushfire hazard needs to be undertaken in conjunction with future development to ensure that development is located and designed having regard to the degree of bushfire hazard.

Where adequate fire protection measures cannot be established, development should be prohibited. However, as mitigation is often an option, then the constraint should not be regarded as absolute. Vegetation Category 1 (including a 100m buffer) will be ranked as 3. Vegetation Category 2 (including a 30m buffer) will be ranked as 2 .

3.6. Topography

Protected lands are listed under the Native Vegetation Conservation Act 1997 and represent land that generally has a slope greater than 18 degrees from the horizontal; and land situated in, or within 20 metres of the bed or bank of any specified river or lake or land that is in the opinion of the Minister, environmentally sensitive or effected or liable to be effected by soil erosion.

Slope is a significant factor influencing soil erosion, drainage and bushfire hazard. Slopes greater than 14 degrees are likely to have geological constraints and are susceptible to mass movement and high to very high erosion hazard. In addition, slopes greater than 14 degrees can cause installation and management problems for sewerage and water systems. Therefore, lands with a slope greater than 14 degrees should be excluded from further development and ranked 5.

Slope between 10 degrees and 14 degrees present a high bush fire danger for dwellings, footings require a great deal of cut and fill, access is difficult and they present a greater erosion hazard. In areas



with these grades development is more difficult. However, with specific engineering solutions development is possible and therefore slopes between 10 and 14 degrees will be ranked 3.

Relatively flat grades (less than 10 degrees) significantly reduce costs associated with the installation of infrastructure to service proposed development. Therefore due to the cost efficiency of lesser grades for industrial and commercial development a ranking of 1 will be used for slopes less than 10 degrees (NSW PEC, 1978).

3.7. Land Susceptible to Climate Change

There is now broad scientific consensus that climate change is occurring and that early impacts of this change are observable (Newton 2007). Climate change refers to a directional change in climate, beyond natural bounds of variability, that is attributed to human activity and alters the composition of the atmosphere. The likely changes most relevant to this study are sea level rise and increased storm activity with resultant higher risk of inundation, flooding and shoreline erosion (Newton, 2007).

A general representation of the land most likely to be directly affected by these changes is land less than 10 metres above current sea level with land being progressively more at risk the closer it is to current sea levels.

Land less than 5 metres above sea level will be ranked 3 and land between 5 and 10 metres above sea level will be ranked 2.

3.8. Flood Liable land

Flood liable land presents a constraint to development as it has implications with regard to the provision and cost implications applying to hydraulic infrastructure, roads and services installed within floodplains.

The flood constraint is based on the indicative 1 in 100 year flood level. Flood hazard primarily is a function of depth of flood water and the velocity at which the water moves. At flood water depths in excess of 2 metres, (even at low velocities) there can be damage to light framed buildings from water pressure, flotation and debris impact. Motor vehicle instability by buoyancy will also occur at such depths. At velocities in excess of 2 metres the stability of foundations and poles can be affected by scour. Also, grass and earth surfaces scour, become rough and unstable (DIPNR, 2005). Tweed Shire Council regards an area as being a high hazard area if Velocity (V) multiplied by Depth (D) is greater than 0.3.

High hazard floodways will be ranked 5. Other floodprone land will be ranked 3.

3.9. Ground Water

A high water table in combination with certain soil types can have implications for foundation design and road and drainage construction. Additionally, groundwater has a greater potential to become contaminated by certain land uses. Further geotechnical investigations will be required to ascertain the implications for development in locations where ground water and reactive soils are likely to be present. As further investigations are needed for future development a ranking of 2 for identified vulnerable ground water areas will be used or where a high water table is known to occur. That is, areas where the water table is typically within 1 metre of the soil surface.



3.10. Contaminated Lands – Banana Lands and Cattle Tick Dip Sites

Portions of the Tweed Shire have been identified as potentially contaminated land due to the former use or current use of the land for banana cultivation. Banana cultivation formally used arsenic and dieldrin as insecticides.

Cattle tick dip sites, are also scattered throughout the Tweed Valley and Tweed Coast and these are subject to a 200m radius of land suspected of contamination.

The *Environmental Planning and Assessment Act 1993 (EP&A Act)* and *State Environmental Protection Policy 55 (SEPP 55)* require Tweed Council to consider the suitability of land for a proposed development. The risk to health and the environment from contamination must be included in a preliminary assessment, which includes a preliminary site inspection of the contaminated lands. SEPP 55 requires that Council be satisfied that a site is suitable for its proposed use or can and will be made suitable. A site can be made suitable through measures such as site remediation.

Therefore, for these reasons any lands affected by a cattle tick dip site or suspected of being used for banana production will be ranked 3.

3.11. Biting Midges and Mosquitoes

Portions of the Tweed Shire have been identified as potentially affected by biting midges and /or mosquitoes. Both these flying insects raise problems of annoyance and health concerns (eg Ross River fever) for urban land uses. Some mitigation measures are possible and some land uses may be more compatible than others.

Affected areas will be ranked 2.

3.12. Garbage Depots and Sewage Treatment Works

Tweed Shire has a major garbage depot and transfer facility at Stotts Island. It has other garbage facilities no longer in uses that should be regarded as contaminated sites. It also has a number of STP's that provide sewerage to Tweed communities. In the absence of other information it is assumed that a 400 metre buffer around such facilities will be appropriate.

Affected areas will be ranked 5.

3.13. Extractive Industries

Tweed Shire has many extractive industry sites including four identified by the Department of Urban Affairs and Planning as being of regional significance (DUAP, 1999). These sites should be protected from encroachment by incompatible urban land uses until the resource has been exhausted. The Department of Primary Industries (formerly Department of Mineral Resources) has identified in a Section 117 Direction a suitable buffer for each site and these should be regarded as unsuitable for urban development.

Existing extractive industry sites including a suitable buffer will be ranked 5.

3.14. Airport Noise

Coolangatta airport has recently been expanded with runway extensions south into the Tweed Shire. It now accepts international flights on a regular basis. Australian Noise Exposure Forecasts (ANEF) are a way of identifying land affected by noise exposure at various levels.



The Tweed LEP 2000 places development controls on any construction work within ANEF 25+ in accordance with AS 2021 – 1994. Residential development is typically restricted to areas less than 25 ANEF with light industrial buildings acceptable in areas less than 30 ANEF. Conditions on acoustic design need to be enforced from 30 to 40 ANEF.

ANEF of 40 or more will be ranked 4. ANEF of 30 to 40 will be ranked 3. ANEF of 25 to 30 will be ranked 2. ANEF of less than 25 will be ranked 1.

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Appendix Table 1 Land Suitability Analysis Ranking of Criteria

Constraint Criteria	Ranking
National Parks, Nature Reserves, State Forests and Public Open Space	5
Acid Sulfate Soils	
▶ Classes 1	4
▶ Classes 2 and 3	3
▶ Classes 4 and 5	2
Vegetation Management:	
▶ SEPP 14 Wetlands	5
▶ SEPP 26 Littoral Rainforest	5
▶ Threatened Species and Vegetation Management	
– High Conservation Value Vegetation	5
– High Ecological Sensitivity Vegetation	4
– Medium Ecological Sensitivity Vegetation	3
– Low Ecological Sensitivity Vegetation	2
– Degraded Habitats	2
▶ Koala Habitat	
– Primary Habitat	5
– Secondary Habitat	4
– Marginal Habitat	2
Agricultural Land:	
▶ State and Regionally significant farmland	5
▶ Locally significant farmland	2
Bushfire:	
▶ Vegetation Category 1	3
▶ Vegetation Category 2	2
Topography:	
– Less than 10 degrees slopes	1
– 10 degrees - 14 degrees slopes	3
– Greater than 14 degrees slopes	5



– Protected Lands	5
Land Susceptible to Climate Change	
Land less than 5 m above sea level	3
Land less than 10 m above sea level	2
Flood Liable Land	
– High Hazard Flooding	5
– Other Flood prone land	3
High Groundwater or Vulnerable Groundwater	2
Contaminated Lands	3
Biting Midge and Mosquito Areas	2
Garbage Depots and STP's	5
Extractive Industries	5
Airport noise	
ANEF 40 +	4
ANEF 30 to 40	3
ANEF 25 to 30	2
ANEF Less than 25	1

The above rankings will be used to compile a constraints map for the Tweed Employment lands and urban lands strategy.



Appendix C
Housing Affordability

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1. Key Needs and Issues

Affordable housing should not be defined only in relation to ability to pay rent, a mortgage and maintenance and running costs. The following factors also need to be taken into consideration in the provision of affordable housing:

Appropriateness of the Dwelling – Dwellings should be appropriate to the needs and circumstances of the household in terms of the number, size and configuration of rooms; safety considerations; the versatility of indoor/outdoor spaces, and ease of physical access, regardless of the physical capacity of household members.

Housing and Social Mix – A range of housing types, tenures and styles should be available to meet the needs of people at different stages of their life cycle and in various economic circumstances. Planning should seek to avoid the impacts of a housing market that exclude all but relatively high-income earners. We need to avoid the development of neighbourhoods that do not contribute to community well being.

Security of Tenure – Households should enjoy reasonable security of tenure in their housing, including protection from summary eviction and the reasonable expectation of being able to choose their time of departure.

Location – Housing should be well located in relation to places of employment and to the range of services, facilities, communication and transport networks required to meet other household needs. Planning and design should ensure that residential neighbourhoods and buildings are compatible with adjacent land uses.

Quality of Environmental Planning and Design – Housing planning and design should be responsive to local microclimate and environmental conditions by incorporating energy efficient design principles. Housing should fit into and enhance the neighbourhood, ensure privacy to residents and neighbours, and incorporate the principles of crime prevention through environmental design. Neighbourhood design should promote safe and convenient pedestrian access to local services and facilities.

2. Where to from Here?

It is clear from the analysis that Tweed Shire is going to continue to experience pressures from population growth particularly as transport links to South East Queensland are improved and current South East Queensland growth opportunities are exhausted. In coming years the demand for affordable and special needs housing will escalate. To avoid potentially serious social problems early intervention is needed. A proactive, concerted and coordinated effort by all stakeholders is needed if these problems are to be avoided.

The provision of affordable housing and associated support services is a complex issue with a wide range of options available. The sections below provide discussion of the pros and cons of a number of initiatives that Council may choose to pursue.

2.1 Promoting a Mix of Housing Types

Council's planning instruments and policies should ensure that they more actively facilitate affordable housing. A number of modifications to the planning controls are available including:

1. Revision of zone objectives and the inclusion of special provisions that will encourage a greater mix of housing types. A number of local councils in Australia have been proactive in using their planning



powers to protect and promote affordable housing. Several councils have amended their local planning instruments to include objectives relating to affordable housing, reinforced by decision making criteria requiring a consent authority to consider affordable housing issues when assessing a development (eg. the local plans of Marrickville Council in NSW, and Port Phillip and Moreland Councils in Victoria).

2. Some councils in outer metropolitan areas have reduced minimum lot sizes for residential dwellings to achieve urban consolidation objectives, but also to reduce land and infrastructure costs – although many of these savings are consumed by the strong demand for new housing. Similarly, promoting urban consolidation by rezoning land for higher density residential development is often associated with claims of improved housing affordability since a greater diversity of housing types, including smaller (and, by implication, lower cost) dwelling units are generated.
3. Some councils have implemented mixed use zones, including provisions for housing in commercial and industrial areas, as a way of preserving affordable entry points to the housing market – Moreland Council in Victoria provides a good example of this approach.
4. Preserving sources of existing low cost accommodation through planning regulation (zone limitations) is another method of ensuring availability of affordable housing stock. However, to do so would remove the development potential that may have existed under the previous zone provisions and will likely meet with resistance from landowners.

2.2 Requiring a Component of Affordable Housing

Specific planning policies have been used successfully on a very small scale in a number of local areas in NSW and overseas to achieve affordable housing on either a compulsory or negotiated basis.

Generally the affordable housing is financed as part of the development (either a proportion of new dwellings or an equivalent financial contribution) then transferred to the local authority or a housing authority. This is widely regarded as an effective way for local governments to generate new affordable housing supply without a heavy government subsidy. In some cases this ‘inclusionary zoning’ approach is combined with planning incentives such as “density bonuses” which help make the affordable housing contribution more viable for developers.

The concept of giving bonuses to encourage the provision of affordable housing should be considered, particularly in larger developments. For example, an additional number of units in medium and high density developments could be considered where a certain proportion of the units will be available as affordable housing. Density bonuses have been used by municipalities in California, New Jersey and Maryland (Morris 2000). However, these mechanisms still depend on a relatively buoyant housing market and are less effective in areas where there are land shortages or where little new housing is being developed.

The former South Sydney Council also applies an ‘inclusionary zoning approach’ to all developments within the former industrial area of Green Square, where three per cent of the total floor area of all residential development, and one per cent of non residential development, must be provided to Council as an affordable housing contribution.

The implementation of the ‘inclusionary approach’ is likely to be controversial and complex in implementation and ongoing management. Although there is no doubt that it would be one of the most effective ways of achieving the intended outcome. Should Council choose to pursue this option,



preparation of a detailed affordable housing strategy would be an essential first step so that the intentions, processes and implications are properly considered and explained.

The Strategy should assess and make recommendations on all the initiatives that are available to Council to increase the provision of affordable housing. This includes Council's responsibility for land use planning, financial management and community welfare and development. It is however recognised that a number of responsibilities are shared with other government and community sectors, particularly the State Government.

2.3 Developer Contributions and Planning Agreements

Under the current legislation, Section 94 contributions can only be used to fund affordable housing where a State Environmental Planning Policy identifies that there is a need for affordable housing within the area (Section 94F, EPA Act). In addition the Council must be satisfied that the proposed development will create a need for affordable housing within the area. (Note: Tweed Shire is not currently recognised as an area in need of affordable housing by a SEPP).

It should be noted that any condition seeking contributions must be authorised through a regional environmental plan or local environmental plan, and must be in accordance with a scheme for dedications or contributions set out in or adopted by such a plan. To pursue this alternative would involve engaging in discussions with the Department of Infrastructure Planning and Natural Resources (DIPNR) with the intention of having the planning authority recognise the special circumstances that apply to Tweed Shire.

Provision of affordable housing could in future be facilitated through a negotiated developer agreement (Planning agreements) in lieu of Section 94 contributions as currently levied. Such a developer agreement would be negotiated between individual developers and Council. The agreement could specify that a certain proportion of housing provided will be targeted at low income groups.

Developer agreements can be negotiated at the development application stage or the rezoning stage. Given that they are voluntary agreements it is important that Council consider entering into them at the rezoning stage where the rezoning cannot be appealed (on merit) in the Land and Environment Court if the developer is not satisfied with the agreement.

Legal provisions to levy funds from developers for affordable housing have been adopted by several councils in high value areas of Sydney. Waverley Council was the first to introduce a "density bonus" for developers in return for monetary contributions to finance affordable housing; North Sydney Council levies compulsory fees on all residential development to replace the loss of low cost housing, while Willoughby Council requires a proportion of total floor space of new dwellings to be dedicated for affordable housing.

Byron Shire Council has recently approved a 'boarding house' style development for low cost rental accommodation and negotiated density and contributions in doing so. Byron Shire Council has also commenced a process of negotiating a planning agreement at the rezoning stage that is based on 20% of housing being dedicated to an affordable housing provider.

2.4 Direct Provision of Affordable Housing

Public housing as a proportion of total housing supply in Australia is in decline (Milligan et al., 2004). The government thus has a role to ensure there is an adequate stock of affordable housing present.



This can be achieved through such means as listed property trusts, shared equity programs or public-private partnerships.

Obviously, the most effective means of addressing the affordable housing supply problem is through direct provision of additional housing. This can be achieved through a number of ways, each with inherent advantages and disadvantages.

State Government Public Housing

Public housing only comprises a small proportion of total housing stock in the Study Area. There should be a greater emphasis on increasing the yield from these sites by redevelopment into higher density. This has happened in some locations and needs to continue.

While state government recognises the pressures of growth being experienced in NSW coastal areas, funding and legislation to date have been more focused towards management of environmental impacts rather than addressing the serious social and infrastructure problems associated with increasing coastal migration.

Council Provision of Housing

The provision of low cost housing or rental accommodation is not normally the domain of local government, however opportunity exists to pursue this course should Council choose to do so. Council may become involved in the direct provision of housing (with or without assistance from state government or joint venture partners). The purchase and dedication of land, construction and ongoing long term management will require specialist property development and management skills and an independent body set up under the Corporations Act.

It would be a complex and resource demanding process. Should Council choose to investigate this option further, the first step would be bring together a range of stakeholders and persons with expertise in this area to discuss the issues and implications of this initiative.

Joint Ventures

There have been increasing attempts by state and local government agencies and the not for profit sector to engage the private sector in making a contribution to affordable housing development. The most widespread engagement so far has occurred in NSW where, under local or regional policy settings, developer contributions for affordable housing have been mandated on several large sites rezoned for residential development. In these areas developer involvement has been notably passive, however, generally taking the form of monetary contributions. The next level of engagement has been negotiated agreements with developers to include a component of affordable housing in their developments in return for planning concessions or other benefits (see for example Waverley Council). Responses by developers on a voluntary basis are very limited and small in scale.

Council may wish to enter into a joint venture with a private developer or state government agency. Council could provide the land and other support for such a project, while the private developer or government authority would construct the housing and ensure that at least a component of the housing was targeted at lower income residents. Council then provides housing for a range of incomes as part of the same development. This could reduce the stigma that can be attached to affordable housing in the community.

Some proactive councils and not for profit agencies have looked for opportunities to package specific deals with private owners/developers. For example, the City of Port Phillip identified an opportunity to



work with a new developer on the site of a run down 73-room boarding house, purchased by the developer in St Kilda. The Council was able to negotiate a mixed development on the site by offering a subdivision into two separate developments (private and social), whereby the developer (through an upfront cash sale of part of the site to Council) received working capital for their development, reduced their risk and were assured a speedy development approval. Council subsequently sought housing program funds for a boarding house development on the part of the site it acquired. This opportunity would not have arisen had Council not had an established track record of involvement in affordable housing development, and had the developer not been sympathetic to social housing, and in need of cash resources.

Another area of involvement is on existing public housing sites, especially large estates where State Housing Authorities (SHA) across Australia are partnering with the private sector to refurbish and redevelop existing housing. While approaches vary, generally the result of the redevelopment so far has been a mixed public housing and private market development.

As the redevelopment of public housing estates is likely to be a major component of SHA activity over the coming decade, there are likely to be sizeable opportunities for Non-government Organisations to become involved, probably with private sector partners, in developing, owning and managing significant amounts of social and affordable housing in these redevelopments. Facilitation of this role by SHAs would help significantly to address the economies of scale issues.

State Government support, such as by the Department of Housing, may be available to facilitate the provision of affordable housing in areas of need. For example, the Department has established a program to provide equity finance to enter into partnerships with community housing providers of affordable housing. The scheme is known as the Debt Equity Affordable Housing Scheme and is a demonstration project designed to leverage government funds for affordable housing using contributions from the non-government and private sectors. The affordable housing would be managed by the community housing provider when completed. To submit expressions of interest under the Scheme providers need to be registered as a community housing provider under the Office of Community Housing's system.

Non-government 'Not-for-Profit' Organisations

The 2002 Australian Housing and Urban Research Institute (AHURI) Report indicates that within Australia there is a policy imperative to effectively draw more private investment towards the affordable end of the housing market. Milligan et al (2004) discusses housing that is initiated and owned by non-government not-for-profit providers for social purposes, financed through a mix of public subsidies, planning benefits, private equity and private debt finance, priced below market rents and restricted to low to moderate income groups.

2.5 Rate Relief

Under the Local Government Act, Council can defer the payment of rates by residents who are experiencing financial hardship. The payment of rates can be deferred against the estate for a period determined by Council. Council could promote this benefit to its ratepayers, such as pensioners, who may be in difficult financial circumstances. This benefit would allow the active elderly to remain in their homes and reduce the demand on other types of housing for the elderly such as retirement villages. Most councils already offer this option to low income ratepayers.



2.6 Assessment Processes

Delays in the assessment process add unnecessary costs to the final development, making new housing less affordable for purchase. While there may be some gains to be made by “streamlining” the development approval process, it is important to recognise that provisions to promote and protect affordable housing opportunities depend on careful, and in some cases, time consuming, development assessment.

Despite difficulties in gaining development approval, agencies projects do ultimately get approval. This suggests that proposed developments have conformed to planning requirements but have been delayed because of community resistance and/or a lack of familiarity in local government with affordable housing models. The experience in Australia so far suggests that local government planning and development control policies that make explicit provision for affordable housing projects will be necessary to ensure their timely, cost effective and smooth development. To avoid unnecessary delays and therefore costs, local government needs to take a more facilitative and supportive role in the assessment processes for affordable housing projects. As part of the recommended Affordable Housing Strategy, this might include the preparation of a specific Development Control Plan that specifies the intentions and criteria to be considered in the assessment of an application.

2.7 Infrastructure Costs

The high cost of public, social and service infrastructure “upfront” in the development of ‘Greenfield sites’ is a major cost to new housing. The holding costs of these expenses are borne by the developer and then ultimately passed onto the consumer as part of the price of a block of land. Although such a system passes the costs onto the actual users of the land, these are often first home owners, families and workers that are least able to pay these costs. Recent moves by the NSW State Government to transfer some of these costs to the State Government (SMH, 2007) in order to cut costs in suburban Sydney land development by up to \$25,000 acknowledges this situation.

2.8 Examples of Affordable Housing Initiatives

Recent or prospective initiatives by local governments to directly support an increased supply of affordable housing in their area

Municipality	Affordable Housing Initiatives
City of Subiaco, Western Australia	Council is considering the feasibility of a Trust Fund for affordable housing developments in its local area to hold council investment and attract other equity investors (personal communication).
City of Adelaide, South Australia	In November 2003, Council launched a rental program for young workers being priced out of the city. The program concept is that apartments will be purchased in the market with loan funds and rented at discounts of about 25%. Assets acquired would be progressively sold off to cover borrowing costs. Council is still seeking State or Commonwealth support to raise funds for the program (www.adelaidecitycouncil.com).
Waverley Municipality, NSW	Council has twenty-five year history of involvement in affordable housing initiatives. Latest approach involves offering development incentives (e.g. higher floor space ratios or larger building envelopes) to developers who include affordable housing in their development. An ‘Affordable Housing Calculator’ has been developed to enable consistent and transparent



	calculation of the bonus. Affordable housing units, which are acquired with a proportion of the bonus, either are transferred to Council or are let at capped rents for a period specified in a covenant. The units are managed by community-based or private housing managers selected by Council. 18 units of affordable housing have been achieved and 20 are at planning/development stage (Waverley Municipality, 2001).
City of Willoughby, NSW	The City of Willoughby Local Environment Plan allows for a cash contribution or dedication of land or both to be levied as a condition of consent for residential development. Dwellings obtained using this levy are to be rented to low and moderate income residents of the municipality with special needs and retained in the Willoughby Local Housing program (COW, 1995).
City of Parramatta, NSW	Council has submitted an affordable housing scheme for state government approval. It aims to ensure that as the City grows and changes, especially through zoning for higher density residential development, that a portion of housing affordable for lower income households is provided. The key mechanisms proposed is either a component of affordable housing equivalent to 3% of the floor space area to be dedicated in all medium to higher density residential and mixed use developments or a monetary contribution equal to the market value of 3% of the floor space. Ownership of dwellings will be vested in the DOH (NSW). (COP, 2003).

Need for an Affordable Housing Policy

In the absence of a policy on affordable housing at the state level, only a handful of local governments have developed affordable housing policies.

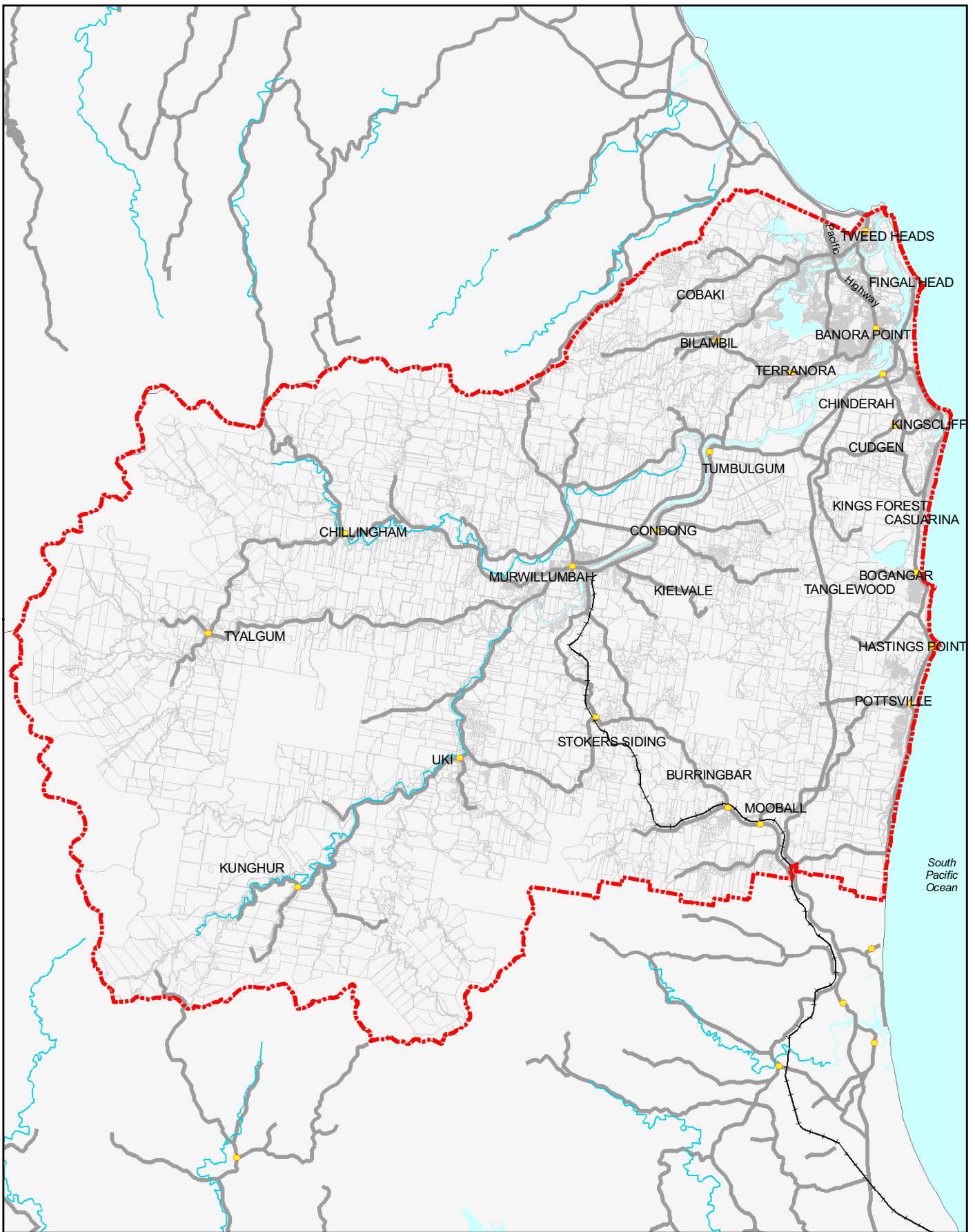
It is recognised that:

- ▶ There is a lack of knowledge and experience among local government officers dealing with affordable housing projects in many places;
- ▶ There is often suspicion of the bona fides of affordable housing development applications;
- ▶ There has been no organised community education on the role of the affordable housing sector leaving individual agencies to have to undertake this function themselves; and
- ▶ The small scale and uncapitalised state of the independently founded affordable housing companies in Australia means they are generally not in a position to purchase development sites with potential for planning gain to be achieved through rezoning. Comparing the planning policy framework for achieving affordable housing in Australia with progressive approaches elsewhere shows that local policy is embryonic, fragmented, and comparatively weak. Existing affordable housing providers have to negotiate their development proposals through the planning system without any effective support from state or local government in most places. However, where specific policies have been adopted at state or local level (notably in parts of Sydney and in the City of Port Phillip), positive outcomes have resulted with no apparent negative impact on the local housing market. Outside of these areas, it has been left up to individual providers to create the opportunity for capturing planning gain for affordable housing, as was achieved by Canberra Community Housing in the City Edge development.



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LEGEND

- LGA Boundary
- Cadastre
- Roads
- Railway Line

1:260,000 for A4
 0 1,050 2,100 4,200 6,300 8,400
 Metres

Map Projection: Universal Transverse Mercator
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 Grid: Map Grid of Australia, Zone 56



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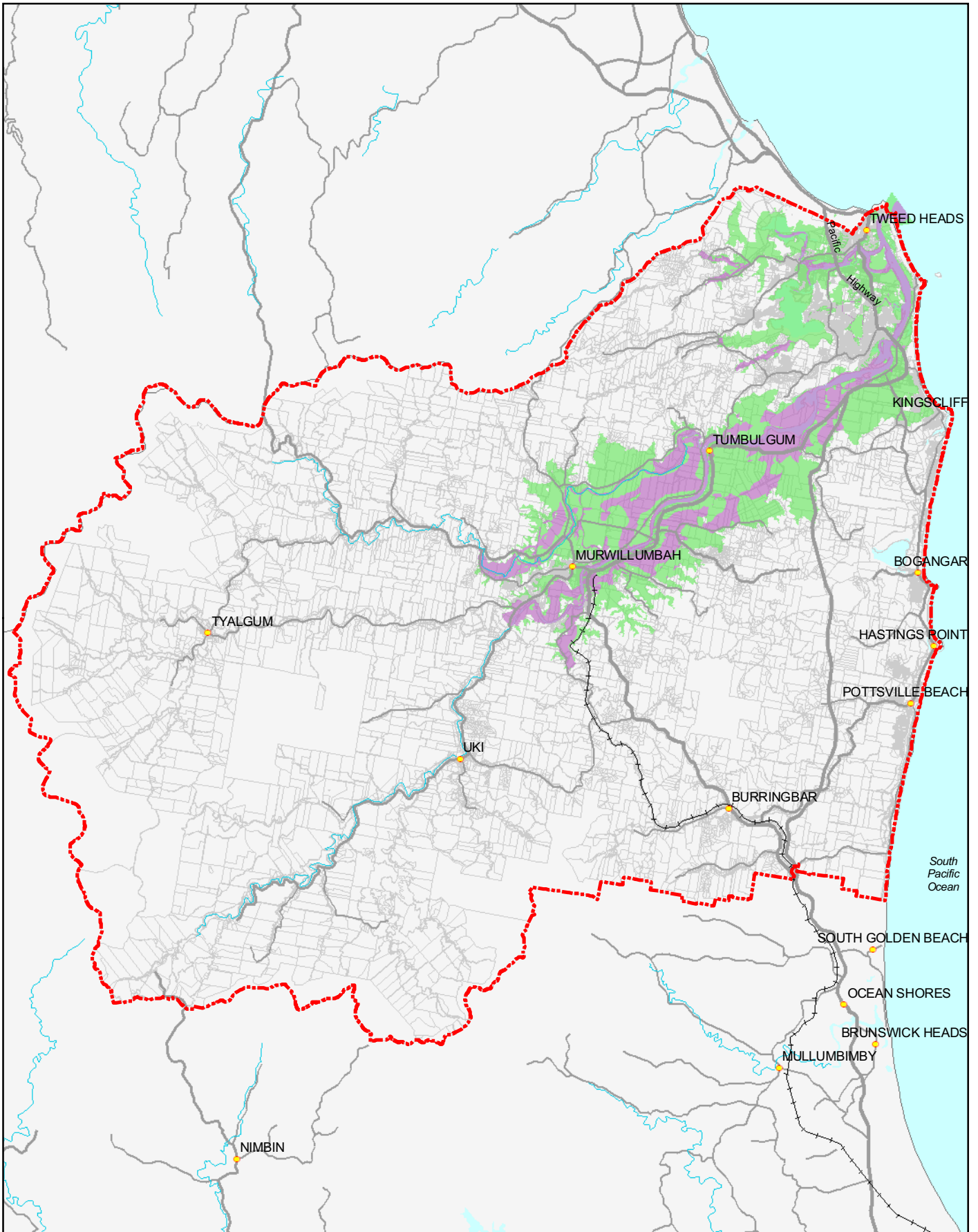
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 rev no. | A

Strategy Area

Figure 1

2 | October 2007



LEGEND

- LGA Boundary
- High hazard floodprone land
- Other floodprone land

1:259,966 for A4
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 Metres

Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
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Flood Liable Land
 2nd | October 2007

Figure 2

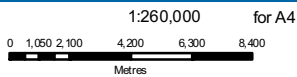


LEGEND

LGA Boundary

Slope

- < 10 degrees
- 10 degrees - 14 degrees
- > 14 degrees



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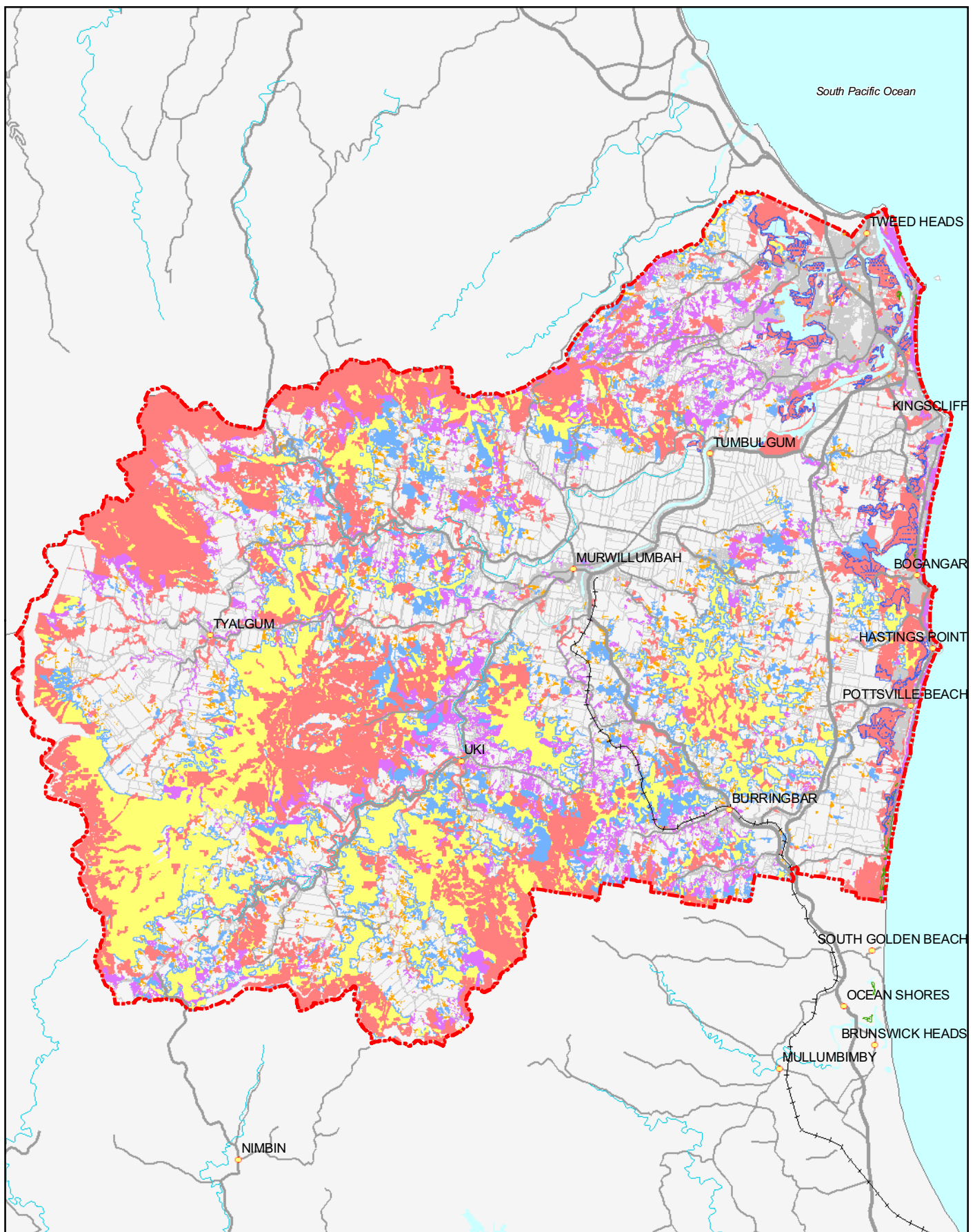
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Topography
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Figure 3



LEGEND

- LGA Boundary
- SEPP14 Wetlands
- SEPP26 Littoral Rainforest
- High Conservation Value Vegetation
- High Ecological Sensitivity Vegetation
- Moderate Ecological Sensitivity Vegetation
- Low Ecological Sensitivity Vegetation
- Degraded habitat

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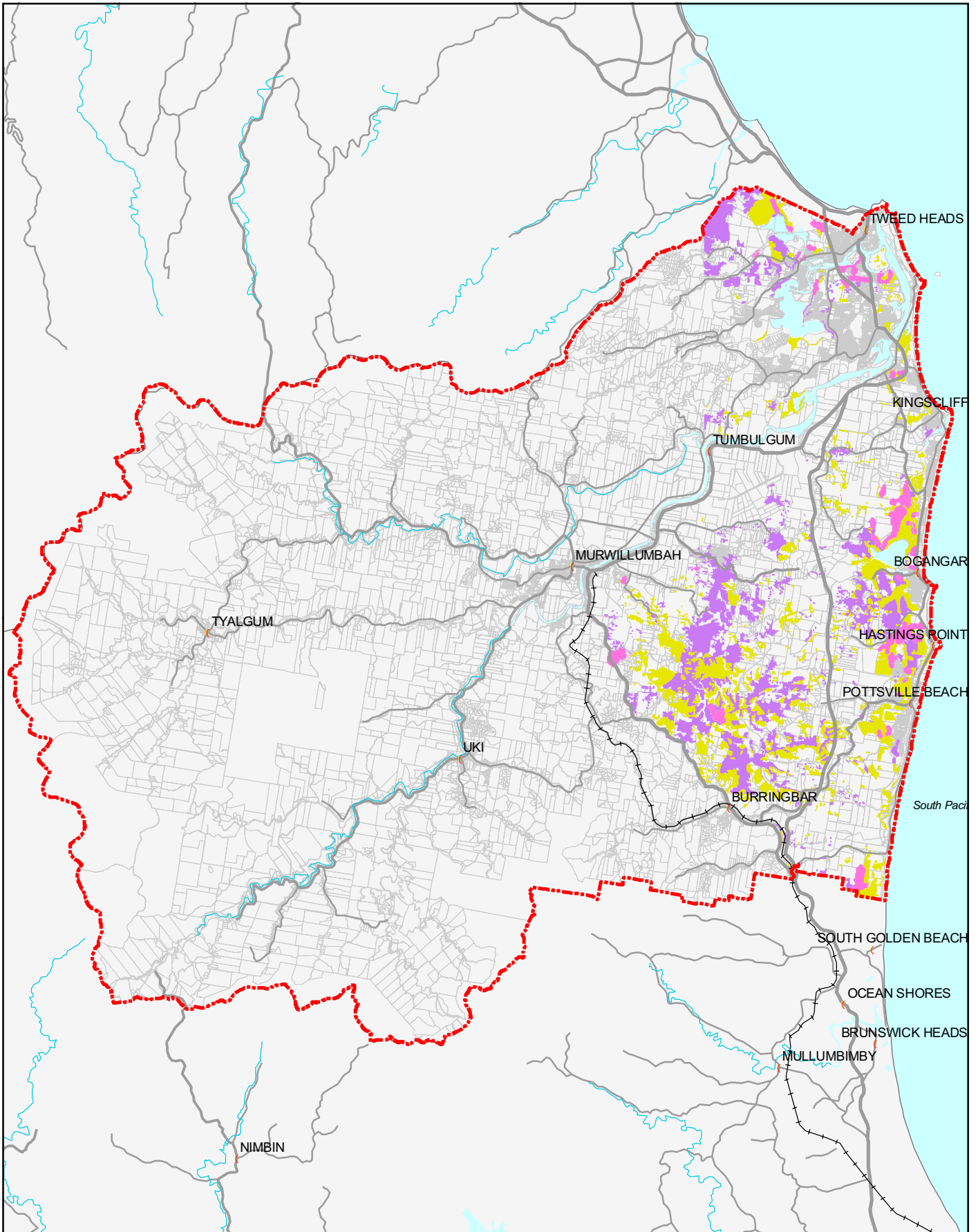
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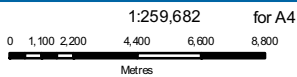
Vegetation
 2 | October 2007

Figure 4



LEGEND

- LGA Boundary
- Primary Koala Habitat
- Secondary Koala Habitat
- Marginal Koala Habitat



Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56



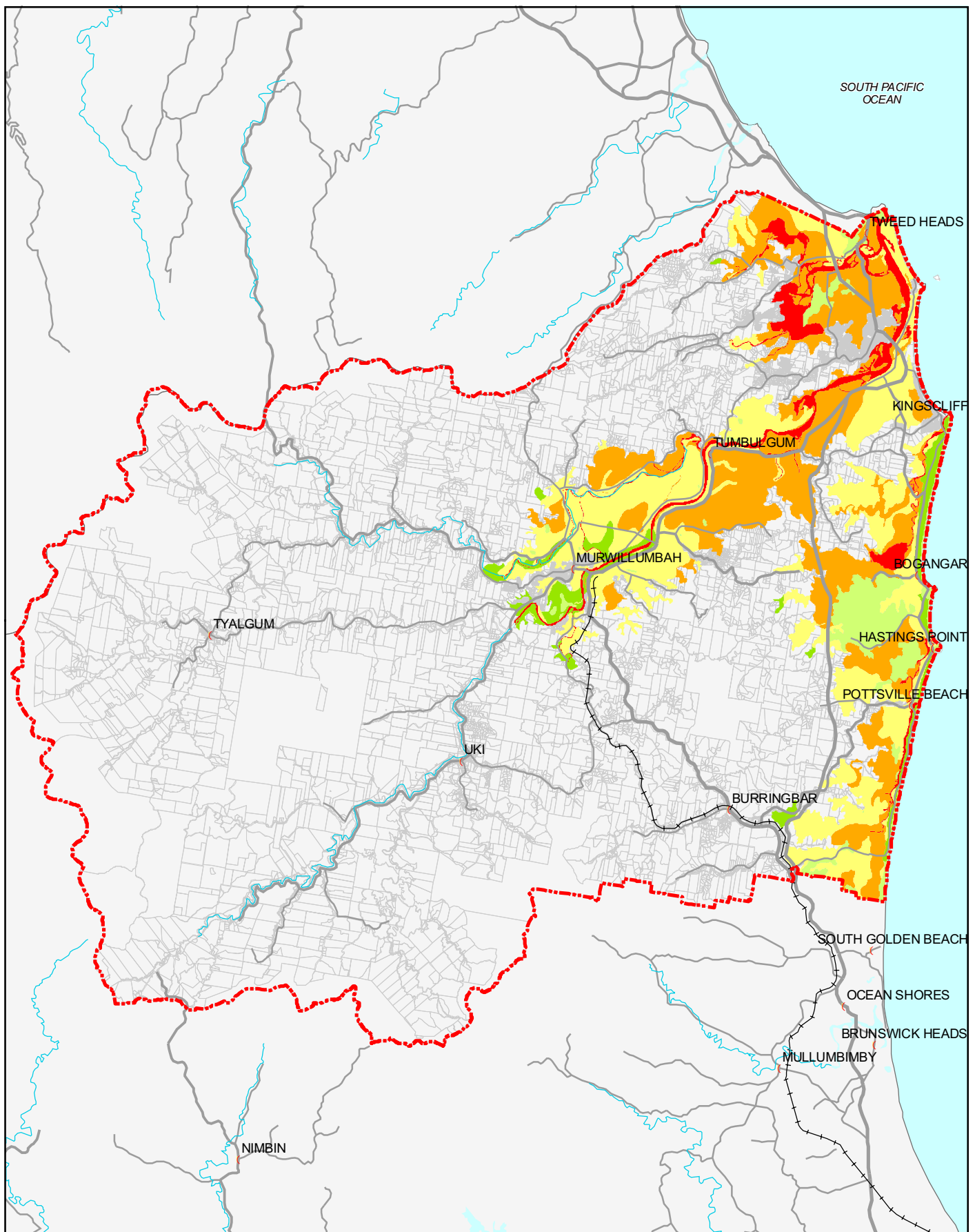
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Koala Habitat
 2 | October 2007

Figure 5



LEGEND

LGA Boundary

Acid Sulfate Soil

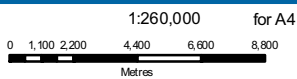
Class 1

Class 2

Class 3

Class 4

Class 5



Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56



CLIENTS | PEOPLE | PERFORMANCE

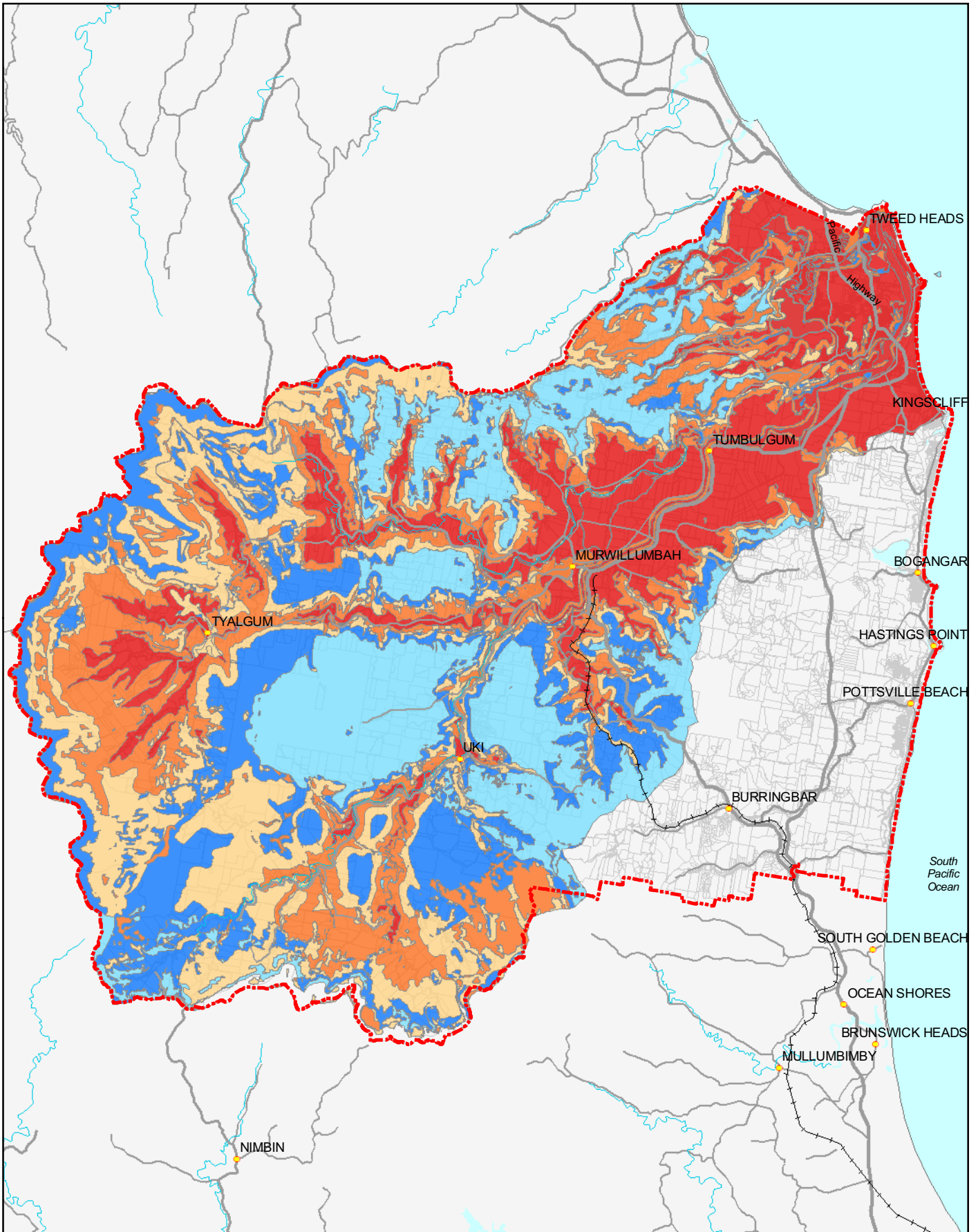
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Acid Sulfate Soils

Figure 6

2 | October 2007



LEGEND

LGA Boundary

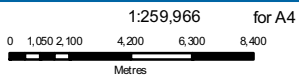
High Groundwater Vulnerability

Moderately High Groundwater Vulnerability

Moderate Groundwater Vulnerability

Moderately Low Groundwater Vulnerability

Low Groundwater Vulnerability



Map Projection: Universal Transverse Mercator
Horizontal Datum: Geodetic Datum of Australia 1994
Grid: Map Grid of Australia, Zone 56



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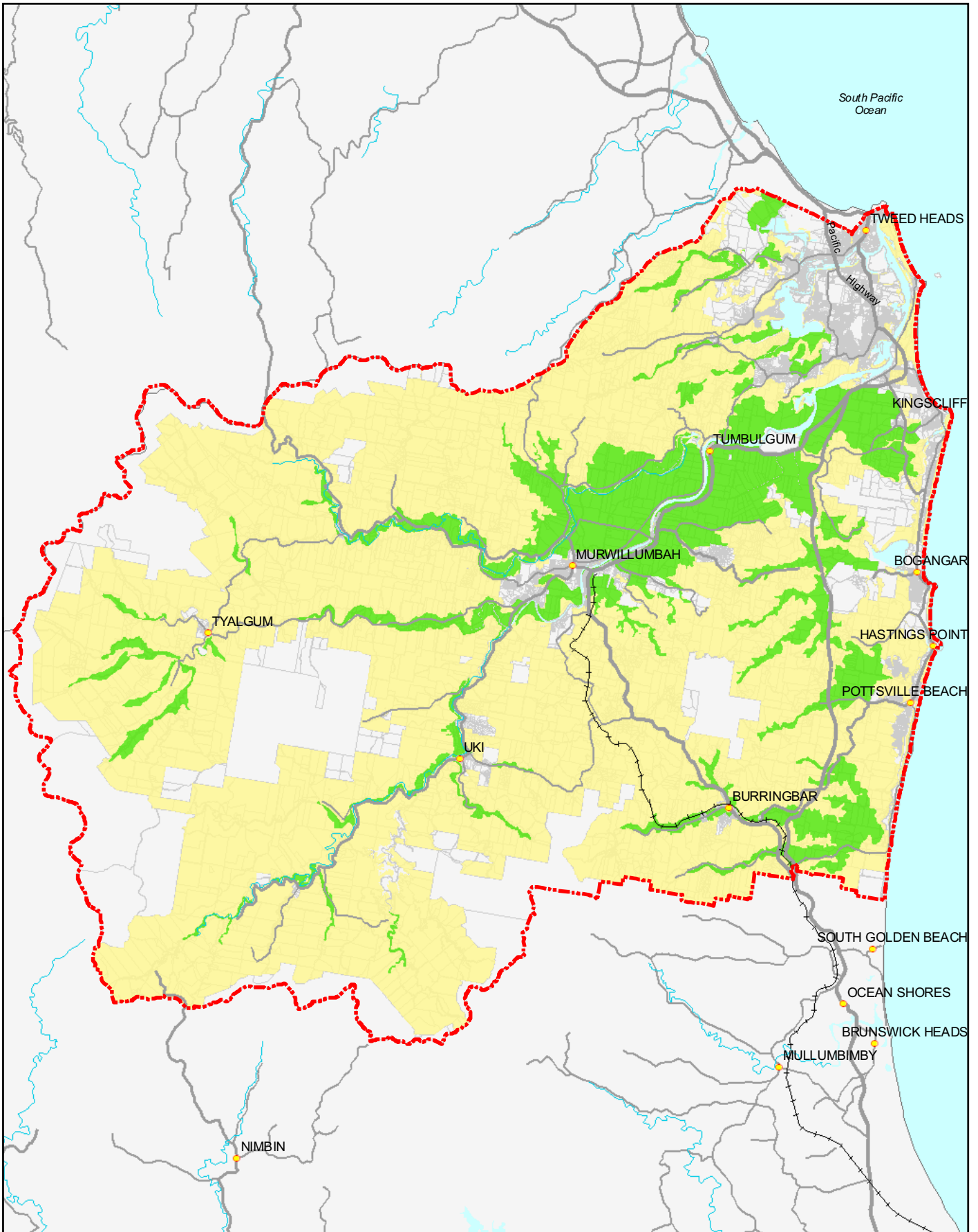
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Groundwater Vulnerability

Figure 7

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LEGEND

- LGA Boundary
- Agricultural Land - State or Regional Significance
- Agricultural Land - Local Significance

1:260,000 for A4
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 Metres

Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
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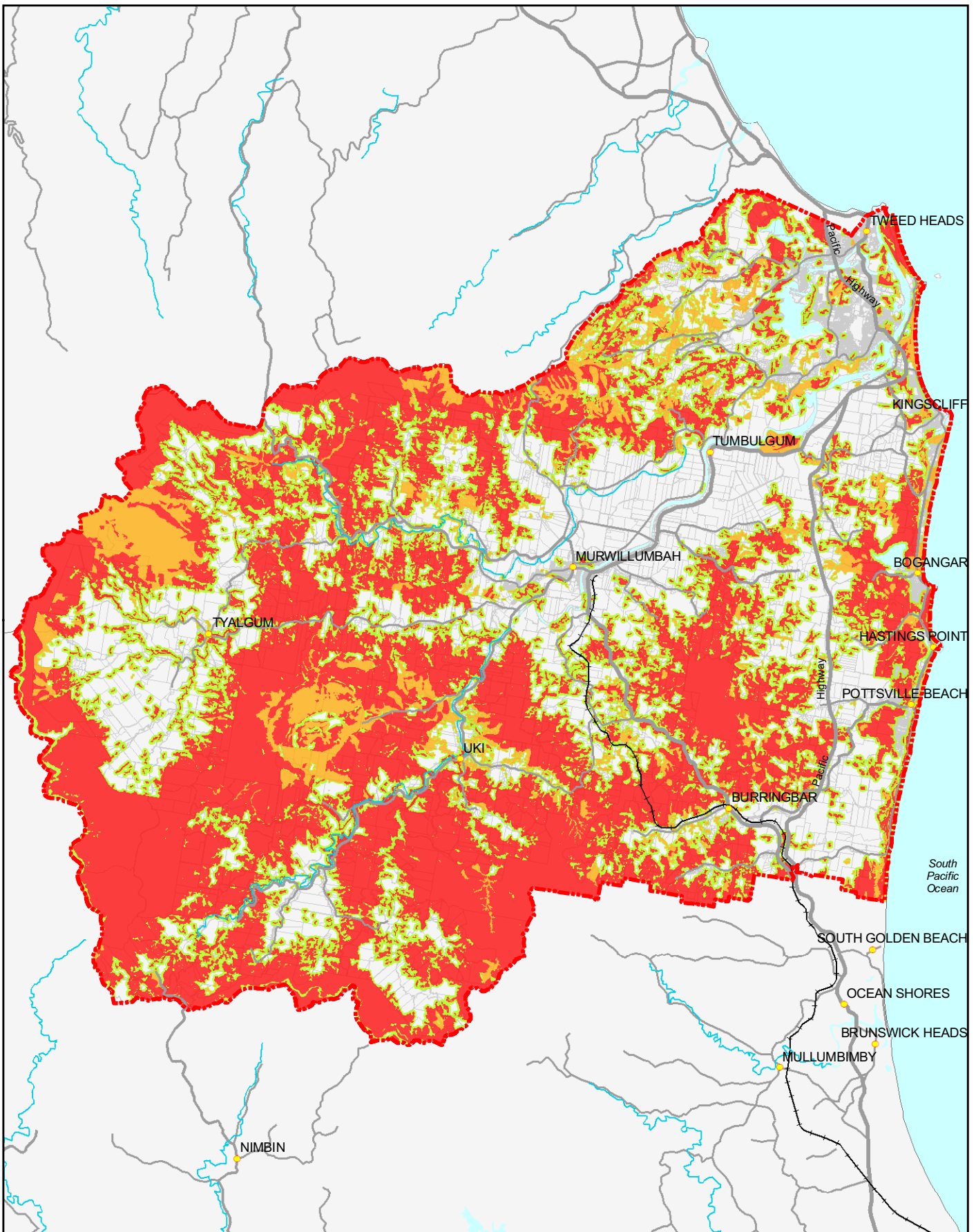
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 Tweed Employment Land Strategy

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Agricultural Land
 2nd | October 2007

Figure 8



LEGEND

- LGA Boundary
- Bushfire Hazard Vegetation Category 1
- Bushfire Hazard Vegetation Category 2
- Bushfire Hazard Vegetation Buffer 30m and 100m

1:260,000 for A4
 0 1,050 2,100 4,200 6,300 8,400
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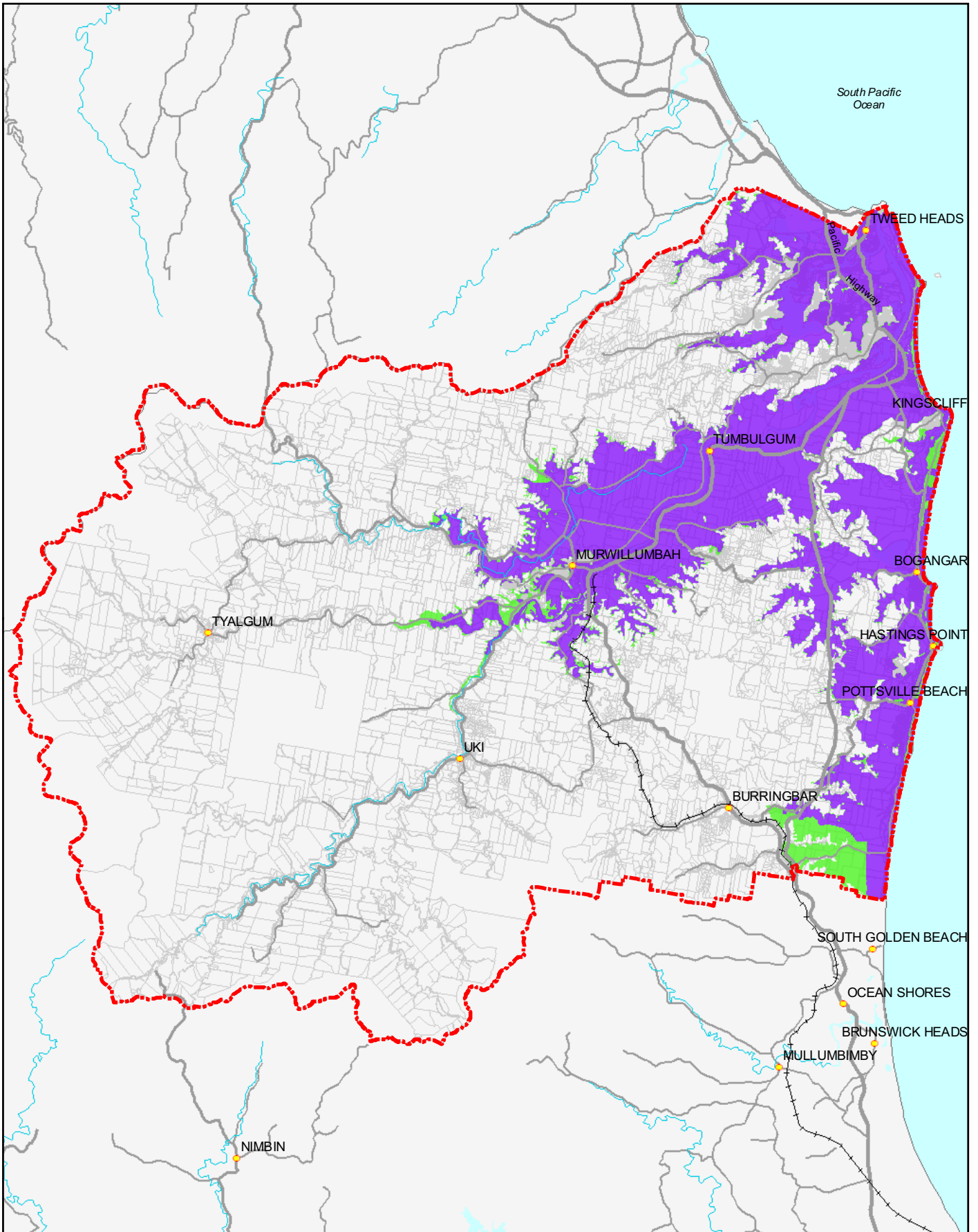
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Bushfire Hazard

Figure 9

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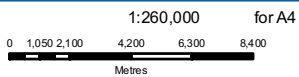
LEGEND

LGA Boundary

Land Susceptible to Climate Change

< 5m above sea level

5m - 10m above sea level



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Grid: Map Grid of Australia, Zone 56

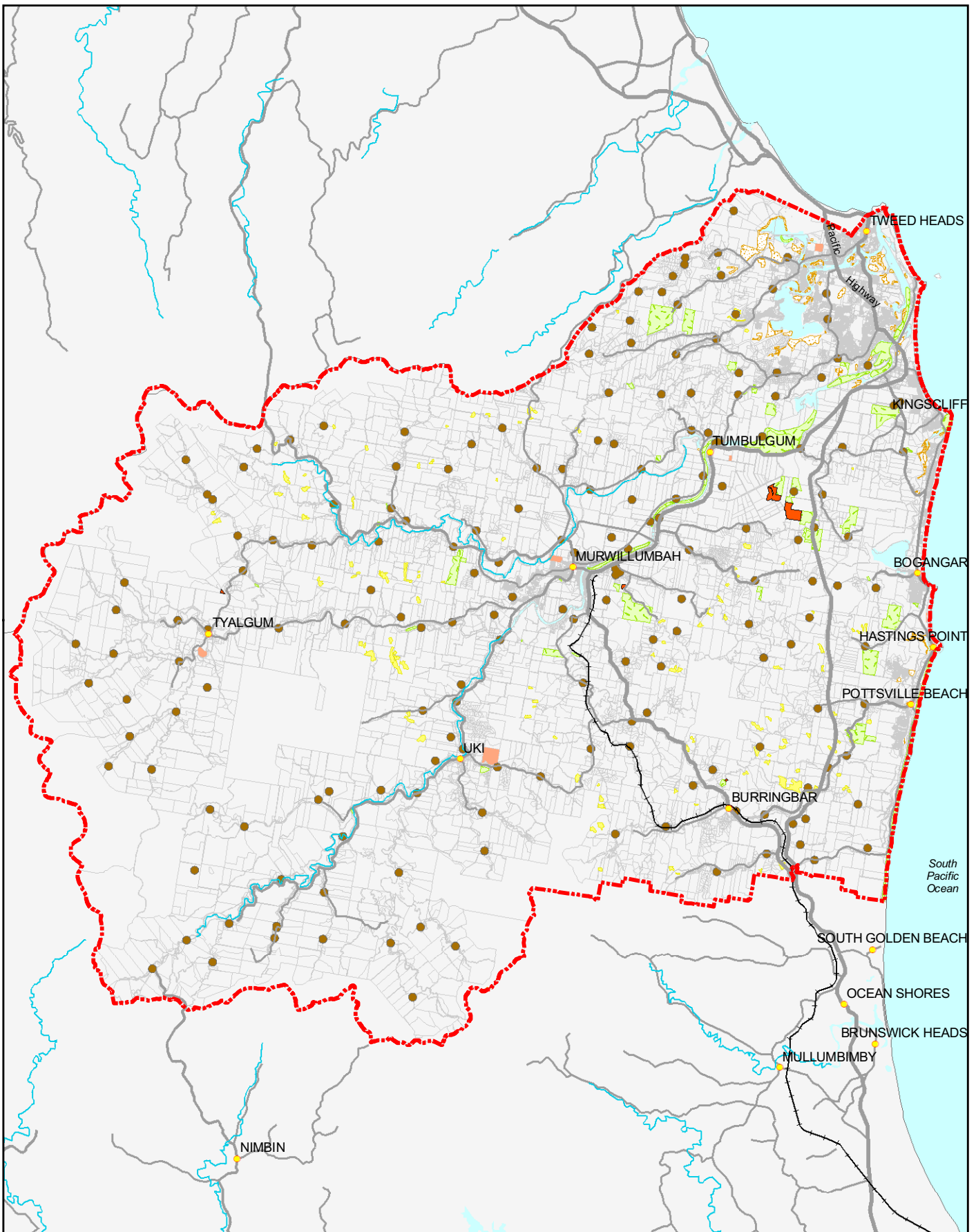


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Tweed Shire Council
Tweed Employment Land Strategy
**Land Susceptible to
Climate Change**
2nd | October 2007

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Figure 10



LEGEND



LGA Boundary

Cattle Dip Site Areas

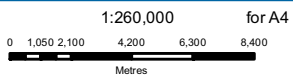
Garbage Depots

Biting Insects

Banana Plantations

Quarries

Sewage Treatment Plants (STPs)



Map Projection: Universal Transverse Mercator
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Grid: Map Grid of Australia, Zone 56



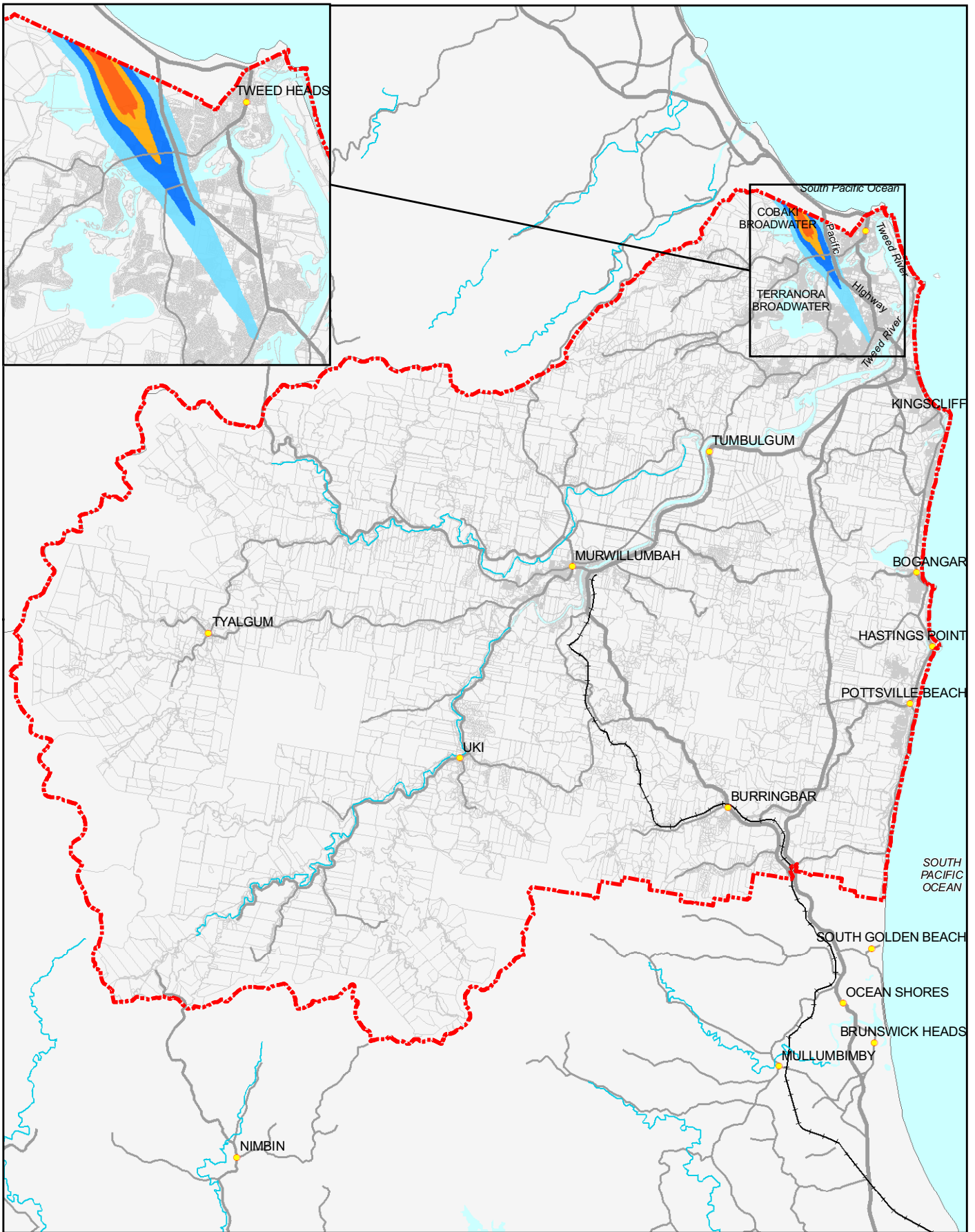
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Contaminated Lands, Garbage Depots, Quarries, Biting Insects, STPs Figure 11

2 | October 2007



LEGEND

- LGA Boundary
- ANEF Ranking**
- > 40
- 30 - 40
- 25 - 30
- < 25

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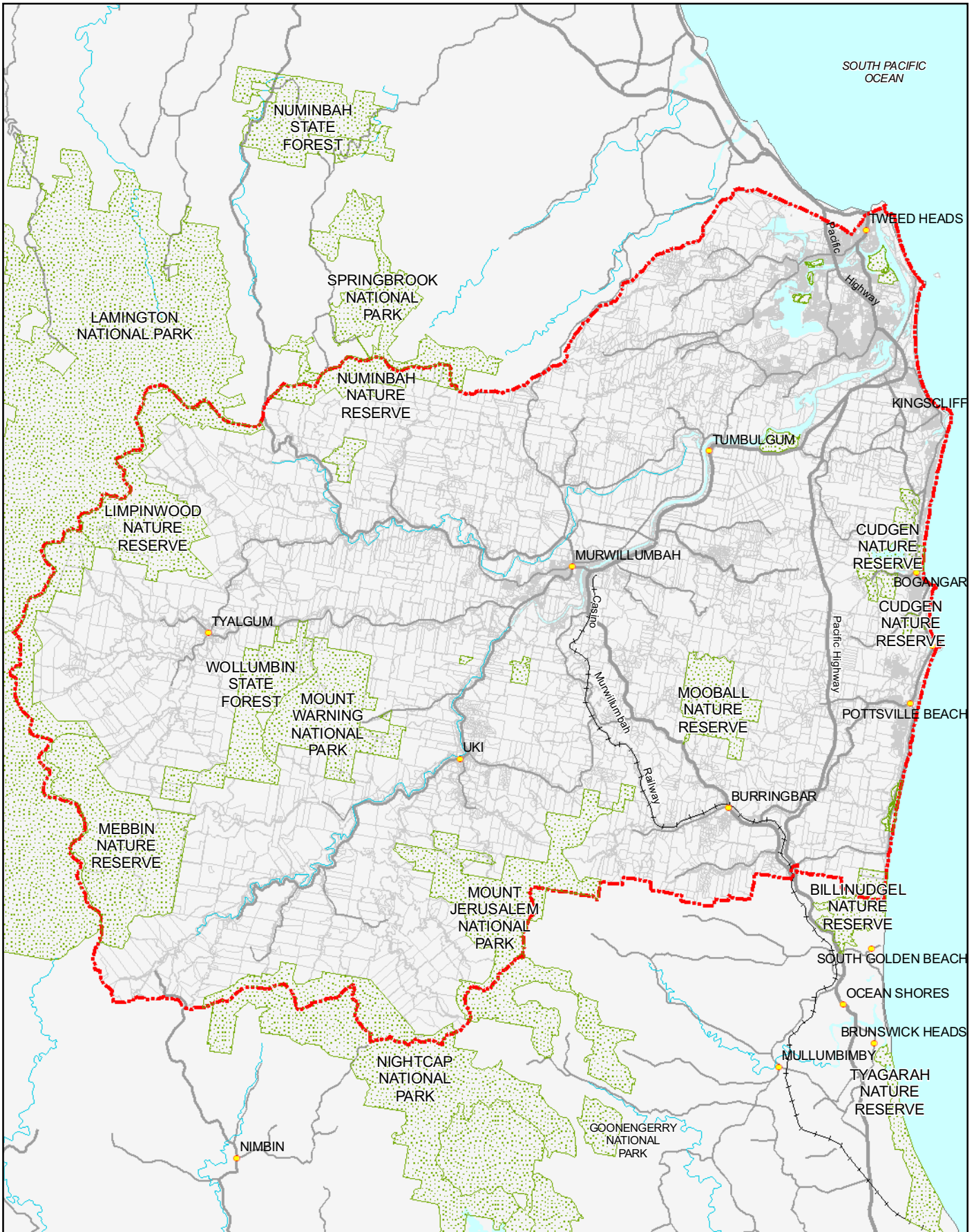
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Tweed Shire Council

Aircraft Noise
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Figure 12

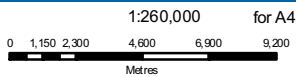


LEGEND



LGA Boundary

National Parks, Nature Reserves, State Forests



Map Projection: Universal Transverse Mercator
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Grid: Map Grid of Australia, Zone 56



CLIENTS | PEOPLE | PERFORMANCE

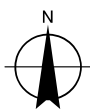
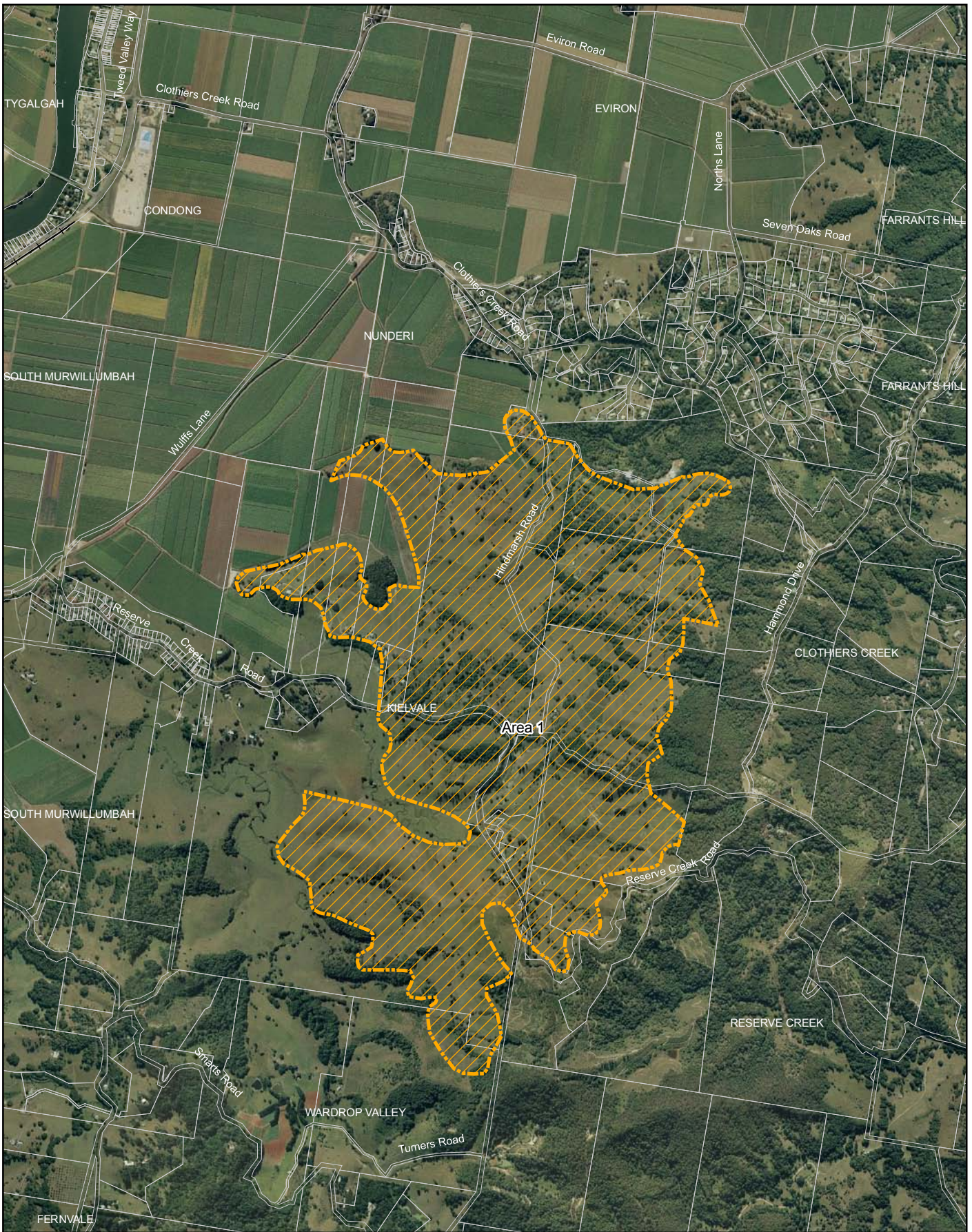
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National Parks, Nature Reserves and State Forests

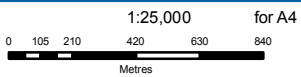
Figure 13

2 | October 2007



LEGEND

- LGA Boundary
- Railway Line
- Potential Urban Release Lands
- Cadastre
- WatercourseAreas



Map Projection: Universal Transverse Mercator
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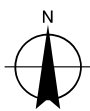


CLIENTS | PEOPLE | PERFORMANCE

Tweed Shire Council
 Tweed Urban Land Release Strategy
Potential Urban Release Lands
 Kielvale
 14 February 2008

job no. | 22-13461
 rev no. | B

Figure 14



LEGEND

- LGA Boundary
- Cadastre
- Railway Line
- Watercourse Areas
- Potential Urban Release Lands

1:30,000 for A4
 0 115 230 460 690 920
 Metres

Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56

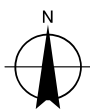
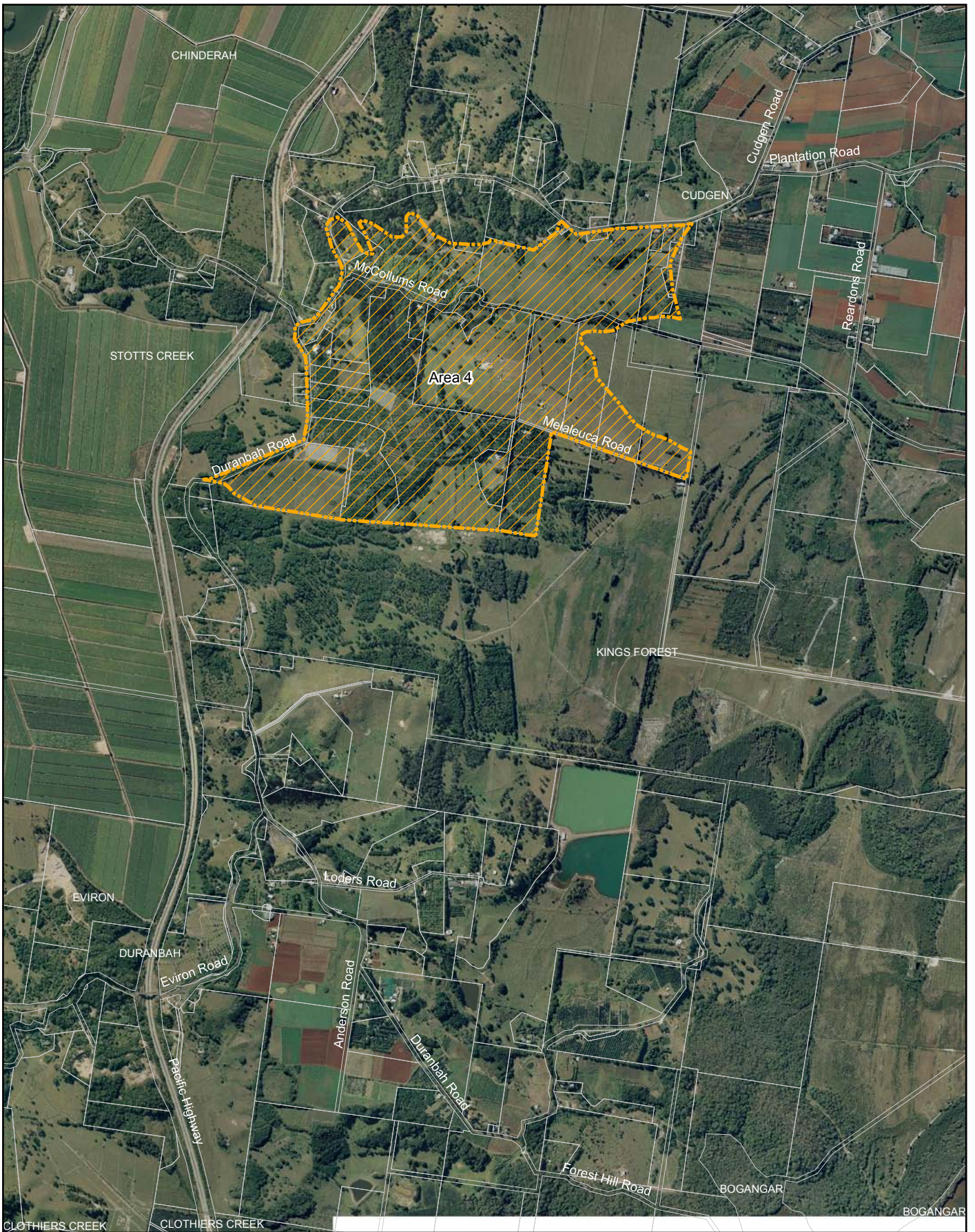


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Tweed Shire Council
 Tweed Urban Land Release Strategy
Potential Urban Release Lands
 North Arm & Byangum
 14 | February 2008

job no. | 22-13461
 rev no. | B

Figure 15



LEGEND

LGA Boundary
 Cadastre

Railway Line
 WatercourseAreas

Potential Urban Release Lands

1:25,000 for A4
 0 87.5 175 350 525 700
 Metres

Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56

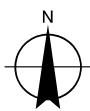


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Tweed Shire Council
 Tweed Urban Land Release Strategy
Potential Urban Release Lands
 Kings Forest West
 14 | February 2008



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Figure 16

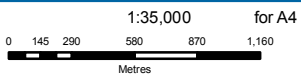


LEGEND

 LGA Boundary
 Cadastre

 Railway Line
 Watercourse Areas

 Potential Urban Release Lands



Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56

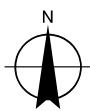
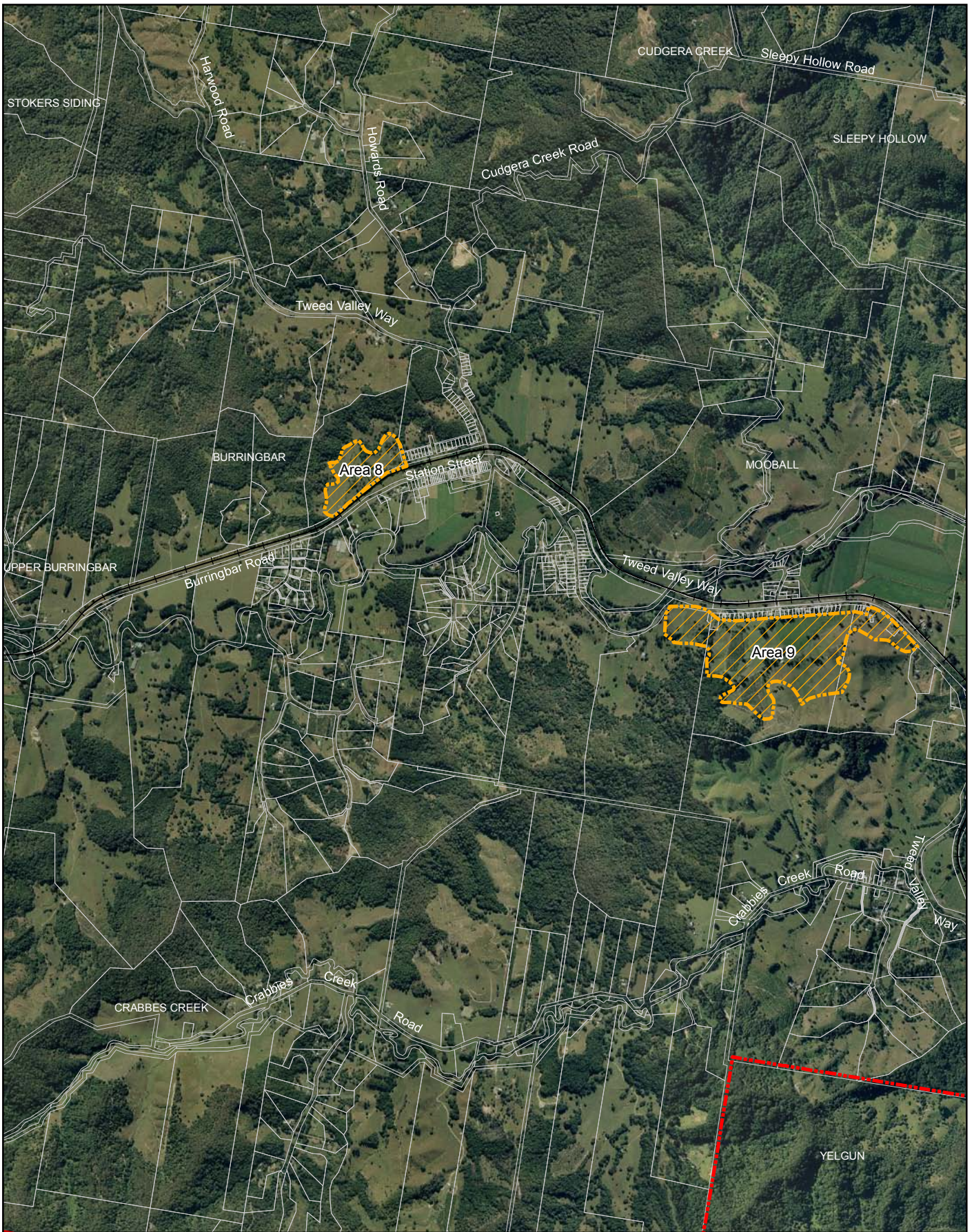


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Tweed Shire Council
 Tweed Urban Land Release Strategy
Potential Urban Release Lands
 Cudgera Creek & Pottsville
 06 | March 2008

job no. | 22-13461
 rev no. | C

Figure 17



LEGEND

LGA Boundary
 Cadastre

Railway Line
 Watercourse Areas

Potential Urban Release Lands

1:30,000 for A4
 0 120 240 480 720 960
 Metres

Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56



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Tweed Shire Council
 Tweed Urban Land Release Strategy
Potential Urban Release Lands
 Burringbar & Mooball
 14 | February 2008

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Figure 18



DRAFT ONLY*

GHD Pty Ltd ABN 39 008 488 373

Suite 2 317 River Street Ballina NSW 2478





PO Box 372 Ballina NSW 2478

T: 02 6620 6500 F: 02 6620 6501 E: bnkmail@ghd.com.au

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	M Svikis B Wilkinson	S. Lawer		S. Lawer		31/10/07
1	M Svikis B Wilkinson	S. Lawer		S. Lawer		10/03/08