

Tweed Shire Council
Tweed Shire Employment
Lands Strategy

2009

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Summary

In 2004 Tweed Shire Council identified the need to prepare an employment lands strategy to identify suitable areas of industrial and commercial land to meet current and projected needs and promote economic development as part of a sustainable approach to strategic planning. Strengthening the Tweed economy is essential to provide employment for the growing population, keep young people in the Shire and to underpin sustainable communities (TSC, 2004). The Tweed Shire Employment Lands Strategy has been prepared for Tweed Shire Council to guide and manage future industrial and commercial development within the Shire until at least 2031.

For the purposes of this Strategy, employment lands are defined as “any land that is predominantly used for commercial activities resulting in employment (specifically excluding land predominantly used for retail uses)”. Based on this definition, the analysis considers industrial-based activities typically located within industrial zones and business park settings and commercial/professional services businesses typically housed in office space within commercial zones and also business park settings.

The Tweed is fast growing in population terms, but recorded negative growth in economic terms of 1.0% in 2004-05. The region is poised to benefit from the flow-on growth from South East Queensland and the Gold Coast where there are reducing land stocks and increasing property prices. The Tweed offers the potential to extend the economic corridor between Brisbane and the Gold Coast.

Using a preferred employment-based methodology, which considers the employment capacity and demographic trends of the Tweed, there is projected demand for between 110 and 250 ha of industrial land over the next 25 years. At the upper end of this range that equates to about 10 ha of industrial land each year. This demand is significantly higher than historic take-up rates and is reflective of the spatial requirements of specific economic development opportunities and initiatives.

Tweed Shire has approximately 231 ha of zoned industrial land of which approximately 138 ha is vacant land. However, this vacant land bank should be discounted to 102 ha to account for physical and infrastructure constraints which affect different areas. This discounted amount equates to about 10 years supply of land based on the “land demand per employee methodology” for assessing employment land demand. Taking a pro-active approach Tweed Shire requires a replenishing 25 years supply, so additional land is required. If Council wants to maintain a significant stock of zoned land in order to provide a variety of development locations it will need to commence replenishing land stocks through the rezoning process by 2011.

This Strategy identifies a number of locations that may be suitable for further investigation including land west of Pottsville, land in West Tweed Heads near the Gold Coast airport, land at Chinderah and land in the Wardrop Valley near Murwillumbah. Together these sites total approximately 236 ha (net area, given assumptions about development yield and not including Area 1) of land that can be identified as having potential for employment lands. This constitutes approximately a further 24 years supply of land. These sites meet physical suitability criteria, have good access to transport links, have proximity to existing and /or proposed employment

lands, development, can generally be serviced and are spread out across the Shire to provide a choice of locations. They are consistent with the urban centres hierarchy for the Tweed Shire.

Based on a supply per capita approach, there is projected demand for between 19,800m² and 29,100m² of office space across the Tweed over the next 25 years, concentrated within the established centres of Tweed Heads, Tweed Heads South and Murwillumbah. Providing additional office floor space would alleviate reported supply shortages and improve the quality and range of space and enable the entry of larger tenants, the expansion of existing businesses and the provision of additional business support services.

Anecdotal evidence suggests that vacancies in the current commercial floor space supply of 58,970m² are low. In line with the suggested urban centres hierarchy in this Strategy, it is recommended that 65 % of the projected demand be catered for in existing commercially zoned areas in Tweed Heads and Tweed Heads South with the remainder split between Murwillumbah, South Murwillumbah and other existing commercially zoned areas. Council may also consider a proposal for an expansion of commercial zoned land at Tweed Heads, but this needs to be considered on a locality basis and in conjunction with the Tweed Retail Strategy.

Readers of this Strategy are 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.

GHD acknowledges the input of the AEC group in preparing the economic and demand assessment components of the Tweed Shire Employment Lands Strategy.

1. Introduction

1.1 Purpose of this Strategy

In its “Tweed 4/24 Strategic Plan” Tweed Shire Council identified the need to prepare an employment lands strategy to identify suitable areas of industrial and commercial land to meet current and projected needs and promote economic development as part of a sustainable approach to strategic planning. Council concluded that strengthening the Tweed economy is essential to provide employment for the growing population, keep young people in the Shire and to underpin sustainable communities (TSC, 2004). GHD and the AEC group have prepared this Strategy.

1.2 Vision Statement

To guide and fashion future employment lands development within the Tweed with certainty and provide for sustainable employment opportunities that capitalise on the areas natural and built attributes for present and future generations.

1.3 Strategy Timeframe and Review

This Strategy provides for the projected employment growth through a staged release of “greenfield sites” over the next twenty five 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 Tweed. 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 aim 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.39) in relation to Council preparing a commercial expansion strategy and the principles for commercial and industrial development in clauses 46 to 48;
- ▶ Provide a range of locations for new employment generating developments to 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 “greenfield sites” are not all 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.

1.5 Strategy Area

The strategy area (identified in **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 part 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 identified in **Figure 1**.

2. Relevant Planning and Economic Documentation

2.1 Planning Documentation

2.1.1 Introduction

There is a hierarchy of statutory planning instruments and policies affecting urban 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 2.1.2.

At the regional and local level there are several 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 Estuary Management Plan;
- ▶ Tweed Coastline Management Plan;
- ▶ Tweed Floodplain Management Plan;
- ▶ Murwillumbah Scoping Study, 2007(draft);
- ▶ Tweed Vegetation Management Strategy, 2004; and
- ▶ Tweed Integrated Water Cycle Management Strategy, 2006
- ▶ Settlement Planning Guidelines, 2007
- ▶ Tweed Road Development Strategy - 2007

These are described in Section 2.1.3.

2.1.2 Relevant Statutory Documents

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.

State Environmental Planning Policies

A number of SEPPs that may be applicable to the Tweed Shire Employment Lands 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 Planning NSW for clearing, draining, filling of, or constructing a levee within, the identified wetlands. 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 statewide 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 statewide 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 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 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.

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 39 of the NCREP states that in preparing LEP's in relation to retail, commercial or business activities council should ensure:

- (a) *the expansion is adjacent to or adjoins the existing commercial centre, or*
- (b) *if the expansion is not adjacent, then it should be in accordance with a commercial / retail expansion strategy prepared by the council.*

Clause 46 of the NCREP has the objective of encouraging an adequate supply of zoned land located where there are planned growth areas foreshadowed and where essential services can be provided with minimal environmental damage.

Note that Council has a recently prepared a Retail Strategy (TSC, 2005). It is intended that the Employment Lands Strategy work together with this document to guide future employment development.

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 Council policy. 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. Employment lands activities are focussed on land zoned 4(a) Industrial, but some employment activities such as offices and light industries are also permitted in the 2(d) Village zone, 2(c) Urban expansion zone, and 3(c) Commerce and Trade zone.

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.

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 areas 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.

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 19 July 2007, these directions have been considered for the purpose of this Strategy.

2.1.3 Relevant Strategic Documents

Far North Coast Regional Strategy

The Far North Coast Regional Strategy was prepared by the Department of Planning in 2006. It will 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 has recognised the potential impacts on the Region from the rapid growth of South East Queensland. Specific to Tweed Shire the Strategy identifies Tweed Heads as a major regional centre. The revitalisation of Tweed Heads 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.

The strategy also identifies that the region requires at least 32,500 new jobs as a result of the projected population growth. Across the region this translates to at least 156 ha of additional industrial land and 76 ha of commercial land. It also states that in planning for future industrial needs Council should first examine existing urban areas. However, it should also take into account economic markets, South East Queensland pressures, lifestyle opportunities and transport improvements. The strategy nominates Tweed Heads as suitable for large scale tourism facilities and nominates Chinderah as a site suitable for

a highway service centre. The employment lands identified in the Far North Coast Regional Strategy for the Tweed LGA are shown in Figures 18, 19 and 20 of this Strategy overlaid on air photos.

NSW Coastal Policy

The NSW Coastal Policy (1997) 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 North Coast REP.

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 and needs of this Strategy, regional farmland has been considered in the same way as State significant farmland - an absolute constraint.

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

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.

Settlement Planning Guidelines

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 Strategy to ensure that where possible it meets the expectations of the State government.

Tweed Coastal Strategy

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.

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 Urban Land Release Strategy.

Tweed 4/24, Strategic Plan

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 Shire'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 Cobaki Lakes, Kings Forest, 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 will be considered for the preparation of this Urban Land Release Strategy.

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.

Coastline Management Plan

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, 2005).

Tweed Valley Floodplain Risk Management Plan

- ▶ Tweed Valley Floodplain Risk Management Plan Part I establishes the "design flood level" at 1% AEP. 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. Part 3 considers emergency response provisions for habitable land uses in the flood plain. The recommendations of the Part 1,2 & 3 Plans have been adopted into DCP Section A3 – Development of Flood Liable Land. Further work on the TVFRMP is currently underway by consultants, which may impact on suitability for flood prone land for future urban development.
- ▶ New urban development on the floodplain is only appropriate where it can be demonstrated that the development will have no significant adverse impacts on local flood behaviour, when considered in isolation and as a part of a cumulative development scenario. Flood impact assessment will be required, in accordance with the NSW Floodplain Development Manual.

Tweed Integrated Water Cycle Management Strategy

Integrated Water Cycle Management (IWCM) 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 IWCM process is the preparation of an IWCM Strategy. The IWCM 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.

Tweed Vegetation Management Strategy

The Tweed Vegetation Management 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. It was complete in 2004.

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 Tweed Vegetation Management Strategy (Ecograph, 2004) outlines that only a relatively small proportion of mapped bushland (1.5%) 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.

Murwillumbah Scoping Study (Draft Report)

Tweed Shire Council (2007) has prepared a draft Scoping Study for Murwillumbah. The key issues identified and addressed in this 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.
- ▶ It should be noted some of the base data informing that 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).

Potential Industrial Land Investigation and Site Analysis – Tweed Shire

- ▶ Tweed Shire Council undertook an industrial land investigation in 2000. This work examined the supply of industrial land and the likely future demand for it based on estimates of population growth. It identified and evaluated a range of sites that might be suitable for industry, wholesale and trade uses and enterprise parks. Although the initial report was adopted by Council in April 2000, there has been no significant implementation of its recommendations. The sites examined in that work are a good comparison for the employment lands suitability mapping identified in this Strategy.

Tweed Road Development Strategy

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.

2.2 Economic Documentation

Extensive work has been undertaken both for the Northern Rivers region and for the Tweed Shire in relation to a range of economic issues. The economic and industry profile and assessment of supply, demand and opportunities for this strategy draws on this work where possible and they are referenced in this strategy. However, it is appropriate to focus on several publications in particular.

2.2.1 Tweed Shire Retail Strategy

Core Economics (2005) has prepared a Retail Strategy for Tweed Shire, outlining a strategy framework intended to inform the strategic planning process and allow Council to define usage and functional parameters for each existing, proposed and intended, centre in the Tweed. The urban centres that it focussed on reflect the State Suburbs used by the ABS in its publications and research.

Supply Assessment

A character assessment was provided for the main retail centres in the Tweed. The existing retail floorspace for each centre in 2005 was:

- ▶ Tweed Heads - 99,532 m²
- ▶ Tweed Heads South - 199,857 m²
- ▶ Tweed Heads West - 16,125 m²
- ▶ Terranora - 2,257 m²
- ▶ Bilambil/Bilambil Heights - minimal
- ▶ Banora Point - 20,235 m²
- ▶ Fingal - 1,088 m²

- ▶ Chinderah - 15,325 m²
- ▶ Kingscliff - 26,266 m²
- ▶ Cabarita - 3,050 m²
- ▶ Hastings Point - 870 m²
- ▶ Pottsville - 7,980 m²
- ▶ Murwillumbah - 78,538 m²
- ▶ Rural West - 22,613 m²

In summary, the report indicated Tweed Heads South was the largest concentration of retailing, catering for higher order retail needs (especially comparison retail and showroom retail) and functioning as a consolidated regional centre to a northern NSW catchment. Tweed Heads records a mix of retail and commercial uses and was formerly the dominant retail centre in the Tweed. Murwillumbah serves local and outlying rural residents with supermarket and convenience retail. It was considered that other Tweed coastal towns and villages generally serve a convenience of daily impulse need from local residents.

Demand Assessment

The following retail floorspace demand forecasts were prepared for three catchments within the Tweed for the 20-year period from 2004. A total of 83,400 m² of retail floorspace demand was forecast for the entire Council area, with more than half forecast for the Urban North catchment (43,062 m²) (see Table 2-1). The Coastal catchment (35,712 m²) accounted for almost 43% of the total, with the Rural West (4,620 m²) the remainder.

The report comments that overall demand for retail floorspace in the Tweed is generated by regional residents as well as the inflow from northern NSW and tourists and residents of the Gold Coast. The report notes that catering to future demand in the Tweed is dependent on maintaining the character of existing areas, retail centres and precincts, as well as meeting the needs of local residents and providing a regional focus for higher order shopping such as retail showrooms and a regional shopping centre.

Table 2-1: Forecast Change in Retail Floorspace Requirements (m²)

	Urban North		Coastal		Rural West		Total	
	2004-14	2014-2024	2004-14	2014-2024	2004-14	2014-2024	2004-14	2014-2024
Convenience	7,697	7,563	7,625	4,939	876	761	16,198	13,263
Warehouse Retail	6,572	6,458	6,605	4,279	748	650	13,925	11,387
Clothing & Footwear	2,080	2,044	2,097	1,358	237	206	4,414	3,608
Other Retail	5,954	1,769	1,761	1,141	205	178	7,920	3,088
Food & Beverage Services	11,806	3,508	3,573	2,315	406	353	15,785	6,176
Total	21,719	21,343	21,680	14,032	2,473	2,147	45,872	37,522

Source: AECgroup

The report comments that the dispersed population of the Tweed Coast makes the provision of a single consolidated centre problematic, leading to two options: Develop a series of local centres scaled to meet the needs of the local catchment; or establish a higher order retail centre to act in concert with smaller centres in each coastal community that would cater for the needs of the immediate population. The report also notes Tweed Heads South hosts a significant amount of retail showroom space in a precinct that is approaching capacity. A new precinct will need to be identified to cater to future demand.

Development Strategy

The Core Economics report outlines a retail strategy matrix and retail strategy to guide future retail development in the Tweed across each of the existing, proposed and intended centres in the three catchments (Urban North, Coastal and Rural West). The strategy does not outline floorspace development parameters for each individual centre by distributing the forecast retail floorspace demand for the Tweed.

In terms of the two largest retail centres, the report outlines the following policy framework:

Tweed Heads: Incremental expansion of the existing centre and precinct, this existing precinct has the potential to be a focal point (of retail and other related uses) through the development and integration of street based retailing with existing centres; and

Tweed Heads South: Expansion of Tweed Heads South to cater to future demand, the precinct is to increase as demand dictates. Retail showrooms to be accommodated at Chinderah as Tweed Heads South area reaches capacity and demand dictates.

2.2.2 Tweed Shire Economic Growth Management Strategy 2007-2010 (Ready for Business).

This document was prepared jointly by Tweed Shire Council and the Tweed Economic Development Corporation (TEDC) and adopted by Council in December 2006. It aims to promote a strong economy and diverse employment opportunities through industry specific strategies and projects.

It targets the following as major areas of interest:

- ▶ research and development;
- ▶ land use planning;
- ▶ industry development initiatives;
- ▶ CBD revitalisation;
- ▶ cross border issues;
- ▶ infrastructure development;
- ▶ marketing and promotion; and
- ▶ regional partnerships.

2.2.3 Northern Rivers Regional Industry and Economic Plan (NRRIEP)

This document was finalised in November 2005 as a joint project of the Northern Rivers Regional Development Board, NSW Department of State and Regional Development, Southern Cross University and NSW Department of Planning (NRRB, 2005).

The purpose of the NRRIEP is to provide a development framework for use by industry partners to inform decision making, collaboration and alliances. The goal the plan nominates for the region is to “*achieve economic development and employment growth in a sustainable way for our regions population*”. Sustainable economic development is defined as activity that improves the prosperity of the region or at least maintains it, without prejudicing the capacity for future generations to enjoy the environment.

The NRRIEP defines nine economic development objectives to support its sustainability approach as follows:

- ▶ To encourage economic diversity and the creation of long term employment opportunities throughout the region while protecting the region’s environment and liveability;
- ▶ To encourage economic development activities that will assist in the creation of a viable and sustainable network of towns and villages;
- ▶ To increase exports and import replacement;
- ▶ To increase efficiency and ensure that business and industry is afforded access to well maintained and world class hard and soft infrastructure;
- ▶ To foster both large and small business creation;
- ▶ To increase reinvestment of regional wealth;
- ▶ To encourage education and training;
- ▶ To utilise renewable resources and maximise land and infrastructure in a sustainable manner; and
- ▶ To increase access to Information and Communications Technologies (ICTs) that are equivalent to those delivered in metropolitan areas.

The NRRIEP also identifies “best practice planning principles and guidelines to facilitate local and regional economic and industry development. These are:

- ▶ Positioning for Global competitiveness;
- ▶ Building the region’s value set;
- ▶ Developing the region’s key sectors, specifically:
 - Tourism;
 - Education;
 - Creative industries;
 - Horticulture, complementary medicine;
 - Aquaculture;
 - Residential development and construction;
 - Forestry, meat and dairy; and
 - Transport.

In relation to Tweed Shire the NRRIEP recognises there is limited industrial land capacity within the southern Gold Coast and Tweed area so efforts to facilitate opportunities for local government to identify and promote industrial land opportunities is a high priority. The NRRIEP acknowledges that cross border issues will have a significant impact on Tweed Shire.

3. Local Economy and Demographic Profile

3.1 Introduction

The economic and industry profile of the Tweed Shire involves analysis of the area's economic performance, industry structure, population trends, social profile, investment trends and economic drivers and influences, including external drivers from neighbouring areas, and future growth scenarios for the region in terms of population and economic growth.

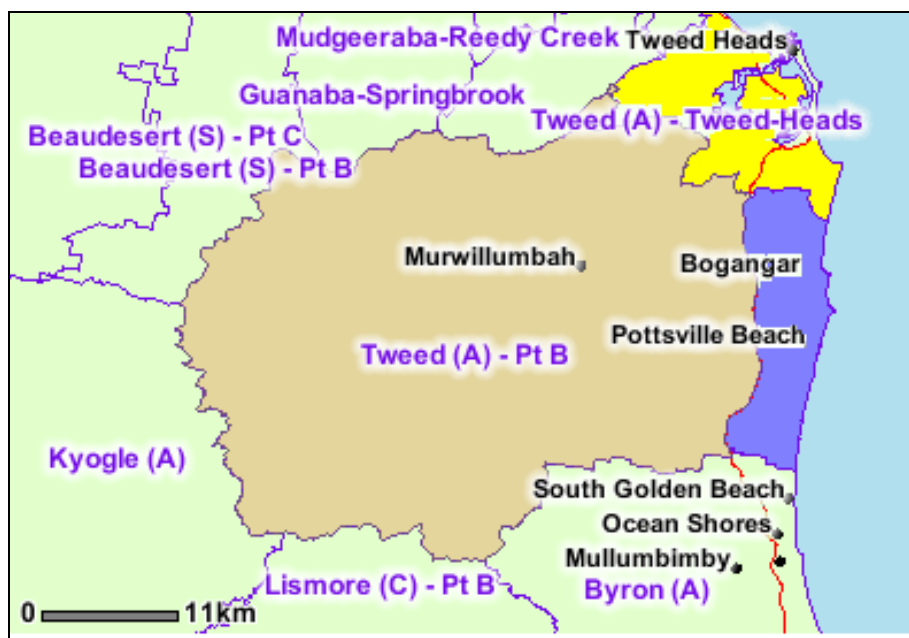
There has been a significant amount of research undertaken in regard to employment land, property markets and industry development opportunities in the Tweed. Where appropriate, this strategy refers to, evaluates and extends this literature within the context of assessing future employment land requirements. The strategy considers the implications of regional planning strategies, including the *Far North Coast Regional Strategy* and the *South-East Queensland (SEQ) Regional Plan* and external demand factors such as rapid population and economic growth in SEQ and the Gold Coast.

For the purposes of this Strategy, employment lands are defined as "any land that is predominantly used for commercial activities resulting in employment (specifically excluding land predominantly used for retail uses)". Based on this definition, the analysis considers industrial-based activities typically located within industrial zones and business park settings and commercial/professional services businesses typically housed in office space within commercial zones and also business park settings. The assessment of retail supply and demand in the Tweed was completed by Core Economics (2005) and is summarised in Chapter 2 of this strategy.

The Tweed Shire LGA contains three Statistical Local Areas (SLAs), or sub-regions as defined by the Australian Bureau of Statistics (ABS) (see Diagram 3-1). The three SLAs are defined in the ABS' 2006 Census geography. Prior to 2006, there were just two SLAs defined for Tweed Shire, the Tweed Heads and Tweed Part B SLAs. Therefore, some data in this report referring to the period before the 2006 Census is available for these two SLAs only, whereas data released from the 2006 Census provides information for the three SLAs.

(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 ABS).

Diagram 3-1 Tweed Shire Statistical Local Areas, 2006 Census Geography



Source: ABS 2006 Census, AECgroup

3.2 Economic and Industry Profile

3.2.1 Gross Regional Product

The Tweed's Gross Regional Product (GRP) in 2004-05 was estimated at \$1.2 billion, approximately 0.4% of NSW' (NSW) Gross State Product (GSP).

Value-added per capita in the Tweed was \$15,200, considerably lower than the NSW average of \$43,600. The main reasons for this difference are:

- ▶ Lower labour participation rate in the Tweed;
- ▶ Net outflow of resident workers for employment; and
- ▶ Lower value-adding activities undertaken by Tweed industries.

NSW' GSP increased by 1.2% per year on average, in real terms, between 2002-03 and 2004-05. Over the same period, the Tweed's GRP declined by almost 1% per annum in real terms, despite strong population growth.

Much of the increased household expenditure generated by the additional population in the Tweed has occurred outside the region (e.g. on the Gold Coast) or has been met through increased imports of consumer goods rather than increased local production.

3.2.2 Industry Structure

The quaternary (business and information services) sector is the most significant economic contributor in the Tweed, accounting for 30.7% of GRP. However, while the sector (which typically includes high-value, high productivity industries) is the largest in the Tweed, its percentage share of economic contribution is

well below the NSW (40.5%) and Australian (35.0%) benchmarks. Conversely, quinary (household or personal) services account for only 14% of the NSW economy, but 23% of the Tweed's GRP.

Currently, the Tweed relies heavily on the property and business services sector, with an estimated GRP at factor cost value of \$177 million, contributing 14% of GRP at factor cost. Other significant industries include retail trade (13% of the Tweed's GRP), health & community services (11%), construction (11%) and manufacturing (9%). These sectors have been driven by rapid population growth.

Historically, the Tweed economy has recorded a strong reliance on the primary (resource-based) sector, including agricultural commodities of sugar cane, dairy products, bananas and vegetable growing being traditional products. However, the agricultural sector in the region has been in decline. The *Tweed Rural Land Use Study* undertaken by the Tweed Economic Development Corporation (TEDC) in 2002 identified traditional agriculture in the Tweed was declining at 7.4% per annum, almost three times faster than the industry's decline nationally.

In terms of location quotients, which measure the relative significance of each individual industry in the Tweed relative to a benchmark region (in this case NSW), the Tweed records a considerably greater economic reliance (i.e. where the quotient is highest) in the areas of accommodation, cafes & restaurants (2.1), retail trade (1.9), personal & other services (1.7), and health & community services (1.5). Industries underrepresented in the Tweed economy compared to the NSW economy are mining (0.2), finance & insurance services (0.3), wholesale trade (0.6), manufacturing (0.7) and property & business services (0.8). There are reasons for some of these industries being underrepresented in the Tweed (e.g. a significant mining industry has not developed because of the small, largely not economically viable mineral deposits in the region, although there is some interest in sand mining).

Of note is that several of the region's largest, high value-adding industries are underrepresented in relative terms, meaning that although they are important at the regional level, they are still not as important as at the State level in relative terms. The Tweed is underrepresented in goods-producing industries and knowledge-based services industries, which are typically high value-adding activities, offer considerable scope for productivity increases and the potential for moving up the value-chain. As knowledge-intensive industries continue to increase in importance in global trade, the key to securing long-term economic security is to attract and retain these industries. Local initiatives are required to drive economic development in the Tweed. The provision of employment lands to attract desired industries is one channel to achieve this.

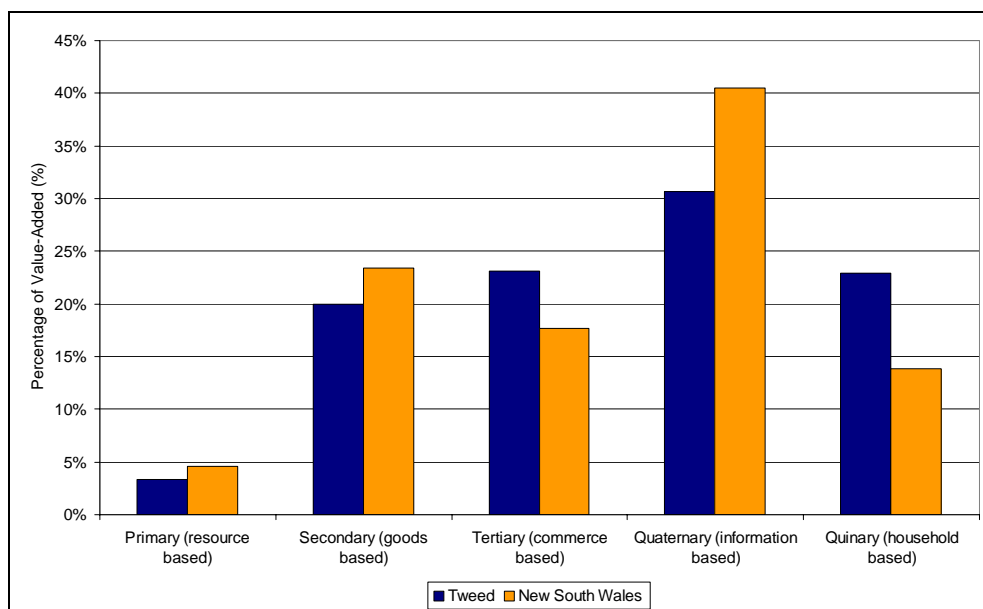
The industries the Tweed is currently overrepresented in are population-servicing industries, typically characterised by low value adding, low productivity and limited opportunities to move up the value chain. The reliance of these industries on population and tourism for continued growth makes the economic base of the region relatively more vulnerable. The Tweed's industries are largely engaged in low value-adding activities either because firms are concentrated in low value-adding activities (e.g. personal services) or at the low value-adding end of high value-adding industries (e.g. retail banking in the finance and insurance industry).

Table 3-1: Industry Structure – Contribution to Gross Regional/State/National Product

	Tweed	NSW	Australia	Location Quotients	
				Tweed / NSW	Tweed / Australia
Primary (resource-based)	3.3%	4.6%	10.1%	0.7	0.3
Agriculture, Forestry and Fishing	2.9%	2.3%	3.7%	1.3	0.8
Mining	0.4%	2.3%	6.4%	0.2	0.1
Secondary (goods-based)	20.0%	23.4%	23.7%	0.9	0.8
Manufacturing	8.7%	13.0%	13.1%	0.7	0.7
Electricity, Gas and Water Supply	0.7%	2.2%	2.7%	0.3	0.3
Construction	10.6%	8.2%	7.9%	1.3	1.3
Tertiary (commerce-based)	23.1%	17.7%	17.7%	1.3	1.3
Wholesale Trade	4.0%	6.2%	5.8%	0.6	0.7
Retail Trade	12.9%	6.8%	7.1%	1.9	1.8
Transport and Storage	6.2%	4.7%	4.8%	1.3	1.3
Quaternary (information-based)	30.7%	40.5%	35.0%	0.8	0.9
Communication Services	1.2%	3.2%	3.2%	0.4	0.4
Finance and Insurance	3.4%	11.4%	8.4%	0.3	0.4
Property and Business Services	14.2%	17.3%	14.4%	0.8	1.0
Government Administration, Defence	4.7%	3.8%	4.1%	1.2	1.1
Education	7.2%	4.8%	4.9%	1.5	1.5
Quinary (household-based)	22.9%	13.9%	13.6%	1.6	1.7
Accommodation, Cafes, Restaurants	6.4%	3.0%	2.7%	2.1	2.4
Health and Community Services	10.6%	6.9%	7.1%	1.5	1.5
Cultural and Recreational Services	2.4%	1.9%	1.6%	1.3	1.5
Personal and Other Services	3.5%	2.1%	2.2%	1.7	1.6
Total	100.0%	100.0%	100.0%	1.0	1.0

Note: Location Quotient represents the relative reliance of the regional economy on an individual sector compared to NSW i.e. a quotient of 1 means identical reliance, a quotient of 2.3 implies that the regional economy is 2.3 times more reliant on that sector than the NSW average.
Source: TEDC/Tweed Shire Council (Tweed Economic Model), ABS, AECgroup

Diagram 3-2: Contribution to the Economy by Industry, Tweed and NSW, 2004-05



Source: TEDC/Tweed Shire Council (Tweed Economic Model), AECgroup

3.2.3 Employment Structure

The Tweed records a significantly greater amount of employment in the household and commerce-based service sectors relative to Tweed GRP and NSW and national employment by industry benchmarks. This generally reflects the lower value adding of these activities predominantly based on servicing the fast growing Tweed population.

The Tweed records the highest proportion of its employment in the quinary (household-based) sector as opposed to the higher value adding and productive quaternary sector (information-based) sector. The differences in employment contributions to GRP contributions are reflected by the relative value adding of each sector per employee.

Currently, the Tweed relies heavily on retail trade for employment, contributing an estimated 4,850 jobs, 19% of the region's total employment. Other significant industries include health & community services (12%), accommodation, cafes & restaurants (9%), property & business services (9%), and manufacturing (7%).

Compared to the NSW economy, accommodation, cafes & restaurants (1.9), retail trade (1.4), and health and community services (1.3) contribute a greater proportion of GRP for the Tweed region. Industries underrepresented in the Tweed compared to NSW are mining (0.4), finance & insurance services (0.4), communication services (0.7), manufacturing (0.7), wholesale trade (0.8), and property & business services (0.8).

Table 3-2 Employment Structure

	Tweed	NSW	Australia	Location Quotients	
				Tweed / NSW	Tweed / Australia
Primary (resource-based)	4.1%	3.7%	5.0%	1.1	0.8
Agriculture, Forestry and Fishing	3.8%	3.0%	3.8%	1.3	1.0
Mining	0.3%	0.7%	1.2%	0.4	0.2
Secondary (goods-based)	17.4%	21.5%	22.3%	0.8	0.8
Manufacturing	7.4%	11.3%	12.2%	0.7	0.6
Electricity, Gas and Water Supply	0.5%	0.8%	0.9%	0.7	0.6
Construction	9.5%	9.4%	9.2%	1.0	1.0
Tertiary (commerce-based)	27.2%	23.5%	23.3%	1.2	1.2
Wholesale Trade	3.9%	4.9%	4.8%	0.8	0.8
Retail Trade	19.2%	13.4%	13.6%	1.4	1.4
Transport and Storage	4.1%	5.2%	4.9%	0.8	0.8
Quaternary (information-based)	23.3%	30.7%	29.1%	0.8	0.8
Communication Services	1.2%	2.2%	2.0%	0.6	0.6
Finance and Insurance	2.1%	5.1%	3.9%	0.4	0.5
Property and Business Services	9.1%	12.6%	11.7%	0.7	0.8
Government Administration, Defence	3.9%	4.5%	4.9%	0.9	0.8
Education	7.0%	6.3%	6.6%	1.1	1.0
Quinary (household-based)	28.2%	20.5%	20.3%	1.4	1.4
Accommodation, Cafes, Restaurants	9.4%	4.9%	4.5%	1.9	2.1
Health and Community Services	12.2%	9.1%	9.3%	1.3	1.3
Cultural and Recreational Services	2.8%	2.5%	2.5%	1.1	1.1
Personal and Other Services	3.8%	4.0%	4.0%	0.9	1.0
Total	100.0%	100.0%	100.0%	1.0	1.0

Note: Location Quotient represents the relative reliance of the regional economy on an individual sector compared to NSW i.e. a quotient of 1 means identical reliance, a quotient of 2.3 implies that the regional economy is 2.3 times more reliant on that sector than the NSW average.

Source: TEDC

3.2.4 Recent and Future Economic Trends

Despite high population growth, the Tweed's economy is shrinking in real terms, and does not appear to be diversifying into high-value, knowledge-intensive industries.

The key economic trends affecting the economic development of the Tweed regional economy over the past 2-3 years are detailed below. Unless action is taken to address or mitigate against these trends, it is expected these trends will continue to impact the local economy over the short to medium term. The relevant trends are:

- ▶ Negative real growth: Despite high population growth, the Tweed economy contracted in real terms between 2002-03 and 2004-05;
- ▶ Reliance on quinary services: The Tweed economy is more reliant on quinary services than the NSW economy as a whole, reflecting the growing importance of tourism to the region and the ageing population. Tourism is increasing its significance as an activity generator for related sectors of the Tweed economy such as retail;
- ▶ Decline of agriculture: The agriculture industry was traditionally a key industry for the region, but changes in global markets have eroded the competitiveness of traditional agricultural outputs. However, agriculture does not record a high location quotient in the Tweed and State land use policy protects fertile lands;
- ▶ High "leakage": A relatively high proportion of potential economic activity in the Tweed leaks to neighbouring regions (in particular, the Gold Coast), as do skilled workers for employment opportunities;
- ▶ Low local linkages: The intra- and inter-industry linkages within the Tweed are relatively weak, with many inputs to production sourced from outside the region; and
- ▶ Lower levels of value-adding: Firms in the Tweed appear to be clustered around the lower value-adding activities in their respective industries.

3.3 Demographic and Social Profile

3.3.1 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 by the State government.

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.

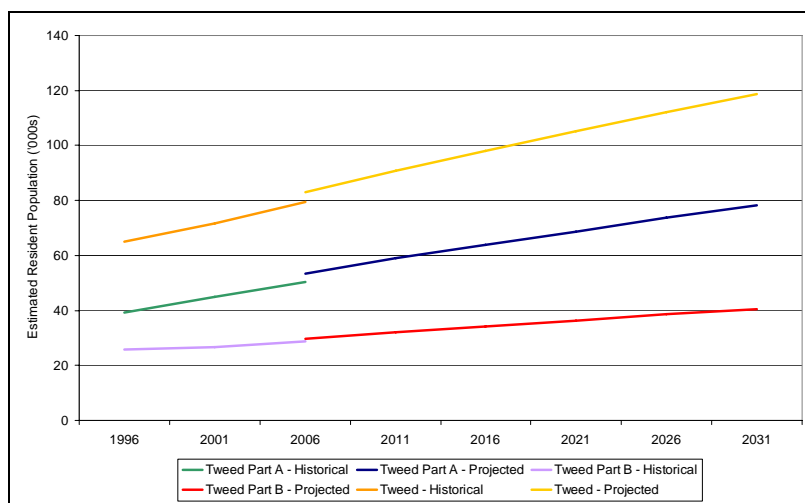
Table 3-3 Population, Usual Residents

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



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

Table 3-4 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 3-5 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 3-6 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
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

3.3.2 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 3-7 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%
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.

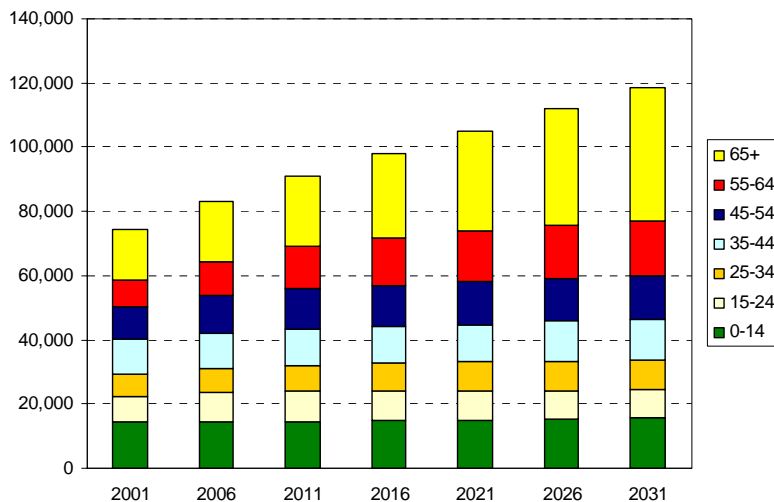
Table 3-8 Forecast Median Age

	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 0.6%-0.7% per annum over the period. The 15-24 years age group is projected to remain unchanged in number.

Diagram 3-4 Projected Population by Age, Tweed Shire



Source: NSW Department of Planning (2005)

3.3.3 Labour Market

The Tweed labour force has been increasing steadily over the past two years, rising above the historical levels recorded for the region with the majority of the labour force residing in Tweed Heads due to its prominence as the major urban centre in the Shire.

Employment has also increased steadily over this period, however, employment growth has been below the level of NSW.

Despite a declining unemployment rate, comparison with NSW reveals the Tweed has a relatively high level of unemployment. However, the Tweed's unemployment rate has been declining at a faster rate than NSW in recent times.

Table 3-9: Unemployment Data

	Tweed Coast	Tweed Part B	Tweed Shire	Richmond-Tweed	NSW	Australia
Unemployed Persons						
December 2005	1,477	1,086	2563	8,756	178,600	536,700
March 2006	1,426	1,018	2444	8,395	179,400	540,700
June 2006	1,412	974	2386	8,188	182,600	539,500
September 2006	1,347	930	2277	7,837	186,300	535,300
December 2006	1,270	880	2150	7,404	184,400	524,000
Unemployment Rate						
December 2005	7.7%	8.8%	8.1%	8.9%	5.2%	5.1%
March 2006	7.5%	8.3%	7.8%	8.6%	5.2%	5.1%
June 2006	7.4%	8.0%	7.6%	8.4%	5.3%	5.1%
September 2006	7.0%	7.5%	7.2%	7.9%	5.4%	5.0%
December 2006	6.5%	7.0%	6.7%	7.3%	5.3%	4.9%

Source: DEWR

In 2001, employment in the Tweed had a greater reliance on retail trade (18.5%), health and community services (11.6%), construction (7.9%), education (7.7%), accommodation, cafés and restaurants (7.3%), and agriculture, forestry and fishing (6.9%) sectors compared to NSW.

The dominance of these industries is mainly due to:

- ▶ A traditionally strong agriculture, forestry and fishing sector with high production from the key sectors in the region such as sugar, horticulture (e.g. bananas, berries, vegetables), seafood (aquaculture and fishing), forestry and timber plantation and agriculture (beef and dairy);
- ▶ A strong tourism sector that leverages scenic hinterland and 'sea-side' holiday locations of the region utilising a strong local accommodation, food and beverage, cottage arts and crafts, cultural, and retail services sector; and
- ▶ A strong retirement culture and the migration of over 55 year olds to the region in search of the popular coastal 'sea/tree-change' lifestyle. This has the potential to place pressures on aged and health care facilities and recreational services due to increased demand in the Tweed.

Table 3-10 Employment Shares by Industry, 2001

	Tweed Coast	Tweed Part B	Tweed Shire	Richmond-Tweed	NSW	Australia
Agriculture, Forestry and Fishing	2.1%	10.7%	5.4%	7.5%	3.4%	4.0%
Mining	0.2%	0.3%	0.3%	0.2%	0.5%	0.9%
Manufacturing	6.7%	7.7%	7.1%	8.3%	11.5%	12.2%
Electricity, Gas and Water Supply	0.5%	0.4%	0.5%	0.5%	0.7%	0.7%
Construction	9.2%	9.4%	9.3%	7.3%	6.9%	6.7%
Wholesale Trade	3.7%	3.8%	3.7%	4.3%	5.6%	5.3%
Retail Trade	20.4%	16.1%	18.7%	17.7%	14.2%	14.6%
Accommodation, Cafes, Restaurants	10.6%	6.2%	8.9%	7.3%	5.2%	4.9%
Transport and Storage	3.6%	4.2%	3.8%	3.2%	4.6%	4.3%
Communication Services	1.3%	1.2%	1.2%	1.3%	2.0%	1.8%
Finance and Insurance	2.2%	1.4%	1.9%	2.0%	4.8%	3.8%
Property and Business Services	9.0%	8.0%	8.6%	7.9%	12.2%	11.1%
Government Administration, Defence	3.1%	4.8%	3.8%	3.6%	3.9%	4.5%
Education	6.2%	7.4%	6.7%	8.6%	6.8%	7.2%
Health and Community Services	11.6%	10.7%	11.3%	11.9%	9.4%	9.7%
Cultural and Recreational Services	2.9%	2.2%	2.6%	2.3%	2.5%	2.4%
Personal and Other Services	4.0%	2.9%	3.5%	3.5%	3.6%	3.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: 2006 data is scheduled for release in December 2007
Source: ABS, Census 2001

3.3.4 Journey to Work

A relatively high proportion of the Tweed's employed residents leave the region for employment, decreasing the labour force available to support economic development within the Tweed.

Of the 23,880 employed residents who lived in the Tweed in 2001, only 15,060 (63%) work in the Tweed. Of the 8,820 workers who leave the Tweed for employment, the majority are employed on the Gold Coast (4,213 or 18% of total employed Tweed residents) and elsewhere in NSW (2,010 or 8%).

Only 3,426 people enter the Tweed for employment, meaning total employment in the region is 18,486. Of the people who enter, 2,571 workers come from the Gold Coast, meaning there is a job deficit with the Gold Coast of more than 1,600 jobs, reflecting the difference in employment opportunities between the two regions.

Table 3-11 Working Population Profile in the Tweed, 2001

	By Destination		By Origin	
	Number	Percentage	Number	Percentage
Tweed	15,060	63.1%	15,060	81.5%
Other Northern Rivers	388	1.6%	382	2.1%
Balance of NSW	2,010	8.4%	195	1.1%
Gold Coast	4,213	17.6%	2,571	13.9%
Balance of Queensland	937	3.9%	199	1.1%
Other	1272	5.3%	79	0.4%
Total	23,880	100.0%	18,486	100.0%

Source: TEDC, Economic Growth Management Strategy 2007-2010

The Tweed records net employment deficits in every industry sector, with the greatest deficits recorded in construction (-1,099 workers), property & business services (-572), manufacturing (-460) and accommodation, cafes & restaurants (-442). The manufacturing, wholesale trade and transport & storage sectors, typically referred to as the industrial land sectors, record more than 800 residents employed outside the Tweed.

Table 3-12 Reside and Work in Tweed by Industry, 2001

	Reside in Tweed	Work in Tweed	Net Balance	% Residing in Tweed
Agriculture, Forestry and Fishing	1,289	1,162	-127	-9.9%
Mining	57	24	-33	-57.9%
Manufacturing	1,679	1,219	-460	-27.4%
Electricity, Gas and Water Supply	115	85	-30	-26.1%
Construction	2,209	1,110	-1,099	-49.8%
Wholesale Trade	883	714	-169	-19.1%
Retail Trade	4,440	4,057	-383	-8.6%
Accommodation, Cafes, Restaurants	2,107	1,665	-442	-21.0%
Transport and Storage	904	706	-198	-21.9%
Communication Services	284	178	-106	-37.3%
Finance and Insurance	451	328	-123	-27.3%
Property and Business Services	2,036	1,464	-572	-28.1%
Government Administration, Defence	898	771	-127	-14.1%
Education	1,583	1,438	-145	-9.2%
Health and Community Services	2,668	2,295	-373	-14.0%
Cultural and Recreational Services	619	394	-225	-36.3%
Personal and Other Services	842	687	-155	-18.4%
Total	23,880	18,486	-5,394	-22.6%

Note Net difference is total difference between those residing and those working the Tweed
 Note: 2006 data is scheduled for release in December 2007
 Source: ABS, Census 2001

3.3.5 Qualification Profile

In both qualification and occupation profiles, the Tweed is concentrated at the lower end of the skills spectrum when compared with NSW averages

Overall, the Tweed has a low proportion of population with bachelors degree, although advanced diplomas and diplomas, as well as certificates, are close to the state and national averages. This reflects the prominence of tourism and personal services employment in the region. Tweed Part B has a considerably higher proportion of persons with tertiary qualifications than Tweed Heads, however it is below the level of NSW.

Compared with NSW, the Tweed has a high proportion of employment concentrated in relatively low-skill, low value employment, such as elementary, clerical, sales and service workers, as well as labourers and related workers. However, the Tweed also has a high proportion of tradesperson and related workers,

typically higher-value employment. Conversely, the Tweed has a low proportion of managers/administrators and professionals.

Table 3-13 Proportion of Persons Aged 15 years or over with a Qualification, 2001

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
Postgraduate Degree	0.6%	0.7%	0.6%	1.0%	2.2%	1.8%
Graduate Diploma, Graduate Certificate	0.7%	1.1%	0.9%	1.2%	1.2%	1.4%
Bachelor Degree	4.5%	5.8%	4.9%	6.8%	10.1%	9.7%
Advanced Diploma, Diploma	4.7%	5.0%	4.8%	5.5%	6.3%	6.0%
Certificate	18.0%	18.0%	18.0%	17.2%	16.4%	15.8%
Not stated	13.8%	12.4%	13.3%	12.4%	12.3%	11.5%
Total	42.3%	42.9%	42.5%	44.1%	48.6%	46.2%

Note: 2006 data is scheduled for release in December 2007
Source: ABS, Census 2001

Table 3-14 Proportion of Workers by Occupation, 2001

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
Managers/Administrators	4.9%	11.0%	7.2%	9.2%	9.5%	9.2%
Professionals	13.0%	14.4%	13.6%	15.9%	19.1%	18.2%
Associate Professionals	13.0%	10.9%	12.2%	12.0%	11.6%	11.8%
Tradespersons, Related	14.4%	13.9%	14.2%	12.5%	11.9%	12.3%
Advanced Clerical, Service	3.7%	3.6%	3.7%	3.4%	4.2%	3.7%
Intermediate Clerical, Sales, Service	17.9%	13.5%	16.2%	15.5%	16.5%	16.5%
Intermediate Production, Transport	7.7%	8.5%	8.0%	7.5%	7.8%	8.1%
Elementary Clerical, Sales, Service	13.7%	10.2%	12.3%	11.1%	9.3%	9.5%
Labourers, Related Workers	9.3%	12.0%	10.4%	10.8%	8.0%	8.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Note: 2006 data is scheduled for release in December 2007
Source: ABS, Census 2001

3.3.6 Household Structure

Compared to NSW, the Tweed Shire has a high proportion of families without children and, subsequently, a low proportion of couples with children. This is most likely attributable to the high proportion of over 55 year old couples without dependent children moving to the region for retirement. This is most prominent in Tweed Heads, where almost one in three households is a couple with no children, and only one in five is a couple with children. Like most regions, the Tweed has recorded a declining average household size and fewer families with children.

Table 3-15 Household Structure, 2006

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
One family households:						
Couple family with no children	32.4%	28.2%	31.0%	28.5%	25.3%	26.2%
Couple family with children	21.7%	29.7%	24.4%	26.0%	33.0%	32.3%
One parent family	10.9%	13.5%	11.8%	12.4%	10.9%	10.7%
Other family	0.8%	0.7%	0.8%	0.9%	1.2%	1.2%
Multiple family households	1.1%	1.4%	1.2%	1.1%	1.6%	1.3%
Lone person households	29.3%	23.7%	27.4%	26.9%	24.2%	24.4%
Group household	3.7%	2.8%	3.4%	4.1%	3.7%	3.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: ABS, Census 2006

3.3.7 Household Ownership & Finances

The income levels of the Tweed are well below those for NSW, however, home loan and rent repayments for the Tweed are also below the level of NSW, implying that on average the cost of living is not too dissimilar to the NSW.

Average incomes in the Tweed are below the level for NSW across all industries. The industries in which the income gap is smallest are accommodation, cafes and restaurants (\$437.64 for the Tweed compared with \$459.91 for NSW) and education (\$763.57 compared with \$798.65).

Table 3-16 Average Weekly Income by Occupation, 2001

	Tweed Heads	Tweed Part Br	Tweed	Richmond- Tweed	New South Wales	Australia
Managers/ Administrators	\$823.77	\$567.48	\$677.36	\$652.17	\$1,033.70	\$958.49
Professionals	\$809.67	\$791.68	\$802.35	\$805.22	\$970.02	\$924.53
Associate Professionals	\$661.40	\$616.12	\$645.90	\$641.92	\$811.25	\$765.11
Tradespersons, Related	\$557.69	\$510.01	\$539.69	\$518.12	\$652.16	\$638.76
Advanced Clerical, Service	\$519.04	\$496.86	\$510.70	\$511.81	\$638.48	\$608.19
Intermediate Clerical, Sales, Service	\$468.87	\$439.68	\$459.55	\$455.38	\$551.31	\$524.79
Intermediate Production, Transport	\$509.19	\$564.07	\$532.17	\$511.38	\$628.99	\$614.41
Elementary Clerical, Sales, Service	\$328.08	\$316.20	\$324.29	\$319.55	\$369.94	\$350.53
Labourer, Related	\$395.05	\$388.14	\$391.96	\$388.42	\$446.41	\$425.92
Total	\$546.34	\$526.34	\$538.64	\$541.78	\$702.75	\$664.37

Note: 2006 data is scheduled for release in December 2007
Source: ABS, Census 2001

Table 3-17 Average Weekly Income by Industry, 2001

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
Agriculture, Forestry and Fishing	\$488.25	\$427.14	\$442.71	\$449.15	\$525.14	\$514.41
Mining	\$834.38	\$730.00	\$801.06	\$792.31	\$1,230.16	\$1,211.03
Manufacturing	\$567.86	\$518.29	\$546.89	\$541.21	\$746.92	\$711.28
Electricity, Gas and Water Supply	\$742.77	\$743.75	\$743.13	\$790.11	\$998.34	\$978.87
Construction	\$638.09	\$621.94	\$631.81	\$595.54	\$720.86	\$705.40
Wholesale Trade	\$547.34	\$506.25	\$531.22	\$526.67	\$749.62	\$699.88
Retail Trade	\$381.47	\$356.72	\$373.22	\$380.87	\$455.72	\$435.65
Accommodation, Cafes, Restaurants	\$450.13	\$403.80	\$437.64	\$417.20	\$459.91	\$428.77
Transport and Storage	\$589.73	\$626.12	\$604.97	\$597.34	\$789.01	\$742.90
Communication Services	\$711.14	\$695.28	\$705.34	\$675.10	\$901.84	\$837.53
Finance and Insurance	\$702.47	\$650.78	\$688.45	\$692.28	\$950.71	\$881.85
Property and Business Services	\$612.38	\$583.18	\$601.92	\$622.34	\$872.52	\$815.63
Government Administration, Defence	\$700.32	\$653.80	\$677.86	\$713.85	\$831.73	\$812.33
Education	\$776.40	\$746.39	\$763.57	\$766.00	\$798.65	\$759.94
Health and Community Services	\$592.54	\$593.86	\$593.02	\$611.75	\$671.49	\$643.95
Cultural and Recreational Services	\$482.71	\$482.92	\$482.78	\$457.79	\$676.78	\$598.47
Personal and Other Services	\$582.23	\$483.70	\$550.99	\$530.53	\$644.10	\$610.21
Total	\$545.35	\$526.29	\$538.01	\$541.76	\$702.75	\$664.37

Note: 2006 data is scheduled for release in December 2007
Source: ABS, Census 2001

Home loan repayments and weekly rent repayments are below the level of the State, indicating the Tweed may have a lower cost of living compared to NSW. While growth in home loan repayments has been about the same for the Tweed as NSW, the growth in average rents has doubled the NSW average over the past five years. This reflects high demand for coastal properties, as well as the increase in high-end rental properties on the Tweed Coast over the past five years.

Table 3-18 Average Weekly Rent Payments 1991-2006

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
Average Rent Payments						
1991	\$118.87	\$92.17	\$109.65	\$102.40	\$127.92	\$110.81
1996	\$135.39	\$116.41	\$129.14	\$126.34	\$148.70	\$129.03
2001	\$152.90	\$138.27	\$148.16	\$145.27	\$186.74	\$159.83
2006	\$213.80	\$194.47	\$207.20	\$195.10	\$225.51	\$202.36
Growth to 2006						
1991	79.9%	111.0%	89.0%	90.5%	76.3%	82.6%
1996	57.9%	67.1%	60.4%	54.4%	51.7%	56.8%
2001	39.8%	40.6%	39.8%	34.3%	20.8%	26.6%

Note: Rent payments are in nominal terms (i.e. have not been indexed to a constant base)
Source: ABS, Census 2006

Table 3-19 Average Monthly Housing Loan Repayment 1991- 2006

	Tweed Heads	Tweed Part Br	Tweed	Richmond-Tweed	New South Wales	Australia
Average Loan Repayments						
1991	\$575.98	\$554.08	\$566.33	\$537.91	\$666.99	\$602.49
1996	\$785.05	\$709.91	\$754.09	\$730.95	\$856.77	\$765.34
2001	\$856.77	\$770.54	\$823.04	\$794.66	\$968.51	\$853.61
2006	\$1,356.49	\$1,233.36	\$1,308.03	\$1,210.29	\$1,595.60	\$1,373.06
Growth to 2006						
1991	135.5%	122.6%	131.0%	125.0%	139.2%	127.9%
1996	72.8%	73.7%	73.5%	65.6%	86.2%	79.4%
2001	58.3%	60.1%	58.9%	52.3%	64.7%	60.9%

Note: Loan repayments are in nominal terms (i.e. have not been indexed to a constant base)
Source: ABS Census 2006

3.4 Investment Trends

3.4.1 Dwellings

Dwelling investment in the Tweed has increased significantly over the past five years, largely driven by increases in the average value of both houses and units, as well as the sizeable increase in the number of units approved, since 2004-05. The rising average cost of dwellings is being partially driven by considerable increases in construction costs, due in some part to the shortage of construction labour.

The number of dwelling approvals peaked in 2002-03, and the decline in numbers since then reflects the trend experienced across NSW. Despite declines in the number of dwelling approvals for the Tweed and NSW, growth in dwelling investment was recorded in Tweed Part B, partially due to new unit and apartment developments along the Tweed Coast (including the \$1 billion Salt development and the \$1.5 billion Casuarina Beach Domain Resort township development).

Table 3-20 Dwelling Approvals, Number and Value, Tweed 01/02- 06/07

	Number of Dwellings			Value of Dwellings (\$000)			Average Value of Dwellings (\$)		
	Houses	Units	Total	Houses	Units	Total	Houses	Units	Total
2001-02	674	137	811	\$79,389	\$15,769	\$95,158	\$117,788	\$115,102	\$117,334
2002-03	756	430	1,186	\$97,875	\$45,048	\$142,923	\$129,464	\$104,763	\$120,508
2003-04	563	160	723	\$97,594	\$29,523	\$127,117	\$173,346	\$184,519	\$175,819
2004-05	451	437	888	\$106,105	\$79,122	\$185,227	\$235,266	\$181,057	\$208,589
2005-06	434	323	757	\$108,754	\$90,417	\$199,171	\$250,585	\$279,929	\$263,106
2006-07	401	303	704	\$99,791	\$86,926	\$186,717	\$248,855	\$286,884	\$265,223

Source: ABS, 8731.0 – Building Approvals, Australia

3.4.2 Property Market

The median property prices have grown steadily in the Tweed over the past 5 years. The largest price growth was experienced in 2003, when median prices rose by almost 30% in Tweed Heads and almost 70% in the Richmond-Tweed Balance.

Growth in median prices has been lower in subsequent years, but are currently displaying growth considerably above that being achieved by NSW overall. In the past year, Tweed Heads (up 8.7%) and Richmond-Tweed Balance (up 6.3%) have experienced significantly higher growth in median house sales prices than NSW (up 1.1%), reflecting the increasing demand for housing due to the popularity of these regions.

Table 3-21 Mean and Median Property Sales

	Tweed Heads		Richmond-Tweed Balance	
	Median (\$000)	Mean (\$000)	Median (\$000)	Mean (\$000)
December 2001	\$175	\$185	\$178	\$202
December 2002	\$233	\$241	\$185	\$228
December 2003	\$300	\$321	\$310	\$321
December 2004	\$328	\$345	\$330	\$359
December 2005	\$345	\$367	\$350	\$381
December 2006	\$375	\$400	\$372	\$410

Source: NSW Department of Housing, Rent and Sales Report

Median weekly rent for a 3-bedroom house in the Tweed was \$320 during the December Quarter 2006, above the NSW median of \$250. While growth in rents over the past five years has been high in the Tweed compared to the NSW average, high house price growth means that rental returns have reduced, but not to the same extent as NSW.

Table 3-22 Median Rents

	Tweed Heads		Richmond-Tweed Balance	
	3 Bedroom House	2 Bedroom Flat/Unit	3 Bedroom House	2 Bedroom Flat/Unit
December 2001	\$210	\$145	\$210	\$145
December 2002	\$223	\$160	\$223	\$160
December 2003	\$270	\$170	\$270	\$170
December 2004	\$300	\$200	\$300	\$200
December 2005	\$300	\$225	\$300	\$225
December 2006	\$320	\$245	\$320	\$245

Source: NSW Department of Housing, Rent and Sales Report

3.4.3 Commercial and Industrial

Commercial investment has generally increased in the Tweed since 2001-02, but is highly variable year-on-year due to the timing of major projects. Demand was strongest in 2004-05 (\$204.4 million) and 2006-07 (\$149.7 million), accounting for significant proportions of the Richmond-Tweed total in these years.

Table 3-23 Non-Residential Building Investment (New and Alterations/Additions)

	Tweed Heads (\$M)	Tweed Part B (\$M)	Tweed (\$M)	Richmond- Tweed (\$M)	New South Wales (\$M)
2001-02	\$52.6	\$2.3	\$54.9	\$116.5	\$4,389.8
2002-03	\$42.3	\$8.9	\$51.2	\$112.6	\$5,816.0
2003-04	\$86.0	\$5.8	\$91.7	\$153.5	\$5,155.9
2004-05	\$164.9	\$39.5	\$204.4	\$290.0	\$6,380.8
2005-06	\$17.9	\$37.6	\$55.5	\$189.6	\$6,572.6
2006-07	\$145.0	\$4.8	\$149.7	\$248.1	\$7,328.9

Source: ABS, 8371.0 – Building Approvals, Australia

3.4.4 Major Projects

Major projects currently underway or recently completed in the Tweed region include:

- ▶ Tweed City Shopping Centre, Stage 1 redevelopment, estimated construction cost is \$36.5m expected completion date for stage one is November 2007;
- ▶ Clinical Education and Research Institute, Tweed Hospital, \$3 million continued expansion of the institute, including the construction of a new 30-bed ward;
- ▶ Cotton Beach, Casuarina, Stage One, a \$100 million five-star beachfront apartment building of 129 apartments with an array of resort facilities; and
- ▶ A 4-star resort hotel of 118 rooms in Salt Village.

Proposed major projects in the Tweed region currently being processed by the Department of Planning are outlined in the table below. The majority of these projects are intended to service the residential and tourists industries, and do not significantly expand the economic base of the Tweed.

Table 3-24 Proposed Major Projects in Tweed Shire

Title	Description	Location
Residential		
Residential Apartments	Six-storey residential apartment building	Tweed Terrace, Tweed Heads
Residential and Community Development, Cobaki Lakes	Residential development, town centre, schools, open space	Piggabeen Road, Tweed Heads
Mixed Use Development, Kings Forest	Residential, village centre, educational facilities, church, aged care facility, golf course and open space	Kingscliff
Coastal residential subdivision	178 lot residential subdivision and associated works	Fraser Drive, South Tweed
Accommodation/Retail		
Pottsville North Holiday Park	Alterations and additions to Pottsville North	Tweed Coast Road,

Title	Description	Location
	Holiday Park	Pottsville
Chinderah commercial tourist development	Construction of shops, tourist accommodation and a car park.	Chinderah Bay Drive and Terrace St, Chinderah
Casuarina Town Centre subdivision	Concept Plan for mixed use subdivision for Casuarina Town Centre at Casuarina Beach.	Coat Road, Casuarina Beach
Hastings Point Subdivision	Proposed residential & tourist subdivision	Creek Street, Hastings Point
Tweed Heads retail and commercial building	4 storey mixed use retail and commercial building with 2 levels of basement car parking	Wharf Street, Tweed Heads
Transport		
Pacific Highway Upgrade	Upgrade of the Pacific Highway at Banora Point, from the northern end of Barney's Point Bridge to the southern end of the Tweed Heads Bypass	Banora Point
Cultural, Recreational		
Twin Towns Services Club	Redevelopment of Twin Towns Services Club	Wharf Street, Tweed Heads
Education		
Southern Cross University, Tweed Heads Campus	Construction of a new 6-storey campus building, 128 space car park, landscaping and ancillary works.	Brett Street, Tweed Heads.
Mining		
Dunloe Park Quarry	The proposed extraction of sand, which includes: <ul style="list-style-type: none"> ▶ Dredging up to 300,000 tonnes of sand a year; ▶ Creating 2 dredge ponds; ▶ Constructing an internal haul road; and ▶ Progressively rehabilitating the pond banks and retention as recreational lakes. 	Dunloe Park, Mooball-Pottsville Road, Pottsville
Cudgen Lakes Sand Extraction Project	The establishment of a new sand quarry at Cudgen, involving the extraction of up to 650,000 tonnes of sand a year and rehabilitation of the site.	Tweed Coast Road, Cudgen

Source: NSW Department of Planning, Register of Major Projects, August 2007

3.5 Economic Drivers and Influences

The Tweed's economy is being predominantly driven by its rapid population growth and demand for household-based services, with a decline in the traditional sectors such as agriculture. However, this population growth is also concentrated in the older, non-working age brackets, constraining the capacity of the labour force to some extent. A significant proportion of the resident workforce also works outside

the region in areas such as the Gold Coast. Competition for the highly valuable flat, coastal lands in the Shire between residential and employment uses is an important strategic issue.

Economic growth can be defined as the increase over time in the capacity of an economy to produce goods and services. Traditionally, economic development relied on the development of infrastructure, population and services around the use or exploitation of specific resources and natural assets. In the context of the Tweed region, this includes timber, land (primary agricultural production) and fishing. Where these resources are (or are close to) being fully exploited, without a specific development impetus additional economic development can only be achieved through organic growth and expansion.

Targeted action and activity has the capacity to generate economic development and prosperity through the manipulation of the key drivers of an economy to facilitate additional value adding opportunities, attraction of new business and increased labour productivity (technical, skill or management driven), over and above organic growth. The current resource base is extensively utilised within the Tweed, with the economy relying heavily on organic growth in recent years.

These factors and issues represent a fundamental challenge for the development and prosperity of the Tweed. How the Tweed responds to these challenges will be of great importance and will establish the region's capacity to take advantage of emerging opportunities.

Economic growth can be defined as the increase over time in the capacity of an economy to produce goods and services. It is a function of factors such as:

- ▶ Population growth and skill base;
- ▶ Utilisation of natural resources;
- ▶ Capital availability;
- ▶ Infrastructure development;
- ▶ Technical innovation;
- ▶ Attitudinal trends; and
- ▶ External factors such as global market forces and government policy.

Each of these factors in relation to the economic development of the Tweed is interrelated. A change in one can have an effect on all others, whether positive or negative, significant or negligible. For example, an increase in capital investment in a region (e.g. new communications infrastructure) can attract new people to the area for work (during both the construction and operation of the investment project), improve the efficiency of labour, result in more efficient use of land and increase the production of the region. This then filters through the economy – the increase in production may lead to greater use of local infrastructure such as roads and ports, which may then lead on to greater investment in infrastructure in order to maintain or improve the efficiency of transport, and so on. Changes in these factors are the driving force of economic growth – without change or the impetus for investment an economy will stagnate.

Building on strengths, increasing value-adding in existing industries, attracting new industries and, to a lesser extent, increasing diversity and structural change are considered to be essential ingredients for the development of the Tweed economy into the 21st Century. However, to facilitate this an understanding of the characteristics of regional economic drivers and the factors influencing them is required. Key economic drivers, in the context of the Tweed region, are outlined below.

3.5.1 Population Growth and Skill Base

The size and mix of the regional population and its subsequent labour force or skill base is an important factor in economic development. The greater the population size the greater the need for infrastructure and services, while the population mix and skill base drives the type of infrastructure and services required. Similarly, the population size, mix and skill base also plays an important role in the type and level of output of an economy, which further influences economic growth.

Factors that can influence the population growth, mix and skills base, and subsequently economic growth from this source, include:

- ▶ Fertility and mortality rates: Organic growth in population is a function of the fertility and mortality rates. Fertility and mortality rates also influence the population mix, with Australia's aging population largely due to changing fertility and mortality rates;
- ▶ Net migration: Migration to or from a region can change the size of the population, as well as the population mix and skill base of the region. In an age of globalisation, population growth and mix in a region is heavily reliant on the attractiveness of the region to increasingly mobile workers, which is influenced by factors such as:
 - Lifestyle;
 - Infrastructure (including social infrastructure);
 - Employment opportunities;
 - Climate;
 - Location; and
 - Cost of living.
- ▶ Learning opportunities: The skill base of a region is also determined by the educational and learning opportunities available, both formal and informal.

Compared to NSW averages, the Tweed has a relatively high level of youth migration out of the region and older people migrating to the region. As a result, Tweed has an older than average population, with a relatively high proportion of persons aged over 55 years. This provides opportunities for the Tweed in terms of generating attractive opportunities for the retention of youth, as well as leveraging the trend of increasing aged persons migrating to the region through the addition of aged care services as well as matching their lifestyle requirements. Lifestyle migration also poses opportunity for the expansion of a knowledge industry within the region, pending infrastructure requirements. The demographics of the Tweed can constrain the skills capacity of the region unless there is increased net migration of people of working age.

3.5.2 Utilisation of Natural Resources

Tweed's economy has historically been heavily reliant on the use and exploitation of natural resource asset base, predominantly through the use of timber, fishing and land (primary production) resources. Factors that can influence the development of industries utilising natural resources include:

- ▶ Local and world markets: The demand and supply of the Tweed's agriculture, forestry and fishing resources and their associated intermediate and final products, both domestically and internationally. This plays a significant role in how natural resources are utilised and their contribution to economic growth;

- ▶ Government policies and legislation: Government policies and legislation can be used to dictate or guide the nature and extent that natural resources can be utilised by placing limits on production, usable area, emissions, royalties, etc.;
- ▶ Labour market: Labour is a critical input to production. Efficient production requires an adequate skills-match between the local labour force and job opportunities;
- ▶ Infrastructure: Adequate infrastructure to facilitate the production and transport of goods and services is essential for efficient production; and
- ▶ Technical innovation: Technical innovation can lead to increased economic growth by:
 - Improving the efficiency of resource use; or
 - Developing new, higher value products from current resource stocks.

The implications of these drivers include the need to mitigate against the degradation of the natural asset as well as against the impact of changes in global market conditions on competitiveness and profitability. Key factors to focus on are increasing and maintaining value and product differentiation by marketing points of difference, generating additional value to the consumer and targeting niche markets.

The Tweed's agricultural sector has declined rapidly in recent times. Infrastructure is improving in the region, including transport access to SEQ. Technical innovation take-up has been relatively low in the region with limited higher value-adding operations. Most of the existing sectors are labour intensive. The issue of residential versus economic lands may increase in prevalence with a declining stock of coastal plain land.

3.5.3 Capital Availability

Capital availability is essential to economic growth. Capital expenditure in developing identified opportunities is the catalyst to change, whether it be investing in new infrastructure, research or resources and the availability of capital is influenced by:

- ▶ Risk: The risk inherent in an investment relative to other investment opportunities strongly influences the willingness of investors to provide capital for a project. The risk is influenced by factors such as:
 - Skills availability and expertise;
 - Regional infrastructure and development;
 - Historical local economic performance;
 - Community attitudes and cohesion;
 - Cost of inputs;
 - Exchange rates;
 - Interest rates;
 - Investor attitude to risk; and
- ▶ Return on capital: The expected return on an investment also strongly influences the willingness of investors to provide capital for a project. The return on capital is influenced by the same factors as risk.

There is a need to provide an appropriate and acceptable level of return for the associated level of risk to attract capital, which is an ongoing challenge in regional areas. Other factors of particular relevance to

the Tweed include risks associated with the availability of labour and available infrastructure and inputs. Critical to the attraction of capital is the mitigation of risk associated with development.

3.5.4 Infrastructure

Transport, communication utilities and other infrastructure are necessary for the production and transport of goods and services as well as to increase the efficiency of resources. Factors that can influence the development of infrastructure (and subsequently economic growth from this source) include:

- ▶ Availability of capital: Capital expenditure is necessary to purchase and/or hire the inputs needed to develop infrastructure. As such, the availability of capital, or lack thereof, can have a significant impact on infrastructure development;
- ▶ Population growth: Population growth can influence the need for infrastructure by placing excess pressure on the capacity of current infrastructure or in the planning and provision of infrastructure for expected population growth;
- ▶ Population mix: The population mix influences the type of infrastructure required;
- ▶ Technical innovation: Technical advancement can lead to the development of infrastructure, for example, where it is necessary to develop infrastructure before the advantages of the new technology can be fully achieved (e.g. communication infrastructure); and
- ▶ Resource use: The manner in which resources are used influences the types of infrastructure needed.

There is a requirement to match infrastructure rollout to identified economic development opportunities, for example the development of broadband and communication services may be required to attract a knowledge industry, whereas the continued Pacific Highway upgrading may be the impetus for increased transport and logistics in the Tweed.

The main road corridor is the north-south Pacific Highway. A major initiative of the State and Commonwealth Governments is the upgrading of the Pacific Highway to dual carriageway standard. The improvements to the corridor will provide greater transport efficiency and safety for residents.

The main Sydney-Brisbane rail corridor passes to the west of the Tweed and is operated by the Australian Rail Track Corporation (ARTC). However, a rail corridor exists between Casino (where there is a planned transport hub) and Murwillumbah. The *Far North Coast Regional Strategy* indicates this rail corridor is to be protected. As the Gold Coast rail extension is planned, investigation will be undertaken to determine whether demand warrants extension of the route into NSW.

Air services are provided out of the Gold Coast Airport to the north, Ballina to the south and Lismore to the west.

3.5.5 Technical Innovation

Technical innovation influences economic growth by providing more efficient use of resources and therefore greater productivity per unit of input. Technical innovation is influenced by:

- ▶ Investment: The level of investment into research and development (R&D), or into adopting the outcomes of R&D undertaken elsewhere, is a major contributor to the speed of technical advancement;

- ▶ **Technical Competence:** The skill level and imagination of researchers and innovators strongly influences the quality and quantity of technical advancement;
- ▶ **Development and commercial application:** The ability of research breakthroughs to address industry or community requirements is paramount to their commercialisation and uptake; and
- ▶ **History:** Technology is highly reliant on what has been developed in the past, as this not only provides the foundation of knowledge for development but also the inspiration for new ideas.

There is a requirement for the Tweed to stay abreast of current and new technology uses and has the appropriate knowledge and skills to maximise the application of technologies that are developed. The take-up has been traditionally low in the region.

3.5.6 Attitudinal Trends

In spite of relatively consistent historical economic development, it seems clear that the Tweed is at a crucial turning point. The Tweed, NSW, Australia and indeed the world is changing rapidly. No longer is it a world where the major competitor is the shop owner down the street or the operator in the next shire, but one in which even domestic markets are now globally competitive. The economy of the Tweed will need to change rapidly to accommodate this. Areas of fundamental change currently occurring include:

- ▶ **Increasing pressures to halt environmental degradation:** Environmental factors are currently among the some of the most significant components influencing development and this is expected to continue in to the future. Central to this is the concept of “sustainability” and “balanced” growth and development;
- ▶ **Emerging importance of climate change:** Forecast warming of the earth’s climate due to accumulation of greenhouse gases in the atmosphere could constrain growth in the Tweed, including the tourism-based industry, and impact coastal sea levels. Consumers, businesses and industry are increasingly driving responses to minimise greenhouse emissions by both government and industry;
- ▶ **Community and lifestyle attitudes and their impact on long-term demographic trends:** Attitudes and values are changing as the global village becomes a reality with many of those on high incomes seeking improved quality of life. A consequence of this may be business and residential migration to areas that provide a perceived “lifestyle” premium. Social values and their perception will also be important shapers of development and perceived attractiveness of the Tweed. Of particular importance is how the region is branded and perceived by those internal/external to the region; and
- ▶ **The advent of global e-commerce, including the age of “frictionless capital” and the advent of the “knowledge economy”:** As knowledge becomes increasingly embodied in goods and services, resources, primary production and low value manufacturing become relatively less important. Intense global competition and market deregulation contributes to pressure on prices, volumes and the terms of trade generating the need to leverage the Tweed’s competitive advantage to attract new business and industry and develop or value add existing industry. The continuation of the status quo without significant impetus for change is unlikely to provide regional prosperity in the emerging knowledge economy.

The majority of these factors will be external to and unable to be influenced by the Tweed. Critical to managing the impact of these factors is the recognition and development of strategies to mitigate against or leverage from these drivers for the future economic prosperity of the Tweed.

3.5.7 External Factors

There are a number of external trends expected to significantly influence the structure of the world economy in the coming years. In some instances these factors will be forces relieving constraints to economic development.

The following key external factors shaping the process of future economic development are fundamentally linked and include:

- ▶ Overarching government policies and legislation: set the context and parameters by which opportunities may occur and economic development facilitated;
- ▶ National and international market deregulation: Influences the level of competition and market access, which can be both beneficial and detrimental. Many Australian industries have undertaken extensive investigation of ways to mitigate against and capitalise on market deregulation;
- ▶ Opening of trade in goods and services: Domestic and international market access has is one of the most obvious factors of globalisation. Coupled with continuing declining terms of trade, this places the many regional Australian areas in a difficult position regarding the production and export of goods due to our relatively high cost of production compared to international competitors. At the same time, international competitors can often land goods and services on the Australian market cheaper than Australian suppliers can provide them; and
- ▶ Fiscal components such as the exchange rate and monetary policy: these components influence the relative attractiveness of the Australian dollar, goods and services and investment opportunities.

The majority of these factors will be external to and unable to be influenced by the Tweed. Critical to managing the impact of these factors is the recognition and development of strategies to mitigate against or leverage from these drivers for the future economic prosperity of the Tweed.

3.6 Future Growth Scenarios

The Tweed is projected to record population growth of between 1.2% and 1.7% per annum over the next 25 years, well below averages of above 2.0% recorded between 1996 and 2006. Interestingly, population projections have historically overstated growth in the Tweed. Economic growth scenarios will depend to a large extent on economic development in the region and associated employment opportunities, however an ageing of the workforce could constrain labour force capacity.

From the current turning point, there are a number of potential scenarios for the future economic development of the Tweed, hinging on future population growth and the type of industry development that occurs in the region.

3.6.1 Future Population Growth

For the Richmond-Tweed region overall, the 18 alternative scenarios produced by the Department of Planning result in total populations in 2031 that are within the range of 78.9% to 106.6% of the preferred series. A comparison of range of growth scenarios for Richmond-Tweed with the preferred series for Tweed Heads and Tweed Part B shows that the preferred series for the Tweed regions are equivalent to the higher series for the Richmond-Tweed region, meaning the Tweed's population is forecast to grow considerably faster than that of the Richmond-Tweed region as a whole.

Table 3-25 Population Scenarios, Growth 2006–2031, Richmond-Tweed

Scenario	Total Growth 2006-2031
Zero interstate migration	34.4%
Replacement fertility	34.6%
Low intrastate migration to Sydney	32.0%
Very high overseas migration	32.5%
Low interstate migration loss	30.6%
High overseas migration	29.6%
Constant fertility	28.6%
High life expectancy	28.1%
Preferred series	26.7%
Low life expectancy	25.4%
Low overseas migration	23.4%
Low fertility	22.8%
High interstate migration loss	23.0%
High intrastate migration to Sydney	21.6%
Constant life expectancy	20.5%
Zero overseas migration	14.5%
Zero internal migration	9.4%
Zero intrastate migration	8.4%
Zero all migration	2.1%

Source: Department of Planning, State and Regional Population Projections, 2004-2051

High and low series population projections for the Tweed have been estimated by increasing and decreasing the average annual growth of the preferred series for each of the Tweed's SLAs. The scenarios produce a 1.2%-1.7% average growth rate range for the next 25 years, with the population ranging between 110,691 and 127,281 persons.

Table 3-26 Population Projections by Scenario

	Low Series			Preferred Series			High Series		
	Tweed Heads	Tweed Part B	Tweed Shire	Tweed Heads	Tweed Part B	Tweed Shire	Tweed Heads	Tweed Part B	Tweed Shire
Population Projections									
2006	53,317	29,706	83,023	53,317	29,706	83,023	53,317	29,706	83,023
2011	58,132	31,493	89,626	58,932	31,939	90,871	59,732	32,385	92,116
2016	62,188	33,218	95,406	63,928	34,167	98,095	65,692	35,129	100,821
2021	65,990	34,879	100,869	68,795	36,388	105,183	71,678	37,940	109,618
2026	69,637	36,425	106,062	73,629	38,547	112,176	77,790	40,760	118,551
2031	72,866	37,825	110,691	78,147	40,607	118,754	83,730	43,550	127,281
Total Growth									
2006-2031	36.7%	27.3%	33.3%	46.6%	36.7%	43.0%	57.0%	46.6%	53.3%
Annual Growth									
2006-2031	1.3%	1.0%	1.2%	1.5%	1.3%	1.4%	1.8%	1.5%	1.7%

Source: Department of Planning (2005)

3.6.2 Future Economic Growth

Potential scenarios for the future economic growth of the Tweed region include:

- ▶ **Low Series:** Without additional employment land or other economic development initiatives/catalysts to encourage and support the expansion of existing industries and the establishment of new industries, the current trend of declining real GRP will be expected to continue, worsening as the region's population growth decreases. In this scenario, the region's economy continues to shrink by 1% per annum in real terms on average over the business cycle;
- ▶ **Medium Series:** Increased tourism activity and population on the Tweed Coast (driven by additional residential/tourism/retail developments) supports the continued development of the tourism and personal services industry in the region, resulting in higher economic growth but limited economic development in the region. Limited economic development means the economic base of the Tweed is still more vulnerable to external shocks. However, the scenario would still see a net employment deficit to the Gold Coast and other region unless there was structural/fundamental change to the economic base; and
- ▶ **High Series:** Proactive, macro-economic activities undertaken to attract and retain new firms and industries in the Tweed, and strengthen local intra and inter-industry linkages, moving the focus of the economy from personal services to knowledge-intensive goods and services. There is economic growth and development, increasing the sustainability and reducing the vulnerability of the region's economy. In this scenario, the region's economy is expected to grow at rates more comparable to the State and SEQ economies, with potentially more rapid growth in the short-term as the region builds critical mass.

To drive the diversification of Tweed's economic base, reducing vulnerability to external shocks and increasing value-adding by local firms, catalytic policies need to be implemented, to shift the focus from the quinary services and take advantage of the opportunities for higher value-adding activities in the region. As a nearby example, the Gold Coast has successfully accomplished the change from a tourism-based economy to a diversified economy over the past 20 years.

4. Economic Opportunities Assessment

4.1 Strategic Context

This economic opportunities assessment is an overview of the strategic planning context of Tweed Shire, with analysis of the strategic and competitive position of the region for employment land development and identification of strategic industry growth and development opportunities, including joint venture partnership approaches.

4.1.1 National Industry Trends

The national manufacturing sector has reduced in economic significance due to increased international competition. There is increasing production occurring in regional areas proximate to metropolitan regions, particularly those with resource endowments. There has been a gravitational shift toward inexpensive industrial land and low cost buildings. Transport and access has increased in importance for the location of new lands.

To provide the strategic context for considering the potential for employment lands in the Tweed, the following brief synopsis is provided for the industrial land sectors:

- ▶ **Manufacturing:** The manufacturing industry has traditionally been one of the most important in the Australian economy. During 2005-06 the manufacturing industry accounted for \$94.0 billion in gross value-added, 11.0% of the Australian economy. Manufacturing was the second largest industry in the country after Property and Business Services, which contributed 12.4% of gross value-added. Manufacturing's share of the economy decreased 0.4% compared with 2004-05. This continues the long-term trend decline in the importance of manufacturing, which had accounted for 30% of the economy in the middle of the 20th Century. All subdivisions experienced negative growth except for Non-Metal Mineral Products (11.5%) and Machinery and Equipment (5.7%). In 1993-94 the manufacturing industry was the largest in the country contributing 15.1% to GDP. The decline over the last decade has been largely caused by deregulation and the increase in imports into the country. Over the last 10 years the value of imports have risen 107.3% while exports only rose 54.9%. Local producers in some industries were not able to compete with cheaper imports, resulting in loss of market share and firm closures. The increased need for competitiveness in the industry has led to the trend of firms moving factories and operations overseas to take advantage of lower labour and operating costs;
- ▶ **Wholesale Trade:** The wholesale trade industry involves the resale of new or used goods to businesses and institutional users. The wholesale trade industry contributed \$42.5 billion to Australia's GDP in 2005-06 which represented growth of 3.2% over the year. This was slightly higher than the economy as a whole they grew by 2.8%. In 2005-06 the industry accounted for 4.9% of the total economy. This has been stable over the last decade with the proportion of the economy down on slightly from 5.5% in 1996. The wholesale trade industry is a mature industry and is expected to grow at a rate comparably with the economy in the future; and
- ▶ **Transport and Storage:** The transport and storage industry is made up of the moving of goods, services and people. The sector accounted for \$41.2 billion in 2005-06, up 5.1% from the previous year. Transport and storage contributed 4.8% to Australia's economy, making it one of the smaller industries in the economy. The size of the industry compared to the economy has remained very

stable at between 4.8%-4.9% since 2000. This indicates the industry is growing at a similar rate to the economy. Several trends have appeared in the industry in recent years. Increased fuel prices have had a big impact on transport providers with this cost becoming the biggest variable cost. Increased trade in the economy has also led to a trend of transport providers increasing their capability of moving goods overseas. There has also been an increased shift in the industry with firms specialising in providing services for particular industries.

Australia's production regions have evolved through a number of phases. Initially they were concentrated in the inner areas of the major cities, orientated towards meeting domestic demand and capturing replacement opportunities (metals and engineering and textiles, clothing and footwear). They also developed in areas with resource endowments. In the post-war era period manufacturing dispersed from inner city areas to large industrial estates. These areas were favoured as international companies established operations to supply a growing Australian market. Many of these were branch plants, manufacturing to specifications provided by overseas parents and constrained from exporting. This was the age of large-scale systems of production, hierarchical corporate structures and standardised technologies. Interaction with local firms was minimal.

In the current phases, innovation is driving competitiveness. Knowledge-based industrial firms are clustering geographically around scientific and research institutions and are developing links into high-skilled labour pools, management and technological expertise, venture capital, and competitive and collaborative networks of firms. Interestingly, the economic future and location of Australia's production regions is becoming dependent on a capacity to attract and develop high technology industries and adopt new methods of production. They are facing long-term structural challenges, especially in their move to a knowledge-based economy. Despite the existence of many innovation projects in traditional regions, they currently have insufficient value added industries, too many industries in declining sectors of the economy, and too high a proportion of routine production workers. This has created pressure for the manufacturing industry to become more dynamic as this is fundamental to competitiveness.

Transport and access is now the major factor behind the release of new industrial land. There has been a shift in the use of industrial land in Australia away from manufacturing and towards transport and logistic operations. This has meant that the location of industrial land close to transport hubs and with adequate access has become a lot more important. In regional areas there has been a trend towards industrial parks being developed in the vicinity of airports and ports to aid transport. There has been significant demand for these locations for operations looking to export and import goods. There has also been a trend with industrial parks moving closer to highways and major roads. This has been matched by the need for industrial parks and access roads to be B-double compatible meaning large trucks are able to get to the land without causing damage.

Over the past two decades nationally, development of industrial land and floor space has occurred at a rate slower than employment growth. This, however, has varied considerably between specific sectors. In manufacturing and wholesale trade, employment growth has either declined or remained stagnant. Contrasting with this pattern has been the performance of transport and storage, which has shown strong growth. The pattern reflects the long-term improvement of inventory with a consequential decline in the inventory/sales ratio. This is giving rise to the development of space built to facilitate the rapid movement of goods through the supply chain.

Businesses with low inventory turnover are gravitating toward inexpensive industrial land and low cost buildings. For those requiring storage, rent can account for a significant proportion of cost and hence relates to high rent sensitivity. In contrast, rents account for a much lower proportion of the overall cost

for businesses that have high inventory turnover and high value products and typically provide value-added functions, including product customisation, packaging and customs brokerage, meaning these are less rent sensitive. For these businesses, there is generally a greater willingness to pay a premium for excellent access to a large customer base and proximity in time and space to airports and port, explaining the appeal of Australia Trade Coast, for example, in Brisbane.

4.1.2 Growth in South-East Queensland

SEQ has exhibited strong and sustained population and economic growth over recent years, with high population growth resulting in consumption-led economic growth. SEQ's population has grown considerably over the past few decades, increasing from 1.67 million in 1986 to 2.73 million in 2006. The largest growth was in the southern LGAs of (Beaudesert, Gold Coast, Logan and Redlands).

The population of SEQ increased by more than 1,000 people a week in 2005-06 (more than the total growth in NSW), with almost two-thirds of this growth coming through net migration. SEQ accounted for almost 70% of Queensland's total population growth. The bulk of this increase came through interstate migration, followed by natural increase, then net overseas migration. Population growth in SEQ was driven by employment and sea-change trends, with the bulk of population growth along the coastal strip.

The *Far North Coast Regional Strategy* notes the planned consolidation of employment centres within SEQ will have implications for the economic growth of the Far North Coast Region. Accordingly, the Strategy identifies a need to strengthen economic activity and associated employment in existing industry sectors as well as encourage the diversification into new and emerging opportunities to take advantage of the region's relationship with SEQ. The Regional Strategy encourages Councils to plan for future industrial needs and take into account economic markets, South East Queensland pressures for employment lands, lifestyle opportunities, and transport improvements within and from the region.

As outlined in the Regional Strategy, the pressure exerted by growth in SEQ is expected to influence growth and development in the Tweed, as the two economies are closely linked. Currently, Tweed residents commute to SEQ for employment, goods and services, and SEQ residents visit the Tweed for recreation purposes. The population of SEQ is expected to grow from 2.77 million in 2006 to 3.71 million in 2026, an increase of 50,000 per year, requiring 425,000 new jobs in the region. An adequate supply of suitable industrial land is essential for economic development in the Tweed.

The *South East Queensland Regional Plan* acknowledges the importance of industrial land to economic development, and has earmarked significant tracts of land for future development, protecting them for encroachment by incompatible land uses. The includes identification of the future extension of the Gold Coast rail link to the Coolangatta Airport by 2016 and the planned investigation of significant employment lands and housing at Bromelton. The Bromelton corridor represents a threat to the development of the Tweed, given it is linked by rail to more western areas of the Northern Rivers of NSW.

Demand for industrial land in SEQ remained strong during 2006, with land values across the market increasing by 30%. The scarcity of warehouse space and growing demand for distribution facilities has resulted in sizeable increases in average rents. Supply expanded considerably during 2006, with major additions totalling 655,000 square metres, with most activity concentrated in the Western Corridor, Gateway North and South, as well as the Brisbane-Gold Coast corridor (particularly the Yatala Enterprise Area).

In SEQ, land surrounding infrastructure, particularly road and rail, will continue to remain in strong demand, as locational factors compensate for higher prices and rents. The strong demand conditions in

the SEQ industrial property market means commercially attractive industrial land is rapidly being exhausted, and there is increasing pressure from residential development, meaning firms are forced to look further a field for suitable sites.

There is, therefore, an opportunity for the Tweed to capitalise on its capacity to provide suitable industrial land, changing both the Tweed's industry structure and the nature of the interactions between the Tweed and southeast Queensland regional economies. Further, decreases in liveability in SEQ associated with increasing population and decreasing housing affordability could see additional migration from SEQ to the Tweed.

The experience with regions close to Sydney, such as the Lower Hunter, would support the potential for expansion of employment zones beyond the boundaries of the greater metropolitan area. In Sydney, the supply of employment land is becoming a constraint on the future growth and regional competitiveness of Sydney. Industrial land is reported to be diminishing despite new releases near the M7. Significant tracts of industrial land have been lost to residential development.

The pressures in SEQ are not constrained to the industrial land sector. The Brisbane commercial office market records the lowest vacancy rate of any capital city office market in Australia and record lows for Brisbane. The CBD vacancy at January 2007 sat at just 1.7%. Subsequent take-up has seen the rate fall to below 1%. Net absorption has averaged above 30,000 sq m per annum over the past decade, rising to more than 60,000 m² per annum over the past three years and reaching 68,000 m² in 2006. Office rents have reached new highs. Rents have increased by 35% to 40% over the past year.

The main implication from SEQ for Tweed's commercial office sector is an increasing retention of activity from its residents i.e. reducing leakage within the services sectors from the Gold Coast and Brisbane. As these property markets tighten, there will be increased potential and need to provide these services locally within commercial centres.

4.1.3 Growth in the Gold Coast

The Gold Coast is the nearest area of SEQ to the Tweed. The Gold Coast has recently prepared and placed on public exhibition its *Local Growth Management Strategy (LGMS)* in response to the *SEQ Regional Plan*.

The Gold Coast currently has 9 major industrial land developments, with only two in the southern end of the Gold Coast (Burleigh and Currumbin). It is noted the bulk of the Gold Coast's industrial land stocks are located in the Yatala Enterprise Area, at the northern end of the Gold Coast. There is limited land at the southern end of the Coast.

Discussions with Gold Coast City Council indicate approximately 10-15 year's of industrial land supply remaining. This supply would be delivered through increased yield from the Yatala Enterprise Area and development of nearby canelands. Yatala is a regionally focussed enterprise area with transport links to Aus Trade Coast at the Port of Brisbane and Brisbane Airport. There are generally conflicting/competing land use issues at the Gold Coast's other industrial areas which will limit further development. There is a reported shortage of service industry and bulky goods lands on the Coast, which may provide an opportunity for the Tweed.

Infrastructure and transport upgrades to Coolangatta such as the future extension of the Gold Coast rail link to the Coolangatta Airport by 2016 would improve the competitive position of the south end of the Coast and the Tweed. It is possible sequential development in the Tweed in 10-15 year's time would

present the natural extension to the Brisbane and Gold Coast economic corridor as land supply decreases.

The Seamless Borders project, identified by the TEDC initiated Cross-Border Working Group, is being led by Gold Coast City Council, in partnership with TEDC and Tweed Shire Council, aims to reduce the regulations imposed by both local and state government on businesses operating in the cross-border region to create a more conducive environment for investment attraction to the region.

For the commercial office sector, the nearest commercial centre to the Tweed in the Gold Coast is Coolangatta, which is identified as a Major Regional Centre. The Coolangatta centre is closely linked to the Tweed Heads centre and are generally viewed as a single entity in regional planning terms. The recently completed *Coolangatta Area Plan* provides an overarching strategic direction for the local area, although it is intended this strategy will be reviewed in the next 12 months given the completion of the LGMS.

4.1.4 Growth in Far North NSW

The Tweed has close linkages with the Gold Coast, and effectively forms an extension of the greater Gold Coast urban area. Because of the linkages, the Tweed is facing many of the same growth management issues as SEQ, including:

- ▶ Rapid population growth
- ▶ High tourism visitations
- ▶ Development pressures on natural areas, the coastal zone and agricultural lands; and
- ▶ A requirement to invest in additional infrastructure and community services.

With the strong tourism and population-driven employment base (retail and services sectors) in the coastal areas of the Tweed, the availability of affordable land is becoming increasingly limited, and what is available is increasingly being utilised for bulky goods retailing. As such, land available for industries that generate export jobs is decreasing.

The *Far North Coast Regional Strategy* estimates that an additional 156 hectares of industrial land and an additional 76 hectares of commercial land would be required to provide employment opportunities for the projected regional population. It appears these figures are based on the historic take-up rate of industrial land at the regional level, rather than as a result of any identified opportunity to create regional employment growth through a visionary, proactive approach to investment attraction through enterprise land development.

The Regional Strategy notes the region's western areas have the capacity to provide land to support industrial development, especially for those with an export focus. Casino and Kyogle are located on major transport routes with access to inter-state road and rail networks. Casino is presently taking advantage of this potential and is developing 53 hectares (ha) of land suitable for heavy industry and 24 hour operation. The development is accessible to both rail and road infrastructure and land prices are considered below other Northern Rivers areas and the metropolitan centres of Brisbane and Sydney. Strategically, the industrial areas link via the Summerland Way and North-South coast rail line with the emerging industrial area of Bromelton near Beaudesert in SEQ, which is being targeted as a major industrial node in Queensland.

The *Northern Rivers Regional Industry & Economic Plan* (NRRIEP) indicates support should be given to the upgrade of the Summerland Way-Beaudesert route as a major road freight corridor. The NRRIEP notes the opportunity for spin offs from the growth in SEQ for the manufacturing sector in the region. The NRRIEP projects a significantly higher 720 ha of serviced industrial land will be required in the region by 2031 in order to meet the projected supply driven forecasts / targets for export orientated employment in the region. The Plan acknowledges there is limited industrial land capacity in the Tweed but notes the cross border opportunities with the Gold Coast.

TEDC has estimated (based on typical employment lands to population ratios for SEQ), that an additional 400 hectares of enterprise land will be required in the short-term and 800 hectares will be required in the long-term in the Tweed region alone to support and facilitate industry creation and expansion in the Tweed. Previous research undertaken for TEDC (Spiller Gibbins Swan, 2001) also confirmed the need for large-lot enterprise/industrial land to support the attraction of new firms and industries to the region. Further, it also identified that large-lot enterprise land has the capacity to produce from 22 to 55 jobs per hectare, depending on the industry. If the Tweed were to achieve the availability of 400 hectares of employment-generating (enterprise) land in the short term, this could generate between 8,800 and 22,000 jobs and attract significant new investment into the region.

The Regional Strategy promotes a clear hierarchy of commercial centres consistent in scale and centrally located within each community. The Regional Strategy identifies Tweed Heads as a major regional centre and Murwillumbah as a major town. It is intended that major commercial development, such as large-scale office development, will be located within large centres. Other commercial development, which relates to the scale of adjoining urban areas, will be located within the boundaries of towns and villages, utilising existing commercial centres where possible, and integrated with the initial planning of new release areas.

4.2 Competitive Position

The competitive position of the Tweed as a place to invest in industrial development will be central to the future demand for industrial land. The region's competitive position can be assessed by an analysis of competitive strengths and weaknesses relative to key locational factors and industrial land supply and demand trends versus other regions, including remaining opportunities in SEQ (and the Gold Coast in particular), the western areas of the Far North Coast Region suited to export and transport industries, and Mid North Coast areas with large tracts of land suitable for industrial development.

4.2.1 Key Locational Criteria

There are many considerations for industrial developers and businesses when identifying and assessing potential locations for new industrial land development.

Recent business surveys by the AECgroup of industrial businesses in the Mid North Coast of NSW indicated the location of the site was a key factor considered for businesses that wanted to be close to suppliers and be in a visible site with profile, followed by the size of the land parcel to ensure sufficient land to meet their requirements and allow for expansion and transport access and price.

Based on industrial developer surveys, the location of a new site for industrial land development is believed to be contingent on several major factors:

- ▶ The land must be flood free in order for businesses to feel secure;

- ▶ Proximity to transport options including major roads and the port;
- ▶ Easy access for trucks into the site;
- ▶ The topography of the land for cost-effective development;
- ▶ Proximity to existing industrial land to allow for less impact on the region;
- ▶ Proximity to existing industrial land to allow industry clustering opportunities; and
- ▶ A buffer between the land and conflicting land uses such as residential.

Searches of other literature confirms the criteria for industrial land selection is more selective than those for other urban land uses due to the potential conflict within the host community and the natural environment. The least amount of impact on the natural environment can be managed by selecting sites, if available, where little if any undue encroachment will occur. If areas of minimal environmental impact are not selected while adequate opportunity is available, pressures for economic development in the future will result in attempted invasions of left over areas on the urban fringe that are often environmentally sensitive resulting in sometimes severe community conflicts. Ultimately, industry will only be attracted to locations that are conducive to effective and efficient operational conditions.

To assess the competitive position of the Tweed for industrial development, the principle locational criteria includes the following factors:

- ▶ Physical suitability: To facilitate construction, contain building costs and lessen the risks from natural disasters;
- ▶ Environmental sustainability: To protect the natural environment and the amenity of the built environment;
- ▶ Cost effectiveness for the provision of infrastructure: To rationalise the orderly provision of operational utility services and minimise their associated costs to Government, community and industry;
- ▶ Efficiency of business: Opportunities for expansion, synergies, linkages and economies of scale, flexibility of site choices, affordable land readily available, appropriate tenure arrangements and favourable and expeditious local government planning and development climate;
- ▶ Accessibility to markets: Frontage and access to the highway network, ready access to air/sea/rail ports and ready access to sources of materials for production and to locate markets and export facilities for product outlets;
- ▶ Availability of workforce: Availability of a suitable workforce within acceptable work journey limits; and
- ▶ Community acceptance: Acceptance levels of impacts on community's amenity, appropriate employment opportunities, convenience of workplace trips, availability of public transport, acceptable visual impacts, avoidance of conflict over sensitive cultural or heritage factors.

4.2.2 Strengths & Weaknesses

The Tweed's competitive position as a place to invest is improving given the heat in the property markets of SEQ, the depletion of lands at the Gold Coast and the improving access along the Pacific Highway. However, the region will compete with the Summerland Way/Bromelton/Casino corridor which is positioning to attract export business along the rail corridor.

The demand and take-up of industrial land provides some indication of the competitiveness of a region for industrial land development. In Tweed's case, historical land take-up rates have been slow. However,

this observation needs to be tempered by an assessment of the commercial attractiveness and suitability of the land that has been available for market consumption. There are reports from TEDC that the Tweed has recorded some interest from major industrial land developers seeking information regarding possible industrial development sites for larger-scale subdivision. Non-residential building investment is also increasing rapidly in the Tweed.

The following comment is provided regarding the Tweed's strengths and weaknesses relative to the locational criteria established above:

- ▶ **Environmental sustainability:** The Tweed economy, particularly tourism and coastal residential migration, is largely built around its natural features and landscapes. This places pressure on the ability to site suitable industrial land and develop in a manner that does not threaten the environmental features and attributes of the region;
- ▶ **Cost effectiveness for the provision of infrastructure:** In general, the Tweed has well developed infrastructure though faces the same challenge as many other regional and rural Councils with a dispersed settlement pattern to provide equitable and cost-effective levels of services infrastructure to all parts of the Council area. Large-scale industrial land development is likely to require significant infrastructure investment if it is to be suitably removed from residential areas and the urban footprint. It is estimated there are higher local infrastructure costs associated with more stringent environmental planning and higher development head charges in the Tweed versus SEQ. Land values are more affordable in the Tweed relative to most areas of SEQ;
- ▶ **Efficiency of business:** There is a network of industrial estates throughout the Tweed, each with a different mix of industries and markets. Presently the operations are largely lower value adding businesses with a local service orientation. There are opportunities for greater synergies and critical mass;
- ▶ **Accessibility to markets:** The Tweed is reasonably well placed relative to export markets via the Gold Coast Airport and the Gold Coast and Brisbane Ports. Further upgrades of the Pacific Highway will improve accessibility to northern and southern markets. The Tugun Bypass to the north will be integral to improved accessibility and integration with the SEQ economic corridor. In terms of rail, the Tweed is at a disadvantage to inland areas of the Far North Coast such as Casino which are located on the north-south rail line linking with the planned Bromelton industrial estate and SEQ markets. There may be consideration for extension of the Gold Coast rail link to the region which would improve competitiveness to some extent;
- ▶ **Availability of workforce:** The Tweed's skills base is low, labour force participation is low; qualifications are low and unemployment high. These trends are a reflection of the older demographic and a lack of local employment opportunities. A large proportion of the resident workforce currently leaves the region for employment. Despite this, only a relatively low proportion of the Tweed's workforce is employed in the industrial land sectors. With expected continued migration of an older demographic, the ability for the region to provide the necessary skills base to support large scale economic development initiatives may be threatened; and
- ▶ **Community acceptance:** The Regional Strategy notes the competition for coastal lands and the erosion of existing employment lands for retail use. These issues place further pressure on the residential vs employment role of the region and the availability of suitable lands that do not overly impact residential development. This, to some extent, is reflected by the conservative industrial land

projections outlined in the *Far North Coast Regional Strategy* and comments made regarding the availability and future development of coastal lands in the region.

In summary, the low take-up of industrial land in the Tweed is a reflection of a poor competitive position relative to SEQ, and lack of capacity and economic advantage.

4.2.3 Opportunities & Threats

The Tweed's relatively slow economic growth and decline of traditional industry sectors presents potential to reinvigorate the economy through new development opportunities and diversification initiatives. A constraint to the region will be its employment capacity given its ageing and older demographic.

In general, the type of economic growth encouraged will determine the types of employment opportunities that will be created in the Tweed. In terms of employment lands and their role in economic development, the following is noted:

- ▶ There are opportunities for the expansion of existing firms and industries and the establishment of new firms and industries that may currently be constrained by the lack of zoned, serviced, suitable land in the Tweed;
- ▶ Provision of suitable employment land would increase employment opportunities to retain workers in region, reducing leakage to the Gold Coast, Northern Rivers, etc;
- ▶ Provision of suitable employment land can produce positive employment outcomes with high employment per hectare for large-lot industrial land of between 22 to 55 jobs per ha (depending on industry and type of operation established);
- ▶ Development of knowledge-intensive goods industries, such as electronic equipment, would provide greater value-adding and economic productivity in the region;
- ▶ Clustering of firms in related industries (on the condition they are sufficiently developed to undertake clustering activities), would strengthen local linkages, encourage co-location of like businesses and encourage joint tendering;
- ▶ Increasing knowledge-intensive, non-quinary industries, as part of commercial zones and business parks, would be expected to strengthen local linkages; and
- ▶ Climate change and water accessibility are increasingly important. There is the opportunity to promote carbon neutral development.

There is an opportunity for the region to leverage from its location and linkages with the fast-growing SEQ region directly to the north. An economic corridor is consolidating between Brisbane and the Gold Coast, and there is the opportunity for a natural progression further south as access improves with upgrades to the Pacific Highway.

The Tweed has historically recorded relatively low industrial land take-up rates and limited interest from larger industry operations. In turn, the sector has not been a major driver of the local economy. The economy has, instead, been largely built around tourism and providing services to a growing population. There is an opportunity for the region to provide a supply catalyst to encourage large-scale industrial development by developing integrated and planned estates suited to high technology and value adding businesses.

The main constraints to the future expansion of the industrial land sector in the Tweed relates to the weaknesses outlined above and the ability for the region to provide commercially attractive land relative to competing areas such as SEQ, the Gold Coast specifically, the western areas of the region on the rail line and mid north coast areas to the south. The ability for the region to provide the required skilled labour may be an issue, suggesting the need for aligned property development and employment strategies. The ability to site suitable land free of environmental constraints and residential land conflicts and representing cost-effective infrastructure solutions will also be challenging.

The Gold Coast is a close example of an economy that was able to shift its industry structure from one largely built on tourism to a broad-based economy, with sizeable clusters of knowledge-intensive industries and a number of higher education facilities. This has seen a strong economic corridor develop between Brisbane and the Gold Coast, with significant industrial estates now located alongside or near the highway (e.g., Yatala Enterprise Area). The *Gold Coast Economic Development Strategy* lays out an action agenda for deliver on their goal to have the Gold Coast recognised as one of Australia's leading globally-connected and integrated cities, with diverse, highly export-oriented industries providing high-value and sustainable jobs.

4.3 Strategic Sectors and Opportunities

Substantial research has already been completed on economic development opportunities and strategic sectors for the Tweed. It is agreed there is potential in the tourism, health and community, manufacturing and agricultural sectors based on competitive strengths, and creative industries, information & technology and aviation as new sectors not based on existing competitive advantage. Land use policy directions should set an appropriate and flexible planning environment to encourage the development of opportunities.

4.3.1 Strategic Sector Identification Criteria

There are a number of criteria that need to be addressed in identifying the strategic sectors for the Tweed region, as detailed in the table below. These sectors must then be balanced against the competitive position of the region relative to the locational criteria established above so as to test the realism of the opportunity. The criteria are:

- ▶ Substitute local inputs for imports;
- ▶ Further value-adding to goods/services;
- ▶ Capacity to develop local resources;
- ▶ Capacity to build upon competitive strengths;
- ▶ Size and structure of current operations;
- ▶ Degree to which businesses can be linked;
- ▶ Capacity to tap industry innovations;
- ▶ Capacity to tap industry assistance programs; and
- ▶ Likely sources and strength of competition

4.3.2 Review of Current Economic Development Initiatives

There has been significant research undertaken in regard to economic development opportunities in the Tweed, including those accommodated on employment lands.

Tweed Shire Council and the TEDC collaboratively developed the *Tweed Ready for Business Economic Growth Management Strategy*. The primary objective of the Strategy is to identify the actions required to facilitate sustainable economic growth in the Tweed region, consistent with existing plans (including the Tweed Futures Strategic Plan 2004 – 2024). The Strategy will also be used to identify and secure funding to drive the strategic economic development outlined in the document.

The strategic economic development activities in this Strategy aim to:

- ▶ Give leadership and direction to increase job-creating growth and investment;
- ▶ Promote, facilitate and assist competitiveness of new and existing industries;
- ▶ Facilitate the provision of world-class infrastructure;
- ▶ Foster a positive business culture and environment;
- ▶ Facilitate the diversification of the industry base to support a robust economy;
- ▶ Be creative and innovative in the approach to promoting economic vitality; and
- ▶ Maintain the ecological integrity and cultural fabric of the Tweed.

In terms of industry opportunities, the following industries were identified during the Tweed Economic Summit (held in October 2003) as having significant growth potential:

- ▶ Health and aged care;
- ▶ Film and creative industries;
- ▶ Tourism;
- ▶ Agribusiness;
- ▶ Food manufacturing;
- ▶ Marine industries; and
- ▶ Education and training.

These opportunities are largely based on current strengths (health, tourism, agriculture, marine). While existing industries provide the knowledge and resource base to build on, they cannot always provide the “jump” required to attract or develop the “next generation” of industries (e.g. ICT goods and services, pharmaceuticals, etc).

Opportunities for identifying banks of land for the development of specific industry sectors also exist. One identified example involves the investigation of the development of a second airport for the Tweed, focused on growing and attracting general aviation-related businesses in the Shire. Discussions with Gold Coast Airport Ltd, confirm the growth and expansion of Gold Coast Airport is focused on passenger flights, with the often competing interests of general aviation businesses located on Airport land not considered as high a priority.

The TEDC has been progressing the investigation of the feasibility of a second airstrip in the Tweed. A report prepared by John Giles and Associates (2006) confirmed the predicted expansion of the Gold Coast Airport would create increasing pressure on the light commercial general aviation industries

located at the airport to consider relocating to other facilities. Subsequent desktop investigations for a suitable site in the Tweed highlighted a number of limitations at the existing Murwillumbah Airstrip which is located on flood prone land adjacent to cane fields in the Wardrop Vallet area. Other sites near to services have been identified but require further investigation and consultation.

The *Coolangatta Airport Enterprise Park Feasibility Study* examined a number of potential industries for their suitability for location in the land adjacent to the airport, based on a number of criteria. The final criteria (Compatible with adjacent airport use, compatibility with the Airport's objectives for their business lands and environmental impacts can be readily managed) were considered "threshold criteria", in that failure against any one of these would remove the industry from further investigation.

The industries examined were (preferred industries in *italics*):

- ▶ Film, television and multimedia;
- ▶ Niche education and business convention;
- ▶ Lifestyle residential development;
- ▶ *Boat building/fibreglass;*
- ▶ *Food and beverage manufacturing;*
- ▶ Gaming industry;
- ▶ Aquaculture;
- ▶ *Storage and distribution;*
- ▶ Medical supplies manufacture and distribution;
- ▶ Tree farming;
- ▶ *Turf farming;*
- ▶ *Herbal industry;*
- ▶ Airport-related operations;
- ▶ Aircraft charter and rental;
- ▶ Aircraft maintenance and logistics; and
- ▶ *Aircraft parts manufacture and maintenance.*

The *italicised* industries refer only to the land adjacent to the airport, and those not preferred may be suitable for other areas of the Tweed. The sectors identified focus on higher value-adding activities, but it is unclear which of these build on existing knowledge bases. It is noted some of the industries are short-term only.

The *Tweed Prospectus* created by the Tweed Economic Development Corporation (TEDC), promotes the Tweed as a prime location for the following industries:

- ▶ Health and aged care;
- ▶ Niche agriculture, including horticulture and small acreage forestry;
- ▶ Education (domestic and international);
- ▶ Advanced design and manufacturing, particularly food and marine;
- ▶ Tourism and hospitality, especially ecotourism, agritourism and river-based tourism;

- ▶ Aviation and related services;
- ▶ Marine and leisure industries;
- ▶ Medical and specialised education;
- ▶ Transport, warehousing and distribution;
- ▶ Information and communication technology;
- ▶ Creative industries;
- ▶ Environmental industries; and
- ▶ Aquaculture and seafood.

The objective of the *Northern Rivers Regional Industry and Economic Plan* (NRRIEP) is to provide guidance to the region's stakeholders on strategies and actions to develop a sustainable and robust regional economy, which is able to respond to changing global economic conditions and capitalise on the opportunities open to the region. The NRRIEP acknowledges the competition for enterprise land in a coastal region, and will endeavour to ensure that adequate employment lands close to key infrastructure is available to support the economic growth and development of the region.

Industries targeted by the RIEP included:

- ▶ Aged care services;
- ▶ Aquaculture;
- ▶ Building/construction;
- ▶ Creative industries;
- ▶ Education/training;
- ▶ Horticulture;
- ▶ Meat/dairy;
- ▶ Sugar;
- ▶ Timber;
- ▶ Tourism; and
- ▶ Transport.

Most of these industries have specific land requirements to be met in order for these industries to develop in the region. These industries will be supported through a number of initiatives, including specific industry development initiatives, industry leadership, governance and planning, skills development, public policy, planning, regulation and infrastructure, public awareness and regional identity, marketing and promotion.

4.3.3 Future Strategic Growth Sectors

Based on the above analysis, the sectors that build on current strengths include:

- ▶ Tourism:

- ▶ Ecotourism: With the decline in agriculture, some local farms could be transformed into eco-tourism or farm-stay tourist facilities. The Tweed has already established award winning eco tourism operations based on locations in and around the Border Ranges World Heritage rainforest areas.
- ▶ Beach Tourism: With a warm climate, generally warm ocean currents and a range of clean, white sandy beaches, the Tweed offers a tourism experience that cannot be matched by many other regions in NSW. It also offers unrivalled access to the tourist attractions of the Gold Coast and easy access to the attractions of Byron Bay to the south.
- ▶ Health and Community Services:
 - ▶ Aged Lifestyle Products: With the decreasing mortality rate, there is an opportunity to design lifestyle products for older people, a growing market in most developed countries. This could extend to the design of retirement villages, maximising the liveability of these facilities for active individuals, and to accommodate the transition between independent and assisted living.
 - ▶ Medical Research: With the expansion of the education facility at Tweed Hospital and the aging population, there is an opportunity to expand medical research facilities in the region, including clinical trials of products for older people.
 - ▶ Pharmaceuticals: Generic pharmaceuticals manufacturing could be targeted for the Tweed. Tweed is second only to Daintree in terms of biodiversity and this provides an opportunity for new products based on locally existing genetic material. Tweed is also close to major universities with existing research facilities.
 - ▶ Nutraceuticals: Tropical Fruit World's research into the health benefits of tropical fruits could be built upon to develop a nutraceuticals research base in the region.
- ▶ Manufacturing:
 - ▶ Marine: The continued development of infrastructure supporting the development of the marine industry in the region, including the proposed 29-berth marina at Chinderah and the refurbishment of the Tweed Heads Slipway, can be capitalised on by local marine manufacturing and services firms.
 - ▶ Food and Beverage Manufacturing: The decline in agriculture in the Tweed is largely in homogenous products, in which local producers are competing on price. Additional processing and marketing of these commodities can differentiate these products, offering a potential market for local producers.
- ▶ Agriculture, Forestry, Fishing:
 - ▶ Aquaculture: While there are some aquaculture production facilities currently in the Tweed, and additional facilities have been proposed (e.g., Australia Bay Lobster Producers), this industry is expected to grow significantly over the long-term, as overfishing depletes wild fish stocks. Aquaculture could provide current commercial fishers an opportunity to build on their existing knowledge and move into a sustainable industry.

The sectors that could broaden the Tweed's economic base but don't directly stem from current strengths include:

- ▶ Creative Industries:
 - ▶ Advertising, graphic design and marketing (brand current strengths in tourism)
 - ▶ Film, television and software (build on established film and game industries on Gold Coast and Byron region)

- ▶ Performing arts
- ▶ Architecture, visual arts and design
- ▶ Music composition and production (such as the School of Audio Engineering in Byron Bay)
- ▶ Writing, publishing and print media.
- ▶ Information and Communication Technology:
- ▶ Electronic equipment manufacturing: Continued development of the marine and aviation industries may provide a market large enough to support local production of electronic inputs.
- ▶ Aviation:
- ▶ Avionics or avionics repair: Continued expansion of aviation infrastructure in the Tweed, including the proposed development of a general aviation airport and business park, could provide the critical mass required for the development of avionics repair or avionics manufacturing in the region. However, a suitable site for a second airport would need to be identified. It is also noted there has been closure of a regional airport close to the Tweed. Aviation training would also be boosted by the proposed development of a general aviation airport.

4.4 Joint Venture/Private Partnership Opportunities

There is the opportunity for Council to play an active role in the industrial property marketplace and lead development, along with creating the appropriate planning and investment friendly environment to promote investment by the private sector. There are a number of financial and non-financial incentives that could be considered by Council.

4.4.1 PPP Legislation

The Local Government Amendment (Public Private Partnerships) Act 2004 (NSW) has amended the Local Government Act 1993 (NSW) and sets out a process for NSW local councils entering into or considering entering into, public private partnerships (PPPs). These amendments are relevant for developers who may be entering into PPPs with local government in NSW. The Act also extends the application of section 55 of the Local Government Act 1993 (NSW) to require Councils to:

- ▶ Invite tenders from interested parties if a Council is seeking private sector parties to a PPP; and
- ▶ Use section 55 if the Council has any interest in the relevant entity (eg, if the council has formed a joint venture, the joint venture is subject to the tendering requirements).

The Act will significantly affect Councils' approach to, and conduct of, PPPs and is likely to motivate a clear shift by Councils towards vigorous project management and risk management procedures and principles across all projects, whether PPPs or otherwise.

4.4.2 Management Models

There are a number of management models that could be considered for the future development of industrial land in the Tweed involving both the public (specifically Council) and private sectors at different stages of the project:

- ▶ Public sector consent/develop/own/manage
- ▶ Public sector consent/develop/own → private sector manage

- ▶ Public sector consent/develop → private sector own/manage
- ▶ Public sector consent → private sector develop/own/manage
- ▶ Private sector consent/develop/own/manage.

There are certain requirements and advantages/disadvantages for each management model. The central question is the role Council should play. This can be affected by a number of factors, including private sector interest and demand trends.

The present situation suggests there is market demand and development interest in the industrial land sector in the Tweed. This is evidenced by expressed market interest in larger development. In a situation where there is private sector interest, Council should limit its role to creating an investment friendly environment by appropriately managing the planning process. Council can demonstrate leadership on these issues through the preparation of a clear Employment Land Strategy, establishment of high quality design guidelines, identification of industrial land development opportunities through this Strategy and subsequent landowner consultation/environmental studies, preparation of inward investment attraction material and working closely with the private sector to attract business.

In a market situation where there is little market demand and private sector development interest, a catalyst is required to set development in motion and deliver on Council's economic agenda. In this situation, it is recommended Council consider an active development role in the marketplace. This could include banking parcels of land suitable for industrial purposes and developing as per previous experiences. Council would then take these parcels to market. There is financial risk associated with this approach, largely represented by the holding costs of the land and development. This strategy again needs to consider the financial capacity of Council.

4.4.3 Incentives

Council could also, as part of its investment attraction, consider financial and non-financial incentives for industrial development such as:

- ▶ Provision of hard infrastructure;
- ▶ Incentives to specific targeted industries which yield significant job and wealth creation e.g. rate holidays and/or substantial discounts for specified periods, or free and/or concessional water rates for up to 10 years for major industries etc.;
- ▶ Assistance with the construction of internal roads;
- ▶ Assistance with effluent disposal;
- ▶ Leasing out of Council-owned and developed land for specific periods at minimal rates with an option to purchase;
- ▶ Exemptions from application fees; and
- ▶ Pre – approval procedures for employment generating applications

These types of incentives represent considerable capital cost. If Council were to subsidise these costs it would need to be borne from Council's existing budget at the expense of other items.

There is also legislation that local government must comply with in relation to processing development applications and licensing operations. Given the current State government direction in standardisation of

planning instruments it may be difficult to provide an incentive in the Tweed that is not available throughout the State.

Estimating costs on these incentives is difficult, as each prospective development would need to be assessed on a case-by-case basis.

The provision of such incentives would need to consider the financial capacity of Council. The benefit-cost argument for the incentives could be demonstrated through additional employment and residential development and associated rate revenue to Council.

Council has previously reviewed its position on financial incentives to industry and did not adopt any change. Council presently supports the development of employment industries through non-financial means, such as fast tracking specific infrastructure required for development and developer bonuses in some commercial zones. It also uses cost off-set techniques such as the sale of Council land (for future employment uses) at discounted rates, discounts on S.94 plan road contributions, and not applying some other S.94 contributions to employment generating development.

To attract a preferred type of employment generating industry to the Tweed it is important to have a consolidated approach to investment incentives which should be reviewed periodically as circumstances change. This will also need to be done in conjunction with incentives offered by State and Federal governments.

5. Future Employment Land Needs

The future employment land needs assessment involves an analysis of the future demand and need for employment land based on economic, industry and population projections and strategic growth potential and opportunities which consider competitive factors.

5.1 Industrial Land

5.1.1 Existing Industrial Land Supply

There are currently six industrial zoned areas in the Tweed, covering a total of 231.0 ha. Of this, 92.5 ha (or 40%) is developed and is being used for industrial purposes with the remaining 138.5 ha (or 60%) undeveloped or is being developed (Table 5-1).

The largest industrial precinct in terms of total zoned area is the Murwillumbah Industrial Estate (126.0 ha). This includes the recently developed Tweed Valley Enterprise Park which, when fully developed to 40 ha, has the capacity to generate from 880 to 2,200 jobs. As the Tweed Valley Enterprise Park was still under construction at the time of preparing this Strategy it has been counted as undeveloped land.

The 138.5 ha of undeveloped land is located at Murwillumbah (70.0 ha), Chinderah (52.5 ha) and Tringa Street in Tweed Heads West (16.0 ha).

Table 5-1 Tweed Industrial Land Supply (4a Zoned Land)

Industrial Estate	Locality	Area (ha)			
		Total Zoned Land	Developed Land	Undeveloped Land	Discounted Undeveloped
Chinderah Road Industrial Estate	Chinderah	61.0	8.5	52.5	42
Greenway Drive Trade and Industry Estate	South Tweed Heads	13.5	13.5	0.0	0.0
Ourimbah Road Industrial Estate	Tweed Heads	10.5	10.5	0.0	0.0
Tringa Street Industrial Estate	West Tweed Heads	16.0	0.0	16.0	12
Murwillumbah Industrial Estate/ Tweed Valley Enterprise Park	South Murwillumbah	126.0	56.0	70.0	8.0
Condong Sugar Mill and Power Station	Condong	4.0	4.0	0.0	0.0
Total		231.0	92.5	138.5	62

* Assumed to be fully occupied however not all development on-the-ground as yet
Sources: TEDC, GHD, AECgroup

Light industrial uses are also permitted in the 3(c) Commerce & Trade Zone in South Tweed Heads. Analysis of the business mix in these zones suggests the traditional industrial sectors of manufacturing, wholesale trade and transport & storage account for approximately 15% of businesses in these zones.

5.1.2 Constraints on Existing Industrial Land Supply

The undeveloped industrial land at Murwillumbah (70 ha) includes 40 ha in the Tweed Valley Enterprise Park which is currently under construction. This land is likely to come onto the market in the short term and early interest suggests that it will be quickly absorbed by pent up demand for serviced industrial land. Given the long term nature of this Strategy, it is appropriate to discount this land from the future long term supply.

Of the remaining 30 ha of Murwillumbah industrial land, approximately 11 ha is located on the floodplain in the older part of the estate near the old Pacific Highway. This area is currently used for sugar cane production and is in part affected by high flood flow. Previous flood impact assessments associated with this land revealed its importance as part of the South Murwillumbah flood storage basin, and that any net loss of flood storage due to filling in the area would adversely impact on urban development in South Murwillumbah and Murwillumbah CBD. This will constrain its development for industrial use. It should be discounted for the foreseeable future as a source of industrial land. A further 7 ha (approximately) of zoned land is currently occupied by a small quarry operation based on an on-site resource. It is not known when this resource will be exhausted and whether the site will then be suitable for industrial use. This area should be discounted for the foreseeable future as a source of industrial land. A further 4 ha (approximately) of zoned land immediately to the east of the Tweed Valley Enterprise Park is constrained by a steep gully that will make it difficult to develop. This area should also be discounted for the foreseeable future as a source of industrial land.

So, the actual bank of land that may yield additional industrial lots in the Murwillumbah Industrial Estate (excluding the Tweed Valley Enterprise Park) is approximately 8 ha. However, this land is fragmented and in multiple ownership and the likelihood of a significant yield is unknown.

The Tringa Street industrial land at Tweed Heads West (16 ha) is an isolated patch of industrial zoned land south of the Gold Coast airport and adjacent to a residential area. Its legal access is also through this residential area. Although it has had consent for filling and development for some time it has been unable to obtain a satisfactory source of fill (its flood prone land) or a satisfactory way of accessing the site to get the fill onto the land. It is likely that this land will remain undeveloped until an alternate access can be established, most likely through the Tweed Heads STP and /or the ex drive-in theatre site to the east of the land. The options for access will become clearer when the Tugun bypass is completed in 2008. It is unlikely that this area will deliver industrial land to the market in the short term, but it probably will produce industrial land in conjunction with surrounding sites in due course. Applying a 20% discount for buffers to the water way and the adjacent residential area will reduce the useable area to approximately 12 ha.

The undeveloped Chinderah industrial land (52.5 ha) is entirely floodprone, although it is not subject to high hazard flooding. Approximately 6 ha of the zoned land is located north of the Pacific Motorway and of this, approximately 3 ha is currently a dredge pit from which sand has been extracted in the past. Of the land south of the Pacific Motorway there are some small areas of ecologically sensitive vegetation, but it is not known if these warrant preservation in the context of future development. Large amounts of fill will be required to bring the zoned areas above flood heights and there is an application currently being processed to excavate material nearby for this purpose. About 80% of this land should be

regarded as being available for future industrial development subject to resolution of the flooding issue. This is an amount of approximately 42 ha.

5.1.3 Recent Demand Trends

The Potential Industrial Land Investigation for Tweed Shire (2000) reported average industrial land take-up of around 4 ha per annum between 1995 and 2000. However, recent increases in non-residential (commercial and industrial) investment in the Tweed signal increasing development pressure and demand in the Tweed.

Additionally, the initial expression of interest in the Tweed Valley Enterprise Park is reflective of an element of pent-up demand from local service-based businesses (i.e. those serving local catchments) in the Tweed seeking to expand, in addition to demand from new business, business relocations and local investor speculation, including light industrial businesses located in the 3c Commerce & Trade zone seeking to relocate to a 4a Industrial zone.

The TEDC has received, and continues to receive, enquiries from businesses seeking to identify, purchase and or establish enterprises on land zoned industrial in the Tweed, mainly from regionally significant and export orientated businesses more sensitive to regional location. The TEDC indicates it has received a number of enquiries from potential investors/developers, requesting information on various aspects and opportunities for the development of employment-generating (enterprise) land in the Tweed.

5.1.4 Projected Future Demand

Demand for industrial land can be projected using a per capita or employment-based approach, although the employment-based approach is preferred given it considers the employment capacity of the region.

Demand for new industrial land can be sourced from two channels: (1) expansion of the existing industrial sector; and/or (2) attraction of new businesses to the region. Anecdotal evidence suggests there is latent demand in the market and expansion intentions by existing business if suitable land was available.

As a starting point, the *Far North Coast Regional Strategy* (prepared by the Department of Planning) forecasts an additional 156 ha of industrial land and an additional 76 ha of commercial land would be required to provide employment opportunities for the projected regional population. It is suggested this projection relates to the traditional share of employment in these sectors applied to additional population growth in the region, rather than as a result of any identified opportunity to create regional employment growth through a proactive approach to investment attraction through enterprise land development. The previous industrial land demand analysis prepared for Tweed Shire in 2000 projected 80 ha of industrial land would be required over 20 years based on an average take-up of 4 ha per annum between 1995 and 2000.

There are two approaches to projecting future industrial land demand in the Tweed:

1. Per capita approach based on current and benchmark land supply per capita; and
2. Queensland Department of State Development employment methodology.

Both methodologies are discussed in the sections below to provide indications of additional land requirements relative to employment and population growth. Scenarios have been developed within each methodology to analyse potential implications of structural change in the industrial land market.

5.1.5 Land Demand Per Capita Methodology

The Tweed records a relatively low supply of industrial land per capita (14 m²) when compared with benchmarks (30 m² and higher). Projecting demand for land into the future on the basis of a higher per capita suggests significant increases in demand.

The TEDC has referred to studies by Queensland’s Department of State Development suggest that in terms of enterprise land, in regional growth areas there is a need for:

- ▶ 50 m² per head of population short term; and
- ▶ 100 m² per head of population long term.

The TEDC has used this formula to estimate the Tweed’s land need as 400 ha in the short term and 800 ha in the long term. Previous research by the TEDC (*Coolangatta Airport Enterprise Park Feasibility Study*, 2001) identified that large lot enterprise land has the capacity to produce from 22 to 55 jobs per hectare in the region. This compares with generally adopted ratios of 20-30 persons per hectare by the Queensland Government.

The above ratios of industrial land supply per capita far exceed other benchmarks presented by the Queensland Department of State Development that suggest 3 ha per 1,000 persons (or 30 m² per capita) is a more reasonable measure of industrial needs. This measure, however, does not distinguish between local, district and regional needs or demand for business and industry lands. The measure also does not include allowance for strategic export industry opportunities.

The Tweed’s current ratio of industrial land per capita is approximately 14 m² per capita. However, it is noted that more than 80% of this industrial land supply in some estates is for non-industrial uses. The ratio is well below the benchmark ratios quoted by the Queensland Department of State Development.

The projections range between a total of 160-180 ha under the current per capita ratio (14.3 m²) in 2031, increasing to 330-380 ha for the 30 m² per capita ratio and 1,110-1,270 ha under the 50 m² short and 100 m² long-term ratios. The latter outcome is more than 10 times the size of the existing industrial land demand in the Tweed (Table 5-2).

In incremental terms, if the current occupied land quantum is estimated at just less than 120 ha, then there could be demand for an additional 40-60 ha under the current per capita scenario, increasing to 210-260 ha under the 30 m² per capita ratio and 990-1,150 ha under the 50 m² short and 100 m² long-term ratios.

The key issue is whether the Tweed could generate adequate demand to provide for the higher land supply requirements and whether there is employment capacity to do so, given the ageing population and older demographic. The second methodology considers this employment capacity. Attaining a benchmark 30 m² per capita ratio requires the Tweed to double its ratio and projects 3-4 times existing land demand in 25 year’s time.

Table 5-2 Projected Industrial Land Demand in Tweed (Per Capita Approach), (ha)

Region	2006	2011	2016	2021	2026	2031
Current Per Capita (14.3 m²)						
Low Population Projections Scenario	120	130	140	140	150	160

Region	2006	2011	2016	2021	2026	2031
Medium Population Projections Scenario	120	130	140	150	160	170
High Population Projections Scenario	120	130	140	160	170	180
Higher Per Capita (30.0 m²)						
Low Population Projections Scenario		270	290	300	320	330
Medium Population Projections Scenario		270	290	320	340	360
High Population Projections Scenario		280	300	330	360	380
Maximum Per Capita (50.0m²/100.0 m²)						
Low Population Projections Scenario		450	480	1,010	1,060	1,110
Medium Population Projections Scenario		450	490	1,050	1,120	1,190
High Population Projections Scenario		460	500	1,100	1,190	1,270

Source: Department of Planning (2005), AECgroup

5.1.6 Land Demand Per Employee Methodology

The more reliable employment-based methodology, which considers the employment capacity of the Tweed, projects demand for between 110 and 250 ha of industrial land over the next 25 years, still well above that projected by the Department of Planning and high compared with historic take-up rates. This land demand covers the spatial requirements of the economic and industry development opportunities.

In basic terms, industry is generated servicing the demands created by providing goods and services to the local population, value adding to locally generated products and value adding to products generated elsewhere in other regions.

Important demand drivers of industrial land demand include:

- ▶ Economic growth: The demand for goods and services stimulates investment in productive capacity, which in turn results in increasing demand for land to locate production facilities and accommodate employees;
- ▶ Labour productivity: There is a positive relationship between labour productivity and the demand for industrial land;
- ▶ Levels of employment: As economic prosperity rises so too does employment and assuming labour productivity remains strong, the level of production increases accordingly. Therefore, by predicting employment levels it is possible to estimate the demand for industrial land; and
- ▶ Changes in industry structure: Certain industries tend to locate within industrial estates and have different value adding outcomes. The significance of these industries to a region will in part determine the demand for industrial land.

Each of these factors is considered in the Queensland Department of State Development's model for determining land requirements for types of industrial land. The model represents the most

comprehensive method of estimating industrial land requirements and involves the following estimation process:

- ▶ Projecting likely population growth into the future;
- ▶ Projecting employment demands of the projected population base;
- ▶ Determining the percentage of employment required for specific industry sectors;
- ▶ Using predetermined density benchmarks, calculating employees per unit areas; and
- ▶ Estimating likely spatial demand.

5.1.7 Population Projections

The Department of Planning's 2005 population projections have been adopted, with low and high series modifications as reported earlier.

5.1.8 Workforce Availability Rate

The net available employment rate is the percentage of the Tweed population employed in the Tweed i.e. the proportion of the total population seeking employment within the boundaries of the Tweed. It is calculated by multiplying the labour force participation rate, by the employment rate, by the retention rate of employees within the Council area.

Adjustments to the net available workforce rate provides sensitivity analysis for increased economic concentration in the industrial land sector moving forward and opportunities to attract a greater share of export industry. For this reason, the future available workforce of the Tweed is based on the following scenarios:

- ▶ Base workforce availability;
- ▶ Base workforce availability plus 10%; and
- ▶ Base workforce availability plus 20%.

5.1.9 Employment Requirements for Specific Industry Sectors

Based on the 2001 percentage share of employment in each of the key industry sectors, and making an allowance for other support uses and categories, the projected number of employees in the sector moving forward is presented in Table 5-3.

Table 5-3 Projected Additional Employed Persons, Tweed (Medium Series Population)

Region	2011	2016	2021	2026	2031
Baseline					
Manufacturing	183	351	516	678	831
Wholesale	106	204	299	394	482
Transport	105	202	297	390	479
Supporting/Other Industry	108	207	305	401	491
Total	502	963	1,416	1,863	2,283
Baseline + 15%					
Manufacturing	210	403	593	780	956
Wholesale	122	234	344	453	555
Transport	121	232	341	449	550
Supporting/Other Industry	124	238	350	461	565
Total	577	1,108	1,629	2,143	2,626
Baseline + 30%					
Manufacturing	237	456	670	882	1,081
Wholesale	138	265	389	512	627
Transport	137	262	386	508	622
Supporting/Other Industry	140	269	396	521	638
Total	652	1,252	1,841	2,422	2,969
Baseline + 45%					
Manufacturing	265	508	748	983	1,205
Wholesale	154	295	434	571	700
Transport	152	293	430	566	694
Supporting/Other Industry	156	300	442	581	712
Total	727	1,397	2,053	2,701	3,311

Source: ABS 2001 Census, ABS 2001 Journey to Work Data, Department of Planning (2005), AECgroup

The employment servicing capacity of the Tweed is an important consideration in terms of the potential to meet future employment land demand needs. It is acknowledged that any successful supply catalyst in the region for new employment lands could change to some extent the demographic trends in the Tweed, and attract a larger proportion of younger families and working-age individuals.

To place the projected employment figures and the scenarios for net workforce availability into perspective, the table below outlines the percentage share of the labour force that would be employed in the industrial sectors. The scenarios below indicate that the scenarios assume between 14% and 21% of additional employed persons in the Tweed will be employed in the industrial land sectors (Table 5-4).

For comparison, the 2001 percentage share for industrial land sectors was 14.6%, although the Tweed recorded a net deficit of around 25% of residents employed in these sectors working outside the Tweed. Therefore, the scenarios consider both an increasing retention of future employees in these sectors and an increase in the significance of these sectors in the employment structure of the region.

Table 5-4 Projected Share of Additional Employed Persons in Tweed in Industrial Sector

Region	% share
Baseline	14%
Baseline +15%	16%
Baseline +30%	18%
Baseline +45%	21%

Source: ABS 2001 Census, ABS 2001 Journey to Work Data, DIPNR 2005 Population Projections, AECgroup

5.1.10 Allowance for Other Supporting Industry

While it is accepted that not all businesses in the above sectors will locate in industrial estates, it is reasonable to assume that a significant majority will. This is the same as making an allowance for the infiltration of bulky goods uses into industrial zones. Also, it is not uncommon for businesses from outside these industry sectors to locate in industrial estates in an effort to maximise linkages and synergies with other industries.

Examples of this might include:

- ▶ Depot and service facilities for the construction industry;
- ▶ Communications facilities (e.g. call centres);
- ▶ Retail outlets for manufactured goods or servicing the industrial estate;
- ▶ Financial and property service providers supporting industry; and
- ▶ Personal services.

It is difficult to determine the extent to which other sectors might locate on industrial estates, however previous studies have estimated that, in terms of employment, approximately 5% of other sectors locate in industrial estates, which is approximately 4% of the total employment.

5.1.11 Employees per Land Area by Specific Industry Sector

Each of the categories of industrial land accommodates different levels of employment due to the differences in land use requirements. The adopted yields based on the Queensland Department of State Development methodology for the categories are:

- ▶ Manufacturing employs 30 employees/ha

- ▶ Wholesale trade 20 employees/ha
- ▶ Transport & storage employs 20 employees/ha
- ▶ Supporting land uses employ 20 employees/ha.

5.1.12 Allowance for Roads, Utilities and Open Space (Buffers)

Forward planning exercises for industrial land must also consider the accommodation of services (such as roads and utilities) and open space. Queensland benchmarks indicate requirements for services of between 5%-10% of the total industrial area (as such 7.5% will be used in this analysis) and open space equivalent to 30% of land used by industry. This open space represents an indicative allowance for buffering, although site-specific developments will require more detailed buffering calculations depending on environmental studies, proposed uses, surrounding land uses and buffering technique.

5.1.13 Projected Land Demand by Specific Industry Sector

Based on the Queensland Department of State Development methodology and analysis described above, the projected demand for additional industrial land in the Tweed over the next 25 years is estimated at 110-250 ha (see Table 5-5).

This projection range includes the current per capita forecasting outcome of 180 ha, but is below the higher per capita (30 m²) outcome of 330-380 ha. The reason for this is that this methodology inherently considers the employment capacity of the region to meet the demands of industrial land, which is an important issue for the Tweed given its older demographic. The per capita approach does not consider this capacity constraint.

There is an estimated deficit (number of residents less number of workers) of 800 employees in the manufacturing, wholesale trade and transport & storage sectors in the Tweed. If there were improved industrial land opportunities in the Tweed with increased retention of local labour and increased attraction of labour from adjacent regions, then this would increase demand by around 20 ha.

Table 5-5 Projected Additional Industrial Land Demand in Tweed, (ha)

Region	2011	2016	2021	2026	2031
Baseline					
Low Population Projections Scenario	30	50	70	90	110
Medium Population Projections Scenario	30	60	80	110	140
High Population Projections Scenario	30	70	100	140	170
Baseline + 15%					
Low Population Projections Scenario	30	50	80	100	120
Medium Population Projections Scenario	30	70	100	130	160
High Population Projections Scenario	40	80	120	160	200
Baseline + 30%					
Low Population Projections Scenario	30	60	90	110	140
Medium Population Projections Scenario	40	70	110	150	180
High Population Projections Scenario	50	90	130	180	220
Baseline + 45%					
Low Population Projections Scenario	40	70	100	130	150
Medium Population Projections Scenario	40	80	120	160	200
High Population Projections Scenario	50	100	150	200	250

Source: ABS 2001 Census, ABS 2001 Journey to Work Data, DIPNR 2005 Population Projections, AECgroup

In summary, the future additional land demand is projected at between 110 and 250 ha in the Tweed over the next 25 years based on projected employment capacity and sensitivity analysis on higher growth outcomes (+15%, +30% and +45%). It is suggested the employment-based methodology is a more reliable projection technique given it considers the employment capacity of the region. The per capita approach, with increased per capita supply, is largely a benchmark methodology that does not specifically consider the Tweed's opportunities and constraints.

The projections prepared under the employment methodology significantly exceed the requirements for industrial lands set out in the *Far North Coast Regional Strategy* of 156 ha for the entire region which were based on meeting the employment needs of population growth. Additionally, the 110-250 ha projections indicate average take-up of up to 25 ha per annum, significantly above historic rates. The projections also suggest a substantial increase in industrial land demand from the currently occupied 92.5 ha. Therefore, in all respects, the projected land demand for the Tweed of 110-250 ha over 25 years can be considered significantly higher than historic take-up rates and reflective of the strategic position, economic opportunities and employment capacity of the region.

It should also be noted that the employment-based projections consider a continuing role for heavy industry in the region consistent with present supply. It may be challenging to promote heavy industry in the Tweed given competing and conflicting residential land uses. The Tweed may also be at a

competitive disadvantage when compared with areas to the west such as Casino and Lismore with superior rail infrastructure. This is generally the preferred approach of the NSW Department of Planning.

5.1.14 Future Additional Land Requirements

A 25-year industrial supply is recommended, possibly staged with larger land release in 10-15 year's time when the Gold Coast's land stocks deplete. There is the opportunity for integrated master planned estates and business technology parks.

Projecting industrial land demand is a separate issue to assessing what represents the appropriate supply of industrial land. The appropriate supply should consider existing take-up and vacant land, projected demand based on population and employment growth, the flexibility to respond to any surge in demand beyond that anticipated due to a structural change to the market, and the impacts on land values and affordability across the region. The majority of stakeholders believe there is inadequate industrial land to cater for future growth (both from internal and external forces) in the Tweed.

There is no clearly or widely accepted definition of what constitutes an adequate supply of industrial land relative to projected demand. Both the State Governments in Victoria and South Australia have indicated that 15 years supply is sufficient to satisfy short-and long-term market demands for land. This timeframe recognises the lead-time required for identifying land suitable for industrial uses and the need to maintain the current stock of industrial land allowing for a variety of lot sizes and industry precinct types. For a local government example, the former Hastings Council, in the Mid North Coast Region of NSW, resolved in 2003 that two times the 20-year projected industrial land demand should be supplied to the market within its planning process.

It is noted there is presently more than double the supply of zoned land (231 ha) relative to occupied land in the Tweed (92.5 ha). When determining the appropriate supply of land relative to demand, the following needs to be considered for the Tweed:

- ▶ 25 year planning timeframe;
- ▶ Strategic location of the Tweed;
- ▶ Previous weak take-up and demand trends in the Tweed;
- ▶ Settlement characteristics of the Tweed and industrial vs residential;
- ▶ Possibility of unprecedented take-up rates/structural market change;
- ▶ Strategic economic opportunities and spatial requirements;
- ▶ Advantages of Tweed over competing regions;
- ▶ Possibility of greater regional decentralisation of industrial activities;
- ▶ Affordability of land supply in the Tweed vs SEQ;
- ▶ Buffering requirements for sensitive uses; and
- ▶ Choice and range of land options across the Tweed.

The *Far North Coast Regional Strategy* indicates the use of existing vacant industrial land should be considered prior to the release of any new major industrial areas. There are presently around 20 ha of vacant developed land and 132 ha of vacant undeveloped land zoned for industrial uses in the Tweed. This supply of land, if not physically or commercially constrained, could meet the minimum demand requirement of 110 ha.

Generally, it is considered providing a 25-year supply of industrial land is appropriate. Therefore, a supply of 110-250 ha of land would be required. Subsequent stages of the employment lands strategy will determine the commercial attractiveness, physical suitability and environmental issues associated with the existing vacant zoned land. The Strategy will also consider the ongoing suitability of some industrial zoned parcels (potential for alternative uses). At the same time, the Residential Lands Strategy will review the ongoing suitability of some residential zones and their suitability for employment lands purposes in the long-term.

It is clear a staged and sequential land supply approach will need to be adopted for the Tweed's industrial land. The Gold Coast currently attracts the major proportion of large-scale and strategic export-orientated industry, but only has 10-15 year's of supply left based on Yatala and surrounding canelands. Therefore, it may be prudent to restrict any major land release in the Tweed to beyond this period, and provide a focus on the consolidation and intensification of use in the existing precincts in the interim. It is also noted bulky goods retail dominates some industrial zones. Relocating these uses over time would provide additional land area for industrial activities in existing precincts.

For new land release, there are a number of approaches that could be considered, including different positioning of each industrial estate. Some opportunities for new land releases include:

- ▶ Integrated master planned estate with specific precincts;
- ▶ Business and industry clusters (such as aviation, marine and transport); and
- ▶ Business parks with technology focus and campus style offices.

There are some innovative models occurring in the United Kingdom integrating residential and industrial uses through industrial warehouses uses in ground and first floor levels with residential above. The strategies are generally designed to better integrate the two traditionally conflicting uses through improved design.

5.2 Office Space

This section assesses the future market demand and need for commercial and professional office space development in the Tweed based on an assessment of current supply and market trends, and forecast market trends and demand drivers.

The following business types are generally accommodated in commercial and professional services office space in the Tweed:

- ▶ Business services (business, management and other consultants);
- ▶ Computing services (InfoTech, graphic design, other computing);
- ▶ Property services (building services, real estate, construction);
- ▶ Financial services (accountants, finance, insurance);
- ▶ Legal services (solicitors, lawyers);
- ▶ Government (Council, state and federal government, community);
- ▶ Health services (medical practitioners, physiotherapists, dentists);
- ▶ Employment and education services (training, recruitment); and
- ▶ Other (veterinary services, religious organisations, other).

5.2.1 Commercial Centres Hierarchy

As noted previously, the *Far North Coast Regional Strategy* promotes a clear hierarchy of commercial centres consistent in scale and centrally located within each community. It is intended that major commercial development, such as large-scale office development, will be located within large centres. Other commercial development, which relates to the scale of adjoining urban areas, will be located within the boundaries of towns and villages, utilising existing commercial centres where possible, and integrated with the initial planning of new release areas.

The Regional Strategy identifies Tweed Heads as a major regional centre and Murwillumbah as a major town. With regard to the Tweed Heads Major Regional Centre, the Strategy notes the revitalisation of Tweed Heads 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 SEQ. For Murwillumbah, a Major Town's role is defined in the Strategy as providing a level of services and employment to support the surrounding catchment of villages and rural settlements.

The SEQ Regional Plan defines the nearby Coolangatta/Tweed Centre as a Major Activity Centre, serving catchments of regional significance and accommodating key concentrations of employment. In terms of office, as a secondary sub-regional focus of administration, they accommodate district and branch offices of government and cultural and entertainment facilities of regional significance. The Coolangatta Centre, in terms of the *SEQ Regional Plan*, is grouped with Tweed. This is also the way the Gold Coast City Council views the two Town Centres in its planning and LGMS.

5.2.2 Existing Commercial Office Space Provision

There is presently an estimated 58,970 m² of office floor space in the Tweed, evenly distributed between Tweed Heads (18,600 m²), South Tweed (15,300 m²) and Murwillumbah (16,200 m²). The next largest clusters of space are located at Kingscliff (4,400 m²) and Banora Point (1,800 m²) (Table 5-6).

Anecdotal evidence suggests current shortages of office space throughout the Tweed, evidenced by low vacancy rates and business turnover. There is limited new office development providing additional supply to the market in the Tweed. These commercial property investments are generally lumpy in nature. These developments, in many respects, require the certainty in planning that is presently being undertaken for the Tweed Heads and Tweed Heads South centres.

Table 5-6 Existing Office Floorspace by Centre, Tweed Shire

Type	Tweed Heads	Tweed Heads South	Tweed Heads West	Bilambil/Terranora	Banora Point	Fingal	Chinderah	Kingscliff	Cabarita	Hastings Point	Pottsville	Murwillumbah	Rural West	Total
Businesses														
Professional Services	80	36	2	1	3	0	0	22	12	0	5	70	9	249
General Commercial Office	21	14	0	0	5	0	0	1	0	0	0	17	0	58
Total	101	50	2	1	8	0	0	23	12	0	5	87	9	307
Floorspace (m²)														
Professional Services	15,031	13,531	192	51	1,135	0	0	4,136	900	0	372	11,655	1,082	48,084
General Commercial Office	3,608	1,764	0	0	644	0	0	309	0	0	0	4,561	0	10,886
Total	18,639	15,295	192	51	1,779	0	0	4,445	900	0	372	16,216	1,082	58,970

In terms of benchmarking the office space supply in the Tweed, the average office floorspace per capita in the Tweed is estimated at 0.74 m². This is in the middle of the scale of nearby regional centres in SEQ from the most recent 1999 estimates, including the Gold Coast. Interestingly, the Tweed records a relatively larger supply of office floorspace per capita when compared with sub-regional areas such as Ipswich and Caboolture (Table 5-7).

Table 5-7 Supply of Commercial Office Space in the Tweed and Elsewhere

Location	Average office floor space per capita in m ²
Toowoomba	1.05
Brisbane	0.92
Tweed	0.74
Gold Coast	0.56
Maroochydore	0.52
Ipswich	0.35
Caboolture	0.19

Source: AECgroup, QDLGP (1999)

5.2.3 Business Tenancy Mix

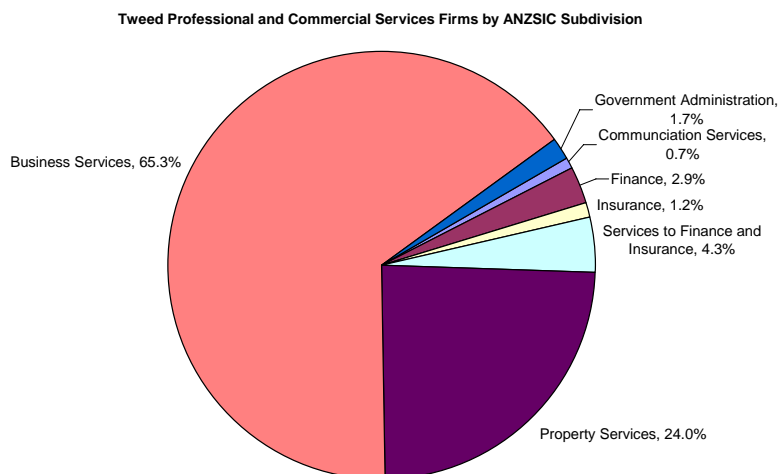
Table 5-6 indicates approximately 82% of the office floorspace supply in the Tweed is described as professional services. The *Tweed Retail Strategy* describes professional services as consisting of businesses that provide professional service and advice to the public and business community. Such businesses include accountants, lawyers, doctors, dentists, chiropractors and physiotherapists.

The remaining 18% of floorspace supply is described as general commercial offices, which consists of businesses that do not have a primary focus of servicing the public. These businesses are generally not location dependent and are likely to export their service/product outside of the area. Murwillumbah records the highest share of commercial office floorspace, reflecting its administrative role to the region.

Therefore, this suggests the demand for approximately 82% of the current office market in the Tweed is driven by local population growth, with the remaining 18% driven by strategic export opportunities and the location of the Tweed to do business. The two largest centres of Tweed Heads and South Tweed Heads record the largest amounts of professional service floorspace, reflecting their major centre roles.

In terms of a tenancy mix, there are around 300 professional and commercial office businesses in the Tweed, distributed as per the graph below (Diagram 5-1). A large proportion is classified as businesses services (65%), along with property services (24%) to support the strong housing market. There are small proportions of other service businesses.

Diagram 5-1 Distribution of Professional and Commercial Businesses in the Tweed



Source: Australian Online Business Database

5.2.4 Projected Office Space Demand

Based on the current 0.74 m² per capita office supply (which is likely to decline as the market matures) and projected population growth, the demand for office space is estimated at between 19,800 and 29,100 m² over the next 25 years, refer to Table 5-8. Tweed Heads and Tweed Heads South are projected to account for 65% of future demand.

The demand for commercial office floorspace is directly linked to population, economic and business growth. The more people there are living in a particular region, the more commercial and professional business services will be required to service residential demand. Likewise, strong economic growth will drive commercial needs for these same business services. There are currently reported shortages of office space in the Tweed, suggesting some latent demand in the market.

In terms of projecting future demand for office space, the projected population growth of the region and continued business and economic growth is likely to result in the creation of new businesses and office space requirements. It is unlikely given current supply there will be increases to government services in the region. However, there is likely to be increased demand across other office sectors.

There is presently 0.74 m² per capita of other office space in the Tweed. Assuming this per capita supply remained constant, despite the likelihood there would be some consolidation and economies of scale (which has been the case with other regional centres), but balanced against potential critical mass for larger-scale office development, then the Tweed would record demand for an additional 19,800 m² of office space under the low scenario and 29,100 m² under the high scenario by 2031.

Table 5-8 Projected Additional Demand for Office Space in the Tweed (m²)

Scenario	2011	2016	2021	2026	2031
Office space ratio of 0.74 m ² per capita					
Low	2,700	7,600	11,900	16,000	19,800
Medium	2,700	8,600	13,900	19,200	24,400
High	2,700	9,500	16,000	22,500	29,100

Source: AECgroup

It is likely that there will be a period of consolidation in the office sector in the Tweed given the region has reached critical mass and most local professional services are represented in each local area and at the main centres. What is likely to occur is an increasing share of commercial office floorspace, or strategically export orientated business, given the location of the region and the future growth potential of the centres. Many of these services are presently located in Gold Coast centres and many local Tweed residents also work in these offices outside the Tweed.

It is possible to provide an indicative analysis of the future distribution of this projected office floorspace demand across the individual commercial centres in the Tweed. It is noted there are no other Major Regional Centres, Major Towns or Towns defined in the *Far North Coast Regional Strategy* in the Tweed Shire for regional planning purposes. The remaining centres are classified as local centres, serving only the needs of specific local catchments. Their growth potential, therefore, is largely dictated by the population growth in their local areas.

The majority of additional commercial and professional office space development and supply is outlined for the larger, more regionally focussed Tweed Heads and Murwillumbah centres, as per the Regional Strategy. It is also noted the Tweed Heads South Centre is increasingly becoming retail focussed, whereas the Tweed Heads Centre, along with Coolangatta, is well placed for additional high order commercial office floorspace. Both centres have the opportunity to benefit through improved transport links with SEQ and the Gold Coast. Additionally, the pent up demand in the SEQ office market could provide a potential flow-on of demand for some smaller, less location-orientated businesses, to relocate to the Tweed and its emerging centres.

The analysis below considers the current and potential future distribution of office floorspace across the Tweed. Tweed Heads is assumed to record a higher 40% share of additional development due to an increasing share of commercial office development. Tweed Heads South is assumed to retain a relatively unchanged share of activity, reflecting its co retail and professional office role, and considering population growth in its local catchment. Murwillumbah's share is assumed to decline to 20%, given a large share of its existing space is reflected by Council and government services, which are not expected to increase. There is an assumed 15% share for existing and additional town/village/rural centres throughout the Tweed, distributed consistently with future settlement patterns and residential activity outcomes.

To place the demand projections in context, the Tweed Heads projection equates to between 42% and 62% increase over the next 25 years compared with existing supply. At Tweed Heads South, the projected increase is 32% and 48%.

Table 5-9 also translates these projected floorspace demand figures into job targets, based on an average of 20 m² per employee. Overall, the floorspace provision could yield somewhere between 990 and 1,460 jobs in the Tweed's additional office space. Targets are provided for each of the individual centres.

Table 5-9 Current and Projected Distributions of Office Floorspace in the Tweed

Centre/Location	Market Share (%)		Projected Additional m ²			Projected Jobs Target		
	Current	Additional	Low	Medium	High	Low	Medium	High
Tweed Heads	32%	40%	7,900	9,800	11,600	400	490	580
Tweed Heads South	26%	25%	5,000	6,100	7,300	250	310	370
Murwillumbah	27%	20%	4,000	4,900	5,800	200	250	290
Town/Village/ Rural	15%	15%	3,000	3,700	4,400	150	190	220
Total	100%	100%	19,800	24,400	29,100	990	1,220	1,460

Source: AECgroup

5.2.5 Strategic Development Opportunities

The existing office space in the Tweed is generally of low quality, providing redevelopment opportunities to provide newer space. This could occur within a range of accommodation types, including towers, business parks or smaller office buildings.

The future demand for office space in the Tweed can be accommodated in three ways:

- ▶ Construction of new office space; and/or
- ▶ Redevelopment of existing office space; and/or
- ▶ Occupation of existing vacant or under utilised office space.

Much of the existing office floorspace is of lower quality according to Property Council of Australia definitions. There will be opportunities to possibly reinvest in these properties, or identify opportunities for site consolidation and redevelopment.

The projected demand analysis suggests there will need to be consideration for the construction of new office space to provide improved range and choice of supply, particularly at the upper end of the market.

There is little vacant floorspace presently in the Tweed, a signal of pent up demand.

In terms of the nature of the floorspace itself, options include:

- ▶ Taller office towers;
- ▶ Sleeved low-density office buildings;
- ▶ Offices within retail strips and shopping centres;

- ▶ Business parks and campus style offices; and
- ▶ Home-based offices (discussed below).

Traditionally, the Tweed has recorded limited office tower development, with most supply mixed in with retail centres and along retail strips. There are some low-density office buildings. There are limited office developments occurring in the enterprise/business parks in the Tweed. However, this is a trend in the Gold Coast market, but has occurred at the expense of some traditional CBDs.

There are opportunities to consolidate office floorspace in the Tweed more so than is currently the case. This could be achieved through precinct approaches within the commercial centres and relocation of existing businesses to redeveloped premises.

The master planning for the Tweed Heads and Tweed Heads South Centres will determine the opportunities for these forms of development, considering development capacity and options relative to the projected floor space requirements.

It should also be noted that in new urban areas such as Cobaki Lakes and Kings Forest Council anticipates that there will be some opportunity for employment land provision. A ratio of 1 ha per 1000 population is an indication of the yield. Although much of this is likely to be used for neighbourhood retail uses there will be a proportion that is available for office space.

5.2.6 Home-Based Office Trends

Overall, employees working at home for more hours than elsewhere (home based business operator) accounted for around 7.0% of all persons employed in Australia in June 2001, almost double that estimated in 1995 (3.7%).

According to Home-Based Business Australia (HBBA), 12% of households in Australia operate a business from home with the sector reported to be growing strongly.

The rapid growth in home-based businesses is due to factors such as:

- ▶ Downsizing and outsourcing in large organisations;
- ▶ Relatively high unemployment levels in some areas;
- ▶ Increasing participation of women in the workforce;
- ▶ Potential of new information and communications technology;
- ▶ Changing lifestyle expectations (semi-retirement etc); and
- ▶ Changing levels of skill in the workforce.

Telstra estimates that 25% of the Australian workforce will be working from home in the next decade, translating to approximately two million people, or three times as many as recorded in 2001.

The lifestyle promoted by the Tweed encourages home-based offices, similar to places like Noosa Heads, on the Sunshine Coast.

5.2.7 Need for Additional Office Space Provision

There are a number of public need arguments for additional office floorspace in the Tweed. The following brief comments highlight the ability of commercial office development in meeting public need:

1. **Enable the Entry of Larger Tenants:** Attracting major accounting, legal and financial organisations, along with local and state government departments, are key challenges for the Tweed. This represents a specific opportunity for Major Regional Centres such as Tweed Heads to provide larger-scale, high quality office space capable of accommodating such tenants. Without the provision of such space, large tenants looking to position themselves to cater for the Tweed's growth may not consider the Tweed as an office location. An opportunity for employment and economic growth may be lost. In particular, the pent up demand in the SEQ office market may present opportunities for the Tweed office market, particularly for businesses that are not location-orientated in their clientele.
2. **Provision of Business Support Services:** As the Tweed economy continues to grow, businesses will need to have their support services such as accounting and legal services closer to their operational location and limit the need for outsourcing to competing commercial centres such as the Gold Coast. As the population grows, there will be significant demand for professional services in the Tweed and it is imperative the Tweed is able to provide facilities that can attract business to the area to cater for this growth. The development of new, strata-titled office accommodation would enable the clustering of service providers. The attraction of large tenancies such as government departments, accounting and legal practices would act as a catalyst for demand in business support services throughout the Tweed.
3. **Facilitation of Economic Growth:** Providing an incentive through additional office development in the Tweed for anchor tenants such as government departments and major accounting and legal services to locate in the region will further the investment in the Tweed, in turn increasing employment and incomes in the region. At present, the majority of professionals living in the Tweed transit to the Gold Coast for work. The associated employment impacts from providing additional office floorspace in the Tweed demonstrate the direct economic benefits of these services. Additionally, improved service delivery can mean reduced leakage of these services to the Gold Coast, thereby further retaining and increasing economic activity.
4. **Lessen Market Fragmentation:** The development of significant, quality office accommodation in the key commercial centres in the Tweed would help improve any existing fragmentation in the office market. There are opportunities to consolidate office floorspace in the Tweed more so than is currently the case. This could be achieved through precinct approaches within the commercial centres and relocation of existing businesses to redeveloped premises.
5. **Ensure Adequate Service Provision:** The provision of additional office space is determined by a floorspace per capita methodology. The methodology is based on the belief there is a particular amount of service provision for each commercial office type that a population catchment requires to function adequately, and then this can be summarised by a specific floorspace provision for each person. Not providing some of these services by inadequate office space provision would be to the detriment of the community's well being. The comparison of the office floorspace per capita benchmarks at more mature commercial office markets indicates there is some potential for a reduction in this per capita over time as the market matures.
6. **Allow for the Expansion of Existing Businesses:** There is anecdotal evidence of shortages of office space presently for new businesses and the expansion of existing businesses. Many existing businesses are constrained by their present accommodation and/or locations and require new or redeveloped space that better meets their needs.
7. **Improve the Quality, Range and Choice of Space:** Providing additional office space, in sustainable amounts, would improve the quality of the Tweed's office market, which is presently dominated by

lower quality office buildings, reflected by low rents and reinvestment by landlords. Providing newer quality space provides improved range and choice for attracting both new businesses and meeting the expansion needs of existing businesses in the Tweed.

6. Land Suitability and Infrastructure

6.1 Land Suitability

The Tweed Shire is subject to a number of environmental constraints which affect the ability of land to be used for employment purposes. The type of constraints and how they effect Tweed Shire is discussed in Appendix A. The extent of the constraints is shown in Figures 2-13.

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 employment lands 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.

The land suitability analysis is outlined in Appendix B.

6.2 Infrastructure

It is important that new employment lands areas are 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. Issues relating to the servicing of proposed release areas are discussed in Appendix C.

7. Planning Principles and Locality Recommendations

7.1 Key Planning Principles

It is important in guiding the identification of future employment lands development in Tweed Shire over the short, medium and long term that a set of principles be adopted that acknowledge Tweed's potential competitive strengths. They should also lead to a diversification of the economic base in a sustainable manner. Finally, they should acknowledge the work already undertaken in the Tweed and in the Northern Rivers Region. The principles are as follows (not in order of importance):

- ▶ The Tweed economy is fundamentally linked to the economy of South East Queensland and the employment strategy needs to reflect this.
- ▶ Tweed acknowledges the changing nature of employment and technology and the need to promote mixed use developments in proximity to urban areas that allow innovation and sustainable employment.
- ▶ In order to reduce the likelihood of supply shortage it is appropriate to have a 25 year supply of industrial land and a similar supply of potential office space to satisfy reasonable demand estimates.
- ▶ Employment land needs to be available in a range of locations in order to create choice in the market.
- ▶ Climate change needs to be recognised as both a constraint and an opportunity in the economy of Tweed Shire and the region.
- ▶ Precinct based planning principles for new or redeveloped employment lands areas needs to be incorporated into Council planning controls and planning policy to encourage co-location of similar employment generators or industries
- ▶ Diversity in lot size in industrial and mixed use areas will be required to promote the attraction of specific tenants that fit the competitive strengths of the Tweed.
- ▶ Focus the attention of new employment areas on the potential for export industries and employers without neglecting the service industry needs of the Tweed community.
- ▶ Consider new or expanded employment areas with existing or potential access to regional transport links such as the Gold Coast airport, Pacific Motorway and the future extension of the railway system from South East Queensland into northern NSW.
- ▶ Make provision for local service industries and employment areas in suitable locations relevant to existing and future urban areas.
- ▶ Acknowledge the current and future roles of urban centres in the urban hierarchy of Tweed Shire and how these fit with existing and future employment areas.
- ▶ Home based employment opportunities need to be maintained and if practical expanded in future planning controls and planning policy to recognise the contribution this option can make to sustainable employment and changing technology.
- ▶ Encourage co-location of similar employment generators to create synergies.
- ▶ Capitalise on the availability of water and sewerage infrastructure to encourage movement of significant employment generators into the Tweed.

7.2 Potential Employment Areas in Tweed Shire

Using the land suitability analysis in this report and the scoping studies, site analysis 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 employment growth. These areas are summarised in Table 7-1 and shown in Figures 14 to 17. They are discussed in the context of the key planning principles later in this chapter.

Table 7-1 Potential Employment Areas in Tweed Shire

Location	Gross Potential Area (ha)	Comment
Airport Precinct (Area 1)	14	<i>Located immediately south of the Gold Coast airport and adjoins on its southern side the existing Tringa Street industrial area. Provides a logical extension to this area in conjunction with other neighbouring lands.</i> <i>Note that Area 1 is recommended for deletion from the Employment Lands Strategy.</i>
Airport Precinct (Areas 2)	29	Located between Tringa Street industrial area and the Tugun bypass and currently is partly vacant, partly Tweed heads STP and partly a landscape and garden supplies operation.
Border Race Track (Area 3)	11	Located on the border between NSW and Queensland and immediately east of the current Pacific Highway alignment. Currently used by the Tweed heads Coursing Club for greyhound racing.
Chinderah East (Areas 4)	37	Located east of the Tweed Coast Road immediately south of existing industrial zoned land. This site includes the disused Kingscliff STP.
Wardrop Valley West (Area 5)	63	Located between the Wardrop Valley Road and the Tweed Valley Way immediately to the west of the Tweed valley Industrial Park. Currently predominantly grazing land.
Wardrop Valley East (Area 6)	60	Located east of the Wardrop Valley Road adjacent to the industrial zoned Tweed Valley Industrial Park. Currently predominantly grazing land.
West Pottsville (Area 7)	144	Located west of Pottsville south of Cudgera Creek Road and East of the Pacific Motorway. Currently predominantly grazing land with one small rural residential estate (Kudgerie Avenue).

7.3 Airport Precinct (Areas 1 and 2)

This fairly flat area is situated immediately to the south of the Gold Coast Airport in Tweed Heads West. It is in an area of high airport noise impact and is therefore unsuitable for residential development. Building heights would need to be limited to coincide with flight path requirements. There will also be limitations on the types of industry that can locate in this area in view of possible emissions that may constitute controlled activities under the Federal Airport Act. External illumination will be restricted and reflective roof surfaces prohibited. The first one kilometre in distance from the end of the runway is also a

designated public safety area in which the concentration of people is to be avoided. This may further restrict the type of employment activities that can take place in this area.

It is also likely to be affected by road noise from the Tugun bypass after mid 2008. Area 1 is currently used for a horse riding facility, while Area 2 is used partly for the Tweed Heads STP (proposed to be decommissioned in due course with flows diverted to the Banora Point STP) and a garden and landscaping supplies business. Two other parts of the site are vacant land. Areas 1 and 2 have a combined total of 43 ha and this could be used in conjunction with the existing 16 ha of land zoned industrial known as Tringa street. All together a future employment precinct would have approximately 59 ha of land (gross). It should be noted that Tweed Shire Council may yet require some or all of its land for a future STP. Note that Area 1 is recommended for deletion from the Employment Lands Strategy. This would leave Area 2 (29 ha) and the Tringa street industrial zoned land with a combined area of 45 ha (gross).

Access to this precinct is proposed from the Tugun bypass which will be an important asset to the site. There is also existing access off Kennedy Drive into West Tweed Heads. However Kennedy Drive has capacity issues and this would be a limitation. The proximity to the Gold Coast Airport makes it ideally suited to export businesses that rely on air transport in some way. In the longer term it will also have excellent potential links to the heavy rail terminal proposed for the airport precinct. The Tweed Shire Potential Industrial Land Investigation (TSC, 2000) identified this area as a potential Gold Coast Airport Enterprise Park site and ranked it as a high priority subject to resolution of buffer issues with neighbouring residential land, acid sulfate soils, potential contaminated lands (STP), stormwater and drainage. Council has also advised that a flood impact analysis would be required. Given the land is in multiple ownership there will also need to be a co-ordinated approach to internal access and staging of the development of the area to co-ordinate the supply of services and decommissioning of the STP.

The TEDC commissioned a report in 2001 which specifically assessed the options for this land in a local and regional context (SGS, 2001). The report concluded that the site had potential for development and particularly for the following industries – boat building; food and beverage manufacturing; storage and distribution; herbal industries; aircraft parts and manufacturing; and turf farming.

Water supply is not considered an issue for this locality as any development would have access to the existing storage and conveyancing system. Sewerage would be supplied via the connection points that exist at the Tweed Heads STP on Area 2. Although the Tweed Heads STP is to be decommissioned this may not be a permanent closure. It is still possible that a new STP may be built on the same site and in any case it is likely that storage will be maintained on the site for the situation where pumping to Banora Point may need to be suspended. If a new STP is not built on the site then any land contamination issues will need to be resolved before it is rezoned to a higher order use.

Area 1 and 2 is within an area identified in the Far North Coast Regional Strategy as part of the existing urban footprint and is therefore consistent with that Strategy.

7.4 Border Race Track (Area 3)

This triangle shaped piece of land is located at the northern edge of Tweed Shire and shares a lot boundary with the Queensland /NSW border. It also borders onto the existing Ourimbah Road industrial estate. Most of the site is occupied by the race track with the remainder being car parking and club facilities. It is identified in this Strategy on the basis that the existing racing facility may not be viable in the long term. It is not intended to suggest that the existing use is not appropriate, but if it were to cease

then an employment land use would be preferred over residential or retail development. It is relatively free of physical constraints, but has residential development on two sides and this will restrict the type of industrial use that might be undertaken on the site. It is ideally placed to provide for uses that relate to the Gold Coast Airport and is an alternate site for a Gold Coast Airport Enterprise Park. It has excellent services, access and infrastructure and this will improve as heavy rail is linked to the Gold Coast Airport. The opening of the Tugun bypass may allow revision of access arrangements to this land, but that is yet to be determined.

Currently Gold Coast Water supplies water to the property and it cannot be guaranteed that this arrangement would be maintained if employment uses are proposed. Bringing a trunk main from the Tweed may be problematic but that would need further investigation. Sewerage is currently connected via a private pump station and this would need to be upgraded and made part of the public infrastructure. The amount of work involved would be dependent on the amount of sewage to be generated from the employment lands and this would be a function of its end use.

Area 3 is within an area identified in the Far North Coast Regional Strategy as part of the existing urban footprint and is therefore consistent with that Strategy.

7.5 Chinderah East (Area 4)

This area is located on the eastern side of the Tweed Coast Road south of the Pacific Motorway at Chinderah. A small industrial estate exists to the north at Ozone Street. As stated previously in this report there is unused industrial land in other locations nearby. The main limitation to development in this area is flooding. Council's DCP Section A3 restricts site coverage of structures and permanent improvements within the industrial zoned land to 50%, in order to retain areas available to flood flow. Fragmented ownership and the willingness of owners to undertake employment lands development may also be a factor on some sites. Area 4 is relatively flat and suited to industrial uses.

Access to the Pacific Motorway via the Chinderah interchange is excellent though Council's Road Development Strategy indicates that the RTA will need to expand the capacity of the Pacific Motorway "on ramp" as traffic numbers increase. The industrial use of this land has the potential to fit in with the water based commercial use of land at Chinderah north of the Pacific Motorway. The land is also well placed for future employee accommodation at the proposed west Kingscliff and Cudgen Heights residential areas and is a short commute to higher density development at Tweed Heads. Access to the Gold Coast and Brisbane will be advanced by the Tugun bypass. The site is also within easy driving distance of the Gold Coast airport.

Area 4 is 37 ha and this could be used in conjunction with the existing 52 ha of unused land zoned industrial in the locality. All together a future employment precinct would have approximately 89 ha of land (gross). An employment lands node of this size in this location will provide an opportunity to both service the northern Tweed coast community as well as providing enough land to entice export manufacturing type employment to this locality.

Water supply poses no problems in this locality. Sewerage could be linked into the existing sewered industrial land at the northern boundary to the site. Decontamination of the former Kingscliff STP site is anticipated by June 2010.

Area 4 was specifically identified in the Far North Coast Regional Strategy for employment lands purposes in conjunction with existing zoned lands.

7.6 Wardrop Valley West and Wardrop Valley East (Areas 5 and 6)

These two areas are located in proximity to the existing Tweed Valley Enterprise Park which is itself part of the Murwillumbah industrial area. They provide a logical extension to the existing industrial development and Area 6 is likely to be developed before Area 5 because of its proximity to services and access off Wardrop Valley Road. They are both predominantly used for grazing with some small patches of vegetation. Area 6 has a cluster of rural residential lots at its north eastern edge but these are now adjacent to industrial land on two sides and have been identified for industrial use. Preliminary consultation from the owners has raised no objections. The additional traffic generated from Areas 5 and 6 will likely require a review of the intersection with Reserve Creek Road and the Tweed Valley Way. A fresh access to Area 5 from the Tweed Valley Way south of Murwillumbah should also be investigated to allow for through traffic movement to the south. There are also capacity problems on both Reserve Creek Road and the Tweed Valley Way. The Tweed Road Development Strategy would need to be reviewed prior to these lands being zoned to assess the traffic impacts more closely. The undulating nature of these sites mean that considerable earthworks will be required to obtain useable industrial land. This will add to upfront costs of land development.

The placement of more employment lands in this location is consistent with the residential options available around Murwillumbah and in the nearby Kielvale area which will provide a place for workers to live in proximity to their place of work.

Area 5 was identified in the Tweed Shire Potential Industrial Land Investigation (TSC, 2000) as a potential employment lands site and ranked it as a high priority. The study noted that there may be issues with an existing quarry and there is a potential quarry resource to the east of the lands.

Areas 5 and 6 have a combined total of 123 ha (gross) which is a significant addition to the existing zoned areas. Council should also consider back zoning to rural some of the existing zoned industrial areas that are subject to high flow flooding unless it can be shown that this hazard can be overcome in a manner consistent with Council's flood policy.

Water supply can be extended to Area 6 via the upgrading of trunk mains along Tweed Valley Way. Area 5 may need to be connected via the trunk main along Alma Street/River Street but this would require several kilometres of trunk water main connection.

Sewerage options will need to be examined, including the possibility of a package STP that would service the new employment lands and possible residential development in the Kielvale area. A new STP would require a new outfall or effluent disposal option. This would require an EIS and DECC licensing. Upgrading of the Murwillumbah STP (duplication) may be an option particularly if the treated water can be supplied to the Condong sugar mill. This would require extensive transport system upgrading. The opportunity for dual reticulation should also be canvassed as part of any future employment lands development particularly if large scale water users are envisaged.

It is noted with regard to the Far North Coast Regional Strategy that these sites were partially identified and the Wardrop Valley area is shown in that strategy as the focus for employment lands. Concentrating additional opportunities in this location will have benefits in terms of synergies between businesses. The sites meet the sustainability criteria in Appendix A of the Far North Coast Regional Strategy.

7.7 West Pottsville (Area 7)

This area is situated west of Pottsville, south of Cudgera Creek Road and east of the Pacific Motorway. It is currently predominantly grazing land with one small rural residential estate (Kudgerie Avenue). It is understood that most of the landowners in this estate have an interest in pursuing the employment lands option. There may also be localised flooding and drainage issues in the vicinity of Cudgera Creek. These would need to be investigated prior to rezoning. Some of the undulating land may require considerable earthworks to make it suitable for industrial development and this will add to development costs.

The area is well located to provide service industry opportunities for Pottsville and the southern part of the Tweed Coast, which currently does not have any significant industrial zoned land. The size of the area (144 ha gross) would also allow genuine export employment opportunities to take up part of the site. One attraction of the site is easy access to the Pacific Motorway via the Cudgera Creek Road interchange. However access through the site will be a critical issue to resolve early in the site planning stage. In particular, there is a major sand quarry with a life span of 25 years planned further to the south that will need to gain access through this area to the Pacific Motorway. A suitable creek crossing will also need to be identified if the Pottsville Road is not used.

Water supply for this area is adequate though dependant in the long term on the proposed Koala Beach Reservoir site. Sewerage is not currently available. There is insufficient capacity in the Hastings Point STP and little opportunity for augmentation. Given the size of this area and its proximity to the proposed area at Dunloe Park, a new STP will be required to service this development and should also take into consideration long term urban growth in the vicinity. A new STP may also take some load from the southern part of Black Rocks and reduce septicity problems in this system. A new STP requires an EIS and must be licensed by DECC.

The southern part of Area 7 was specifically identified in the Far North Coast Regional Strategy for employment lands purposes. The balance of the area meets the sustainability criteria in Appendix A of the Far North Coast Regional Strategy. Limiting this site to only that area identified in the Far North Coast Regional Strategy would severely curtail the opportunity for anything more than neighbourhood style employment and make the balance of the area vulnerable to pressure for inappropriate uses such as rural residential development. Further rural residential development would likely make this land unavailable for employment use in the longer term.

8. An Urban Centres Hierarchy

8.1 Urban Centres Hierarchy

This Employment Lands Strategy (as with the Tweed Shire Urban Land Release Strategy) puts forward an urban centres hierarchy that gives direction to the existing and future size, role and function of the urban areas of Tweed Shire. In preparing its metropolitan strategy for Sydney the NSW Government published work on the role and definition of urban centres (Dept of Planning, 2005). Much of the centres definition work in the Tweed Shire Urban Land Release Strategy and this Employment Lands 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 consistent with the Tweed Shire Retail Strategy (TSC, 2005).

This approach is largely consistent with the urban centres hierarchy contained in the Far North Coast Regional Strategy (Dept of Planning, 2006) and discussed in Chapter 5 of this Strategy. However, in light of the additional detail and findings of this Strategy it is suggested that the Far North Coast Regional Strategy will need to be reviewed to recognise this more recent work.

8.1.1 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 8-1 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 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.

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

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, 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.
- ▶ An employment lands node has been identified in proximity to the Gold Coast airport to focus on airport related employment opportunities.
- ▶ Existing light industrial areas in South Tweed Heads will likely evolve into a greater retail focus as employment uses requiring larger land areas migrate to new opportunities at Chinderah, Murwillumbah and west of Pottsville.
- ▶ Typical dwelling range 9,000—28,000.

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.

- ▶ 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 a target of 30% overall for Tweed Heads, Tweed Heads South and West Tweed Heads.
- ▶ Commercial core with a focus on office space provision 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

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 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.

District Town Centres include Murwillumbah, Kingscliff and Banora Point.

- ▶ Large group of more than 50 retail outlets and services with one or two supermarkets, sometimes a small shopping mall.
- ▶ A medium or high density residential origin location.
- ▶ Both Murwillumbah (Wardrop Valley) and Kingscliff (particularly Chinderah) are identified as employment lands nodes with a focus on export jobs rather than service industries.
- ▶ 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
- ▶ 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.

Villages

A Village is a strip 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

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

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

good physical links with the surrounding area.

- ▶ 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.
- ▶ The only planned employment lands opportunity related to a village is west of Pottsville on a “greenfield site”.
- ▶ 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.

Examples of small villages include Hastings Point, Uki, Fingal, Tyalgum, Kielvale, 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.
- ▶ No significant employment lands focus planned in these urban areas.
- ▶ 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.

9. Employment Lands Release Program

9.1 Balancing Supply and Demand For Industrial Land

As previously outlined, the Tweed Shire has approximately 138 ha of land zoned for industrial purposes that still remains vacant. However, after discounting for various factors this reduces to approximately 62 ha, the majority of which is located at Chinderah (42 ha). It can also be assumed that the Tweed Valley Enterprise Park will supply up to 40 ha of land (in two stages) to the market in the short term.

On the demand side, this Strategy has shown that there is a range of views as to what might be required between now and 2031. The Far North Coast Regional Strategy suggests 156 ha for the entire region. Spread this evenly over six LGA's and it equates to just 26 ha per LGA. The Northern Rivers Regional Industry and Economic Plan suggested that 720 ha would be required for the same region. Spread evenly over six LGA's and this equates to 120 ha per LGA. The TEDC nominated a figure of 400 to 800 ha of industrial land for Tweed Shire alone.

This Employment Lands Strategy estimates that between 110 and 250 ha of industrial land will be required between now and 2031. There should be a goal of maintaining a "rolling supply" of approximately 25 years supply of land to ensure that there is no restriction on supply, adequate competition between sites and a variety of locations to choose from. It is also noted that larger releases may be required in 10 to 15 years time when it is predicted that Gold Coast employment land opportunities may be depleted. Recent restrictions to water supplies in the Gold Coast area may also stimulate demand for employment lands in Tweed Shire. A conservative approach would be to take the higher figure of 250 ha of industrial land. This equates to about 10 ha per year on average.

Using this figure, the discounted bank of existing industrial zoned land correlates to about 10 years supply.

9.2 Balancing Supply and Demand For Commercial Office Space

On the supply side, there is 58,970 sq m of commercial office floor space in Tweed Shire (as at 2005) spread predominantly across Tweed Heads, Tweed Heads South and Murwillumbah. It is not known exactly how much is vacant, but anecdotal evidence suggests that vacancy is low.

As at 2007 Tweed Shire had approximately 182 ha of land zoned specifically for commercial purposes. This included approximately 100 ha at Tweed Heads, Tweed Heads South and Tweed Heads West combined. A further 23 ha at Murwillumbah and Murwillumbah South and approximately 45 ha at Chinderah along the waterfront. A visual assessment of recent air photos overlaid with these commercial zones suggests that very little of this zoned land is vacant in Tweed Heads (including South and West) and Murwillumbah (including South). There is evidence of low density residential development in some commercially zoned areas but this is limited to approximately 1 ha in Tweed Heads (including South and West) and approximately 3 ha in Murwillumbah (including South). There is approximately 25 ha of vacant and /or under used commercially zoned land at Chinderah, but this commercial zone specifically targets marine, recreation and tourism uses and is unlikely to be available for commercial office development. Home based offices also contribute to the supply of office space for the sole operator type market.

On the demand side, this Strategy has shown that there is a range of views as to what might be required between now and 2031. The Far North Coast Regional Strategy suggests 76 ha of additional

commercial land will be required for the entire region (six LGA's). However, this presumably includes retail uses. In any case, it is not clear if this estimate is for zoned land or for floor space.

This Employment Lands Strategy estimates that between 19,800 m² and 29,100 m² of additional commercial floor space will be required to meet expected demand with 65% of this expected to be located in Tweed Heads and Tweed Heads South. A conservative approach would be to take the higher figure of 29,100 m². This equates to about 1160 m² per year on average.

9.3 The Employment Land Release Program

The purpose of the urban land release program is to guide the location of future employment lands 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 9-1 outlines each of the potential employment land areas and provides an indication of when the rezoning process will need to be considered if these areas are to supply employment land to the market at the appropriate time. The land in this program will probably be zoned for industrial type purposes rather than commercial purposes. It is not anticipated that any of this land will be used for retailing purposes other than that normally ancillary to legitimate manufacturing operations.

Table 9-1 Tweed Shire Employment Land Release Program

Potential Employment Locality	Gross Area (ha)	Net Area (ha)	Approximate Years supply (@ 10 ha per yr Shire wide demand)	Timing for commencement of rezoning	Comment
Airport precinct (Area 1)	14	11	1.1	Medium Term	Note that Area 1 is recommended for deletion from the Employment Lands Strategy and is not included in the supply calculations.
Airport precinct (Area 2)	29	23	2.3	Medium Term	Assumes 80% of land will yield lots.
Border Race Track (Area 3)	11	9	0.9	Short Term	Assumes 80% of land will yield lots.
Chinderah East (Area 4)	37	26	2.6	Short Term	Assumes 70% of land will yield lots due to vegetation buffers.
Wardrop Valley West (Area 5)	63	44	4.4	Long Term	Assumes only 70% of land will yield lots due to vegetation buffers and agricultural buffers

Potential Employment Locality	Gross Area (ha)	Net Area (ha)	Approximate Years supply (@ 10 ha per yr Shire wide demand)	Timing for commencement of rezoning	Comment
Wardrop Valley East (Area 6)	60	48	4.8	Short Term	Assumes 80% of land will yield lots
West Pottsville (Area 7)	144	86	8.6	Short /Medium Term	Assumes only 60% of land will yield lots due to rural residential and riparian buffers

Collectively this land release program identifies 83 ha (net) or approximately 8.3 years supply of land for the Short Term, 86 ha or 8.6 years supply for the Short /Medium Term, 23 ha or 2.3 years supply for the Medium Term (excluding Area 1), and 44 ha or 4.4 years supply for the Long Term. If all land was developed at the assumed yields this equates to approximately 24 years supply of employment land that could be added to the existing land bank of zoned land. The distribution of land areas across the time frames reflects the current situation that there are significant areas of land in Tweed Shire that are already zoned for employment 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 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 them suitable for employment land development. Areas in proximity to existing industrial zones were 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 only partly identified in the Strategy. In these cases the entire property should be considered in any detailed analysis to ensure that the best land (if any) 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 Figures 14 to 17 for the areas identified in the employment land release program as being potentially suitable for employment land development.

In the case of commercial floor space the area that may be most suitable for future commercial development is most likely to be located within an existing urban area. It may be currently zoned and/or is being used for residential or industrial purposes. It may be zoned for commercial purposes, but is capable of yielding much higher amounts of floor space than is currently on the site. It is not likely that it

will be located on a “greenfield site“ unless it is commercial floor space that is part of a master planned neighbourhood centre or the like.

The land release program for commercial floor space is as follows:

- ▶ To incorporate an additional 19,000 sq m (approximately) of commercial office space in existing zoned commercial land within the Tweed Heads and South Tweed Heads urban areas;
- ▶ To incorporate an additional 5,000 sq m (approximately) of commercial office space in existing zoned commercial land at Murwillumbah and South Murwillumbah; and
- ▶ To allow the remaining 5,000 sq m (approximately) to be incorporated in existing commercially zoned land in other urban centres.

However, given the significant benefits of a major commercial office development to the Tweed Heads and South Tweed Heads area, Council should also consider allowing up to 2 ha of land to be rezoned for commercial office use in either of these areas, but particularly in the Tweed Heads town centre. The main proviso would be that this land adjoins an existing area already zoned for commercial use. The master planning for the Tweed Heads and Tweed Heads South centres that is currently underway will be a major influence on the location and timing of any rezoning for commercial office development.

It is also recommended that Council include provisions in its planning instruments that allow for home based offices (in all residential and mixed use zones) that play a significant role in supplying office space to sole operators and businesses that are starting out.

10. Strategy Evaluation, Implementation and Review

10.1 Strategy Evaluation

It is useful to evaluate this employment lands 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.

10.1.1 Location

The potential employment lands nominated in this Strategy are predominantly within the employment land areas or existing urban footprint 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 or areas identified for future growth.

Where this Strategy nominates an area outside of the areas identified in the Far North Coast Regional Strategy it is an area that will have minimal environmental impact and will satisfy the sustainability criteria in the Far North Coast Regional Strategy (Appendix A).

10.1.2 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 employment land use.

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

10.1.3 Land Release

The potential employment 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 significant existing supply of zoned industrial land located predominantly at Murwillumbah and Chinderah and the role that these lands will play in supplying the needs of the Tweed over the next 10 years in particular.

This Strategy also examines commercial land demand and opportunities and emphasises the need to reinforce the existing commercial areas at Tweed Heads, Murwillumbah and Kingscliff to supply quality office space for businesses in the Tweed Shire.

10.1.4 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.

10.1.5 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 for employment areas.

10.1.6 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.

10.1.7 Employment Lands

This Strategy ensures that future employment lands will be available in a variety of locations that relate to the existing urban hierarchy of the Tweed Shire and that relate to settlement areas, transport and access and environmental constraints. 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 urban lands strategy and plays a significant role in estimating demand for employment lands over the life of the Strategy.

The emphasis on placing commercial floor space in the existing centres of Tweed Heads, Murwillumbah and Kingscliff is a principle in this Strategy that will ensure that it serves the major settlements of the Shire. This will reinforce these settlements as desirable places to work as well as reside.

This Strategy acknowledges the work of the Regional Industry and Economic Plan for the Northern Rivers and is consistent with it in embracing sustainability.

10.1.8 Tourism Opportunities

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. Some of the potential employment land areas may well relate to servicing the tourism industry of the Tweed and elsewhere.

10.2 Strategy Implementation and Master Planning

Areas that are already zoned for industrial development will continue to supply land to the market over the life of this Strategy. The intention of this 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.

Commercial office space will be supplied to the market mainly from existing commercial zoned land in the major regional centres and the district town centres identified in this Strategy. Any additional commercial rezoning will need to consider the Tweed Retail Strategy as well as this Employment Lands Strategy given that retail and office development are typically both permitted in commercial or business zones.

This 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).

Council is supportive of master planned business and employment parks and will consider reviewing the development assessment process for subsequent tenants where the issues relevant to the overall site can be addressed through the rezoning phase and the substantive development consent that is originally issued for the site meets Council requirements. Although this would be site specific, Council would consider identifying such locations as enterprise areas where employment generating businesses can commence operations quickly and with limited 'red tape' and delays that can be encountered at the development application stage.

Each potential employment land release area (or group of areas) will require an amendment to the Tweed Local Environmental Plan, 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.

10.3 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 services and infrastructure.

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Appendix A

Environmental Constraints and Opportunities and Land Suitability

Environmental Constraints and Opportunities and Land Suitability

1. Introduction

The Tweed Employment Lands Strategy has identified a number of environmental constraints and opportunities applicable to land in the Tweed Shire.

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 installed within floodplains. Risks to public safety and increased property damages also need to be addressed. Filling to increase flood protection for development may be possible in some situations, but needs careful assessment to avoid adverse impacts elsewhere.

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

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.

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.

5. Acid Sulfate Soils

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.

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.

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 Tumbulgam and Murwillumbah along the Tweed River and following tributaries towards Tyalgam. 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.

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. 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 m above sea level and between 5 and 10 m 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 m 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 m 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.

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.

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).

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 Rd.

13. Extractive Industries

Extractive industries should be protected from encroachment by incompatible land uses (including urban development) until the resource has been exhausted. In Tweed 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.

14. Aircraft 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, aircraft 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.

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.

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 employment lands 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.

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 eg high hazard floodway. Other constraints identify less desirable areas that generate the need for mitigation measures eg 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 2.

In determining the areas that are potentially suitable for urban lands or employment lands development 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 2 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 2.

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 is bushfire prone land is that land within (or within 100 m) of a high bushfire hazard area. Category 2 bushfire prone land is that land 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. Particularly within employment lands steeper slopes also make truck manoeuvres difficult. 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 of infrastructure, roads and services installed within floodplains, as well as risk implications for public safety and increased property damages.

The flood constraint for employment land is based on the predicted 1 in 100 year (1% AEP) flood level. Based on this predicted flood, Tweed Shire Council regards an area as being subject to "high flow" if flood velocity (v) multiplied by depth (d) is greater than 0.3 ($v \times d > 0.3$). Velocity-depth products can also be used as a measure of preliminary flood hazard (refer to NSW Floodplain Development Manual). For example, at flood water depths in excess of 2m (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 depths as low as 0.3m. At velocities in excess of 2.0m/s the stability of foundations and poles can be affected by scour (DIPNR, 2005).

High flow areas 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.

Appendix Table 2 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 Flow 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 has been used to compile a constraints map for the Tweed Employment Lands Strategy.

Appendix C
Infrastructure

Infrastructure

It is important that new employment lands areas are 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. Issues relating to the servicing of proposed release areas are discussed in the following sections.

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 Byrrill Creek Dam has already been acquired and Council has commenced investigating the potential yields of both the new Byrrill 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 Byrrill 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.

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 Appendix Table 3).

Around 7.5 gigalitres 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 gigalitres per annum by 2019 and 19 gigalitres 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).

Appendix Table 3 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

Sewage Treatment Plants	Current Capacity (persons)	Ultimate Capacity (persons)
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.

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.

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LEGEND



- LGA Boundary
- Cadastre
- Roads
- Railway Line

1:260,000 for A4
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 Metres

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



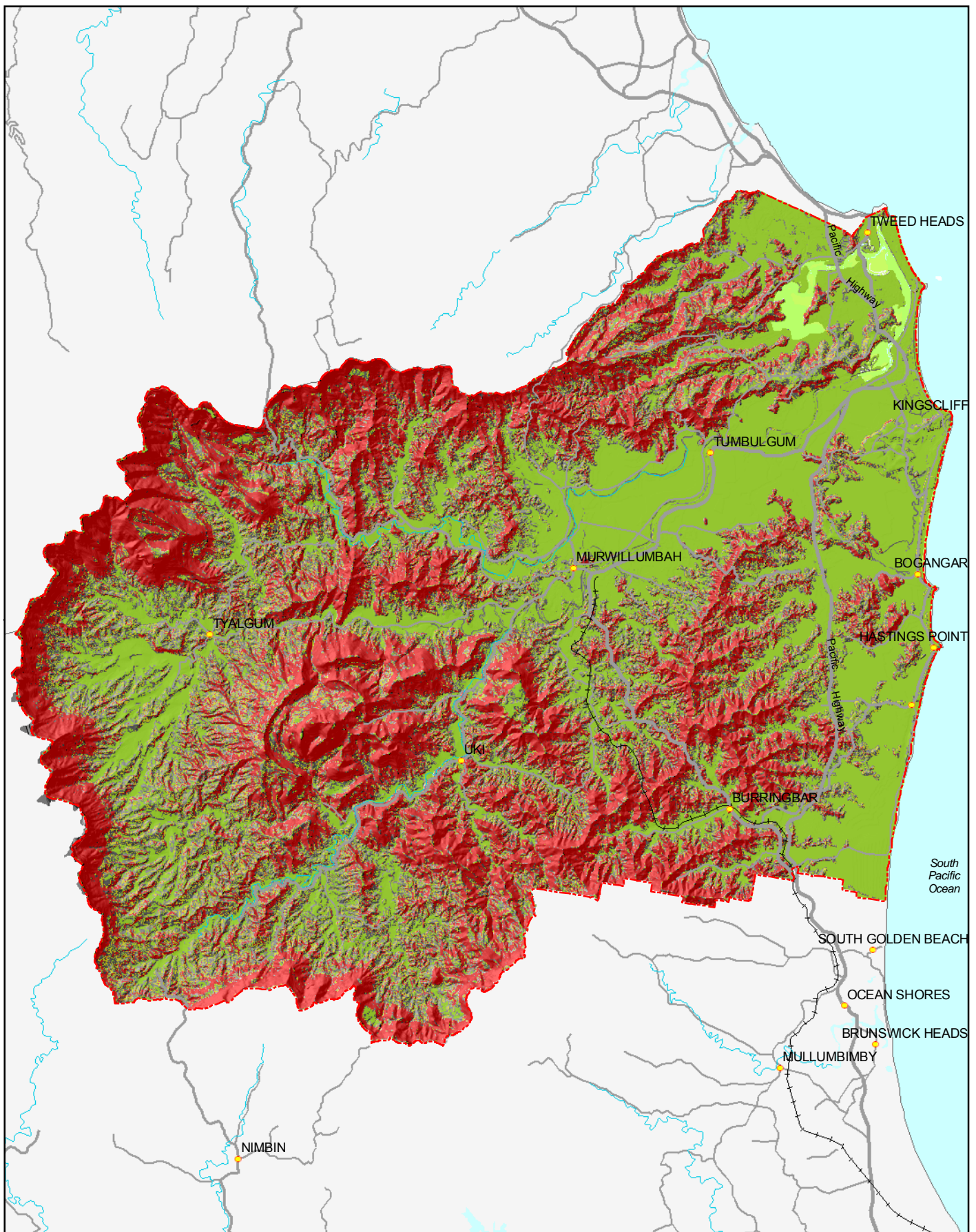
CLIENTS | PEOPLE | PERFORMANCE

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Strategy Area
 2 | October 2007

Figure 1



LEGEND

LGA Boundary

Slope

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

1:260,000 for A4
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 Metres

Map Projection: Universal Transverse Mercator
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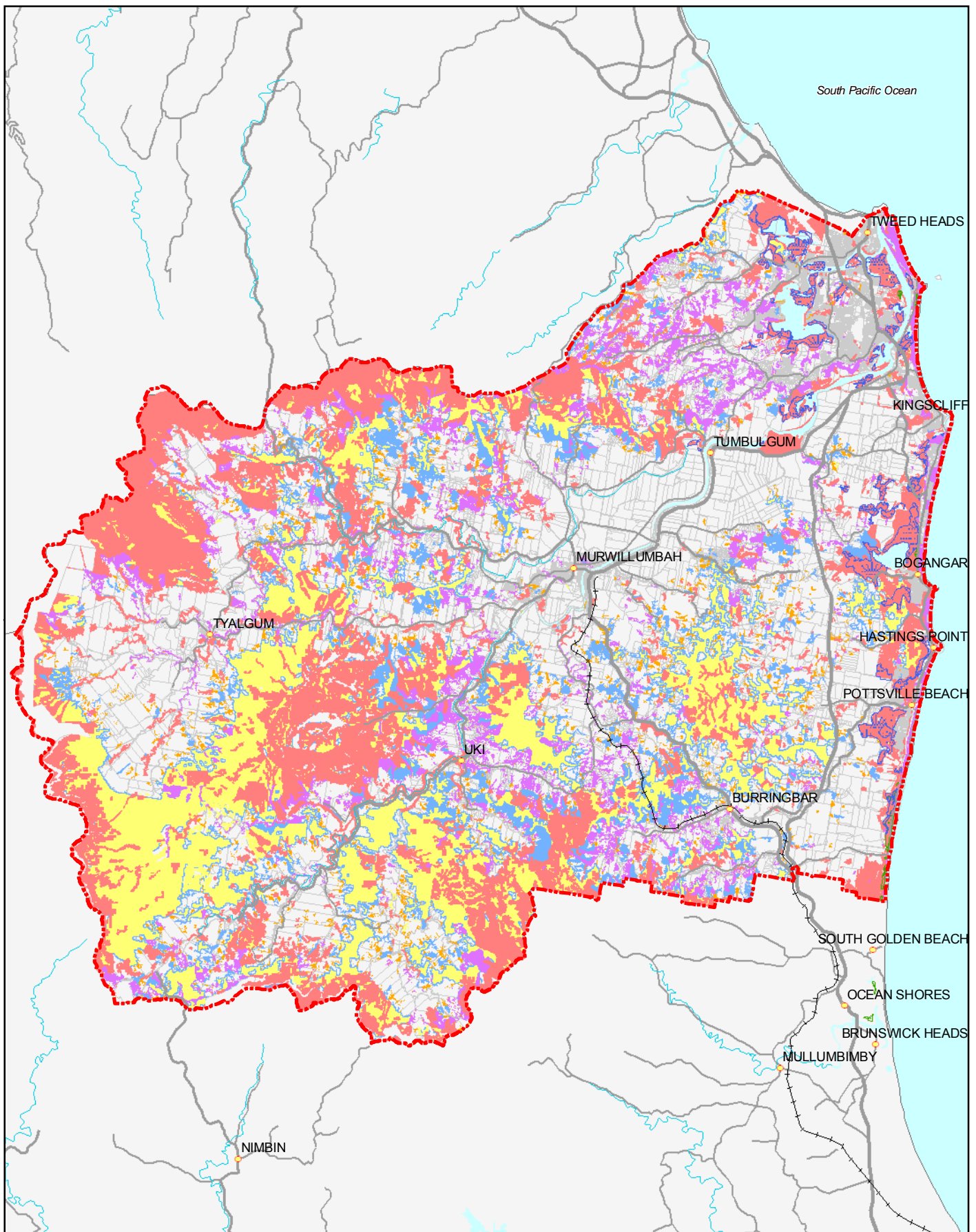
CLIENTS | PEOPLE | PERFORMANCE

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Topography
 2nd | October 2007

Figure 3



LEGEND

LGA Boundary

SEPP14 Wetlands

SEPP26 Littoral Rainforest

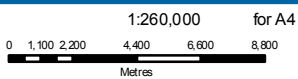
High Conservation Value Vegetation

High Ecological Sensitivity Vegetation

Moderate Ecological Sensitivity Vegetation

Low Ecological Sensitivity Vegetation

Degraded habitat



Map Projection: Universal Transverse Mercator
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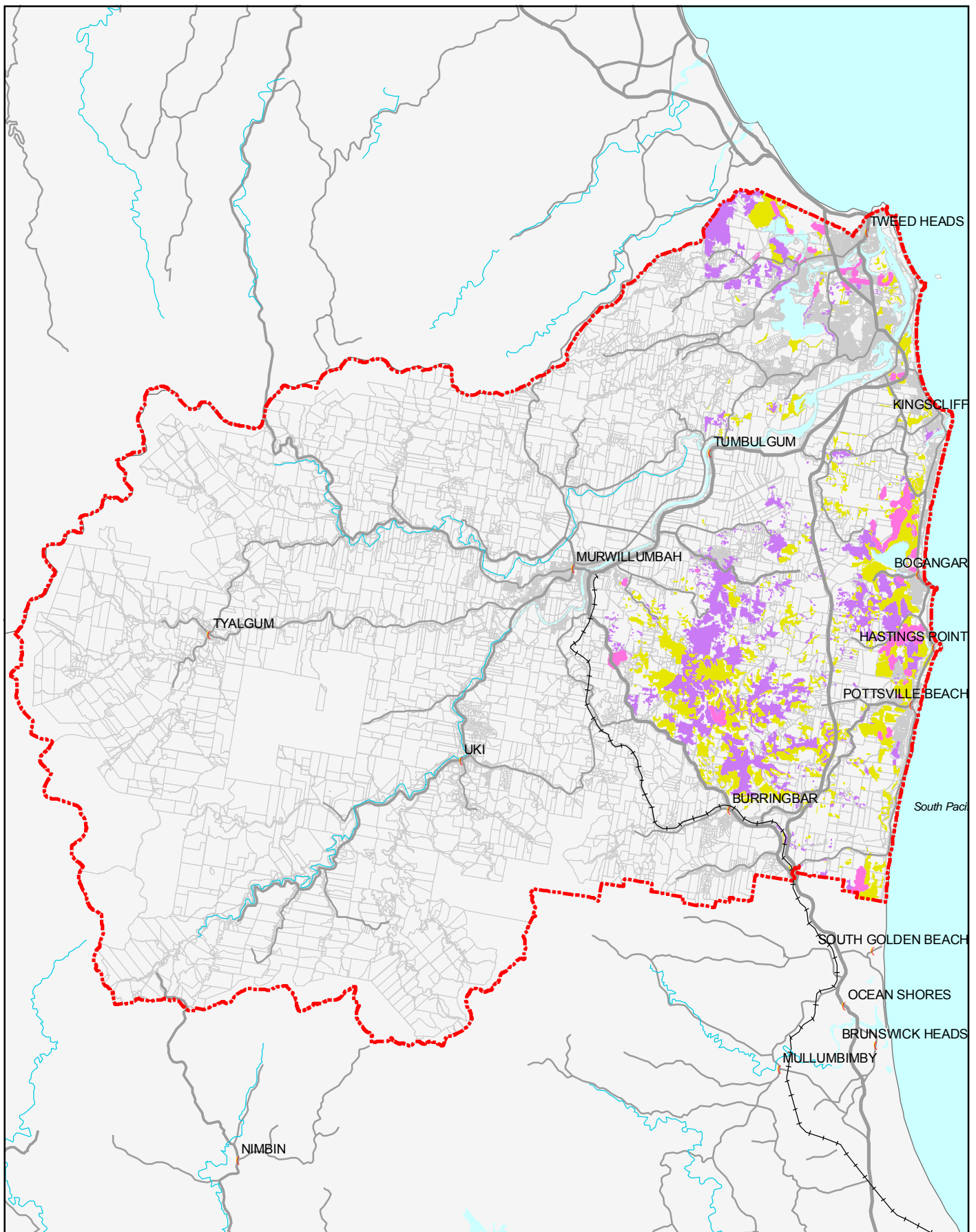
CLIENTS | PEOPLE | PERFORMANCE

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rev no. | A

Vegetation
2 | October 2007

Figure 4



LEGEND

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

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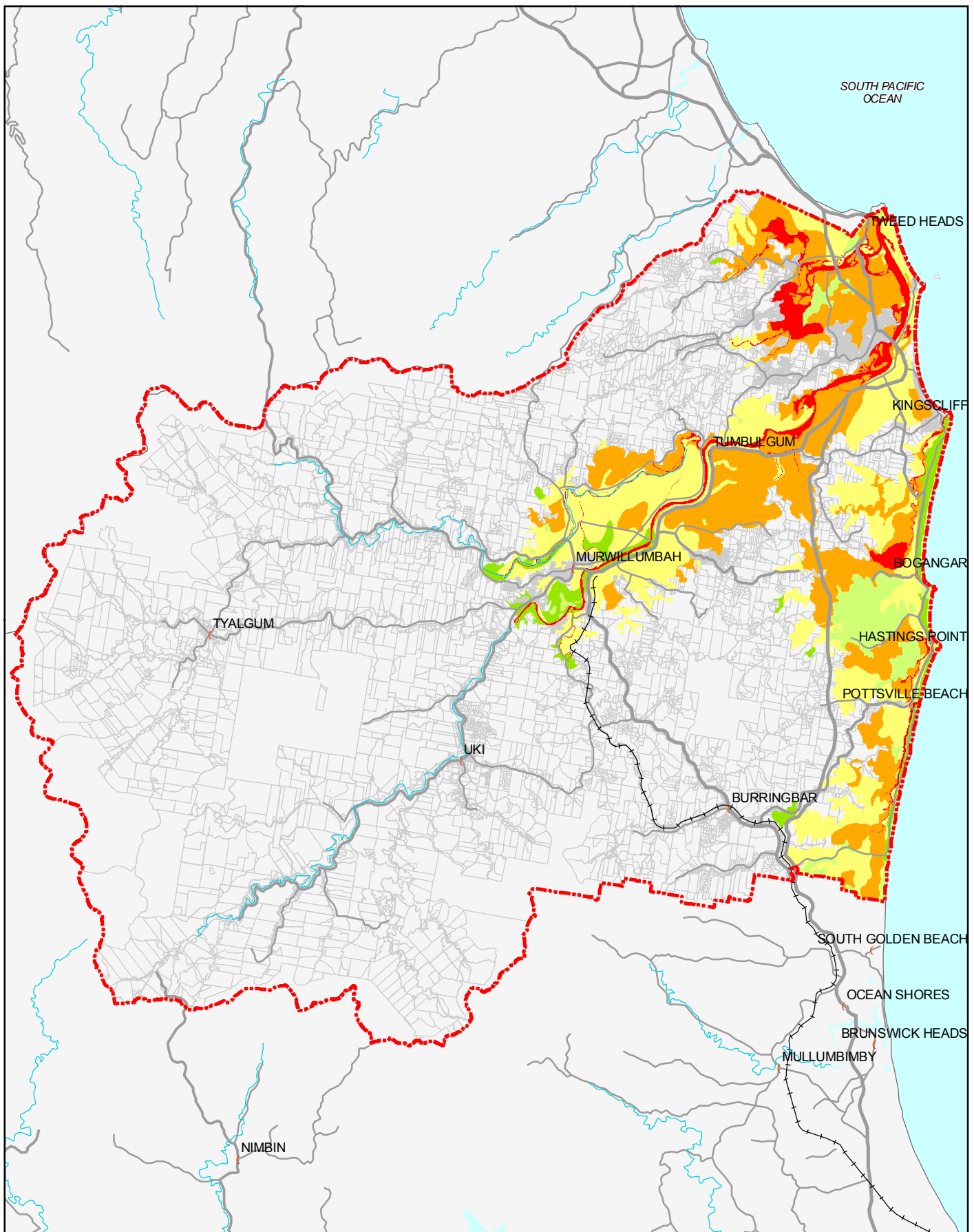
CLIENTS | PEOPLE | PERFORMANCE

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Koala Habitat
 2 | October 2007

Figure 5



LEGEND

LGA Boundary

Acid Sulfate Soil

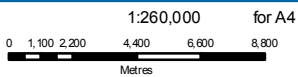
Class 1

Class 2

Class 3

Class 4

Class 5



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CLIENTS | PEOPLE | PERFORMANCE

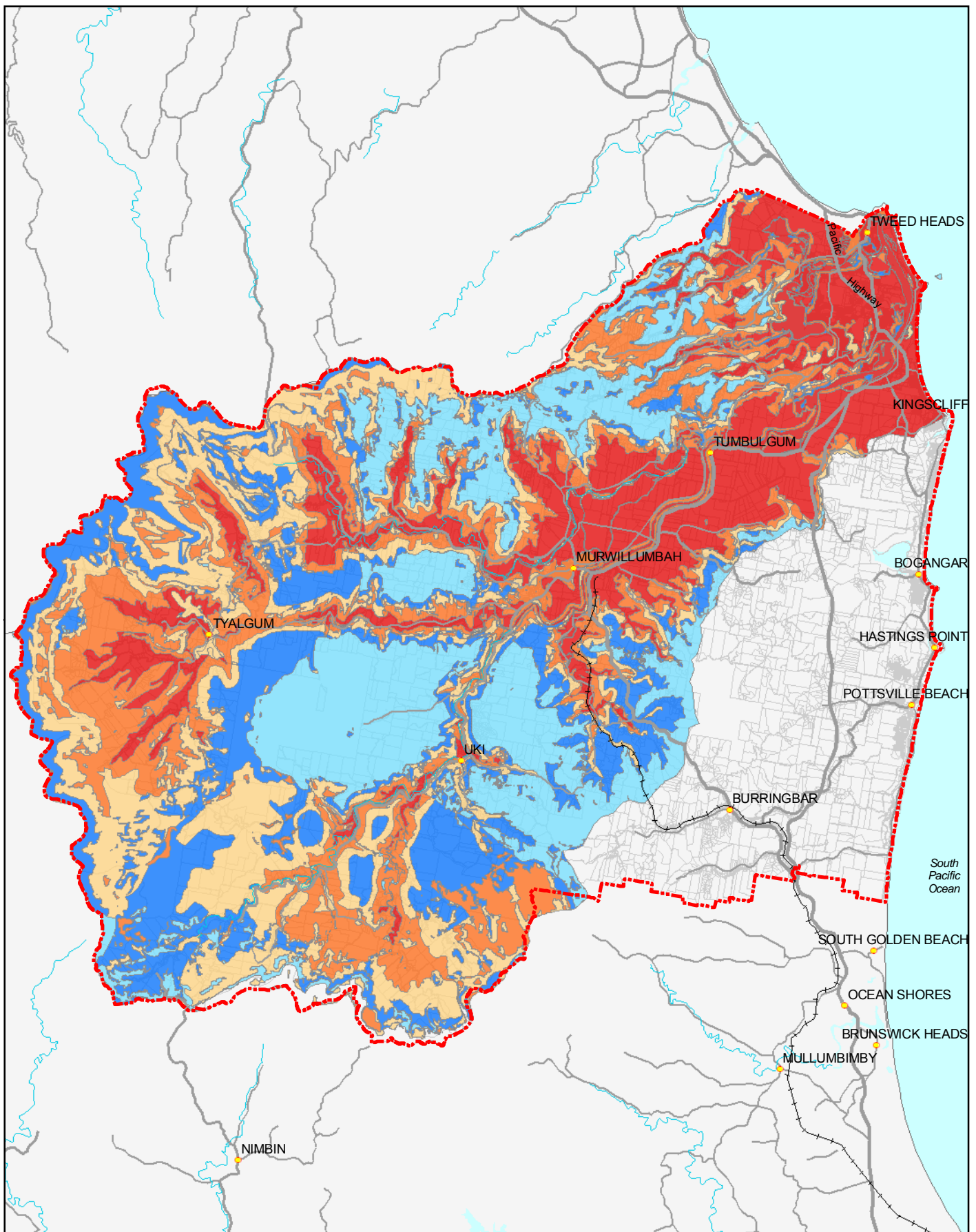
Tweed Shire Council

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 rev no. | A

Acid Sulfate Soils

Figure 6

2 | October 2007



LEGEND

- LGA Boundary
- High Groundwater Vulnerability
- Moderately High Groundwater Vulnerability
- Moderate Groundwater Vulnerability
- Low Groundwater Vulnerability
- Moderately Low Groundwater Vulnerability



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CLIENTS | PEOPLE | PERFORMANCE

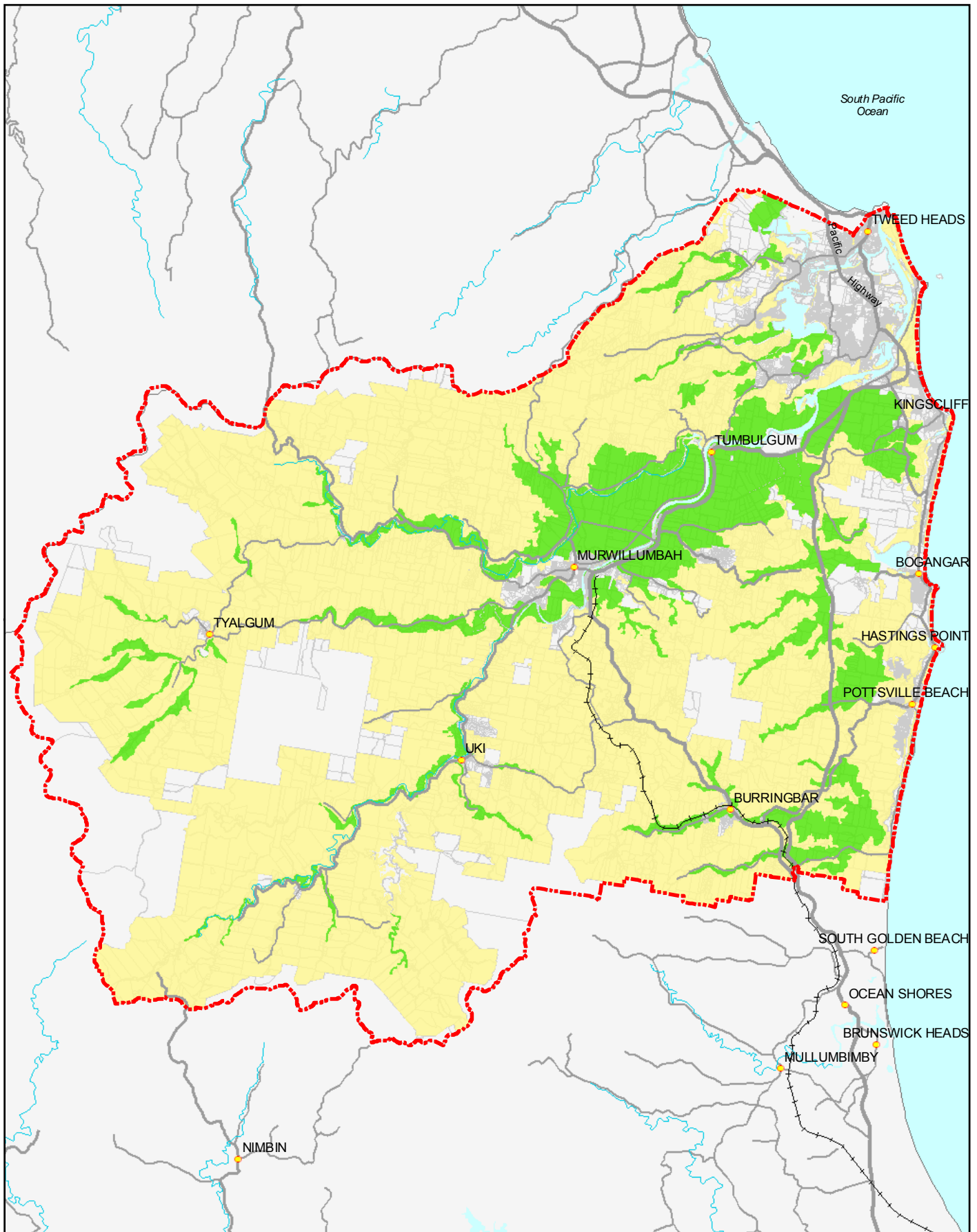
Tweed Shire Council

job no. | 22-13462
 rev no. | A

Groundwater Vulnerability

Figure 7

2 | October 2007



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
 Grid: Map Grid of Australia, Zone 56



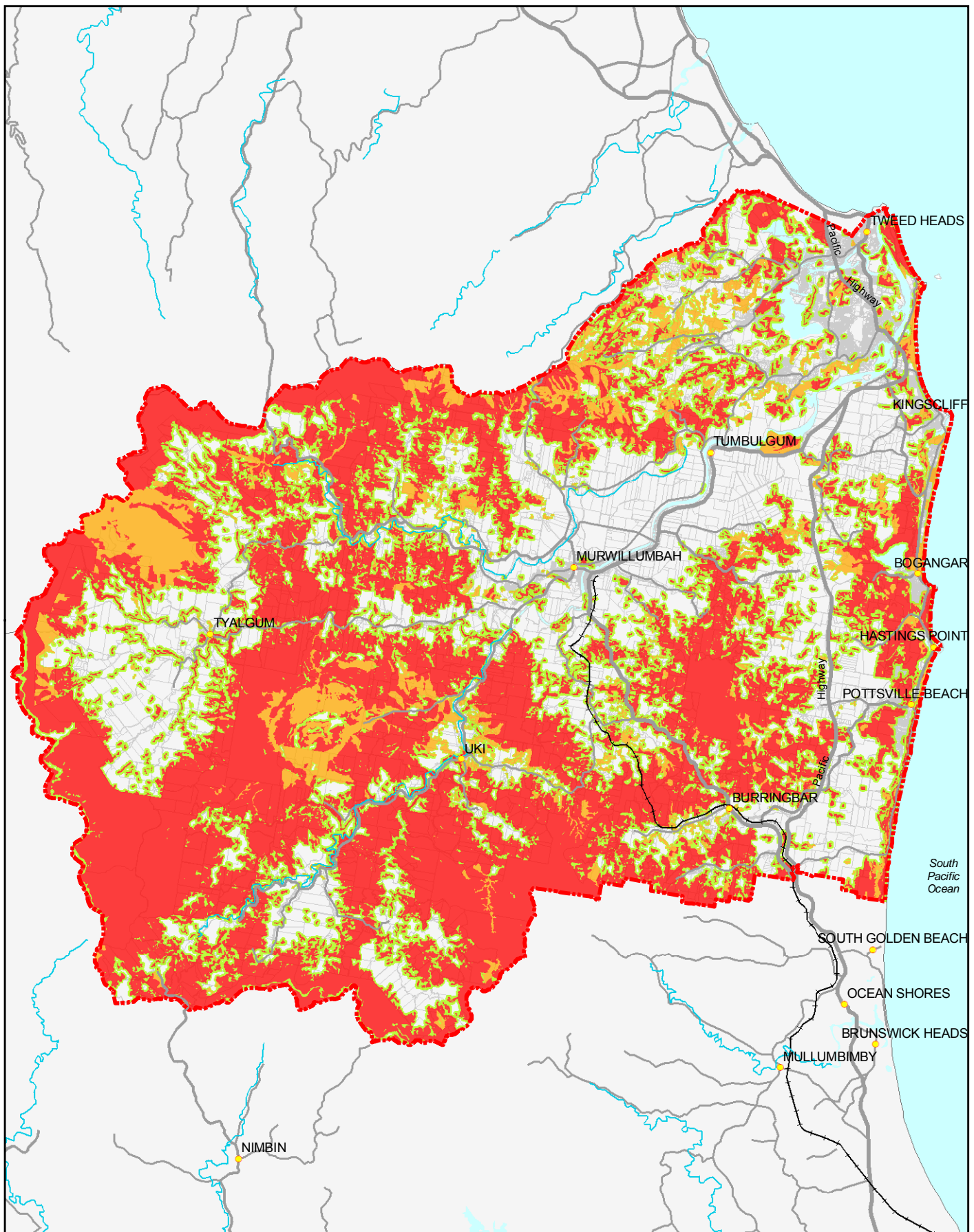
CLIENTS | PEOPLE | PERFORMANCE

Tweed Shire Council
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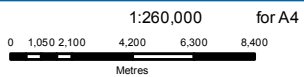
Agricultural Land
 2nd | October 2007

Figure 8



LEGEND

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



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



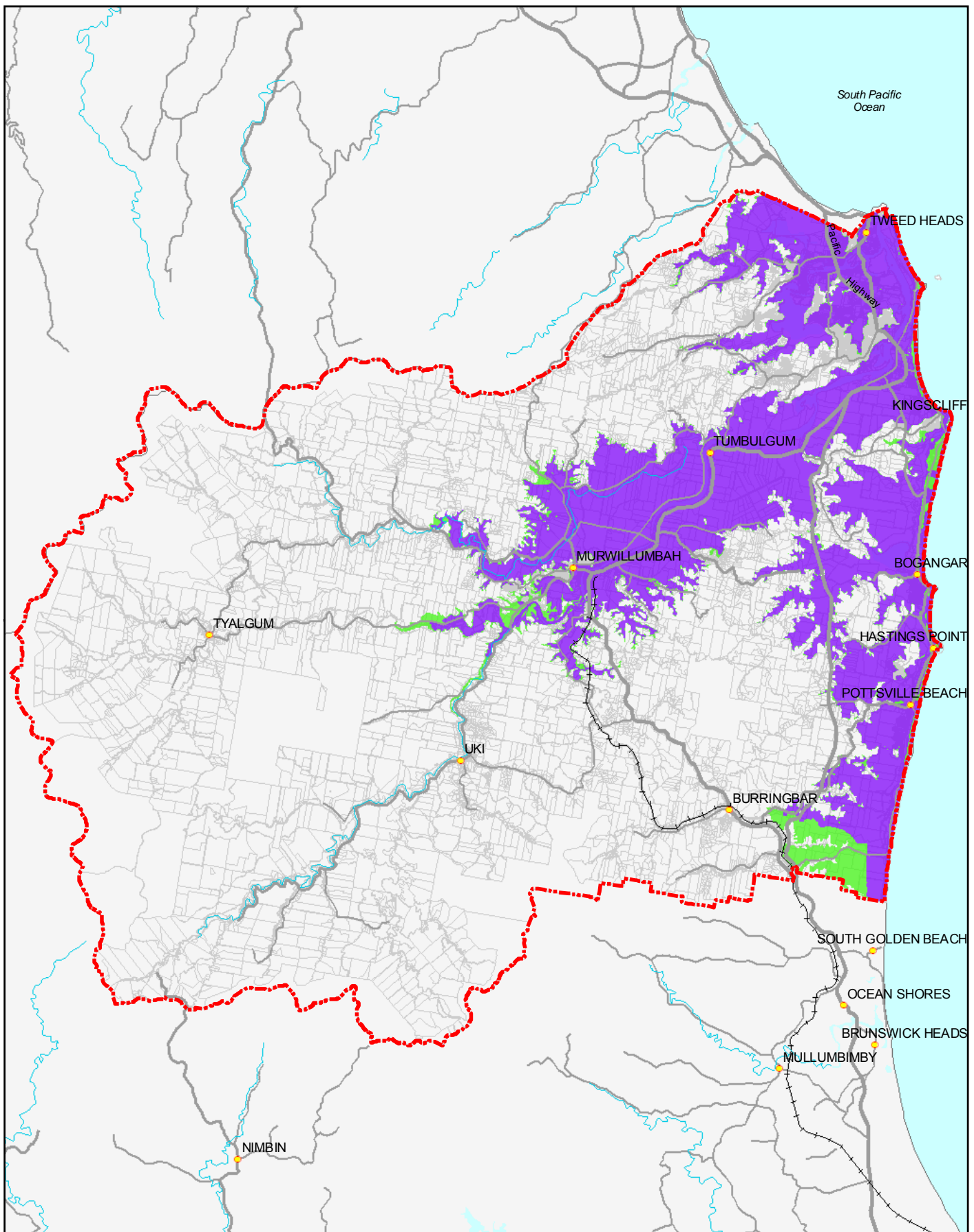
CLIENTS | PEOPLE | PERFORMANCE

Tweed Shire Council

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Bushfire Hazard
 2 | October 2007

Figure 9



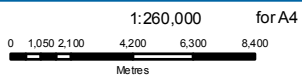
LEGEND

LGA Boundary

Land Susceptible to Climate Change

< 5m above sea level

5m - 10m above sea level



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

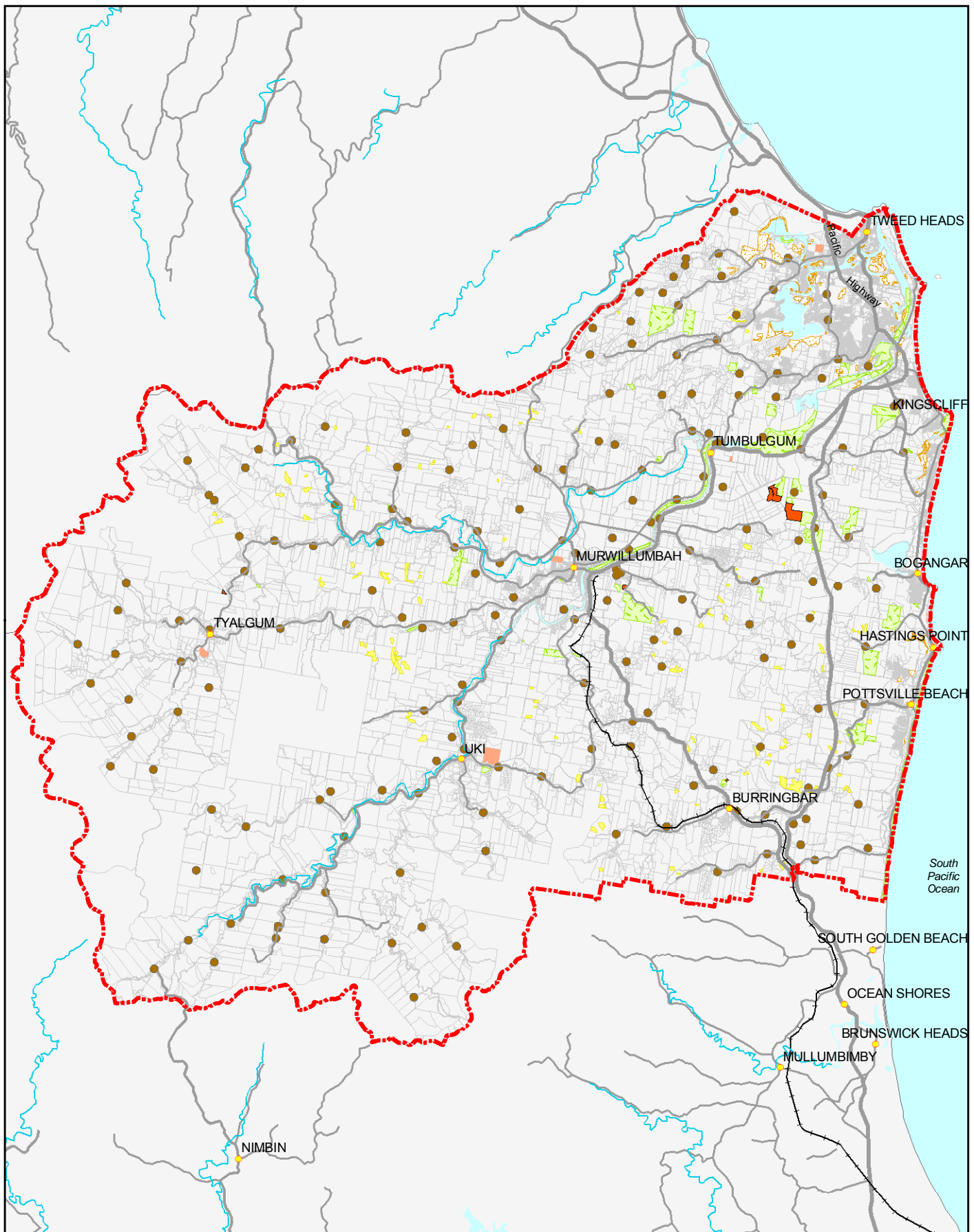


CLIENTS | PEOPLE | PERFORMANCE

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

job no. | 22-13462
rev no. | A

Figure 10



LEGEND



LGA Boundary

Cattle Dip Site Areas

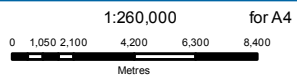
Garbage Depots

Biting Insects

Banana Plantations

Quarries

Sewage Treatment Plants (STPs)



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



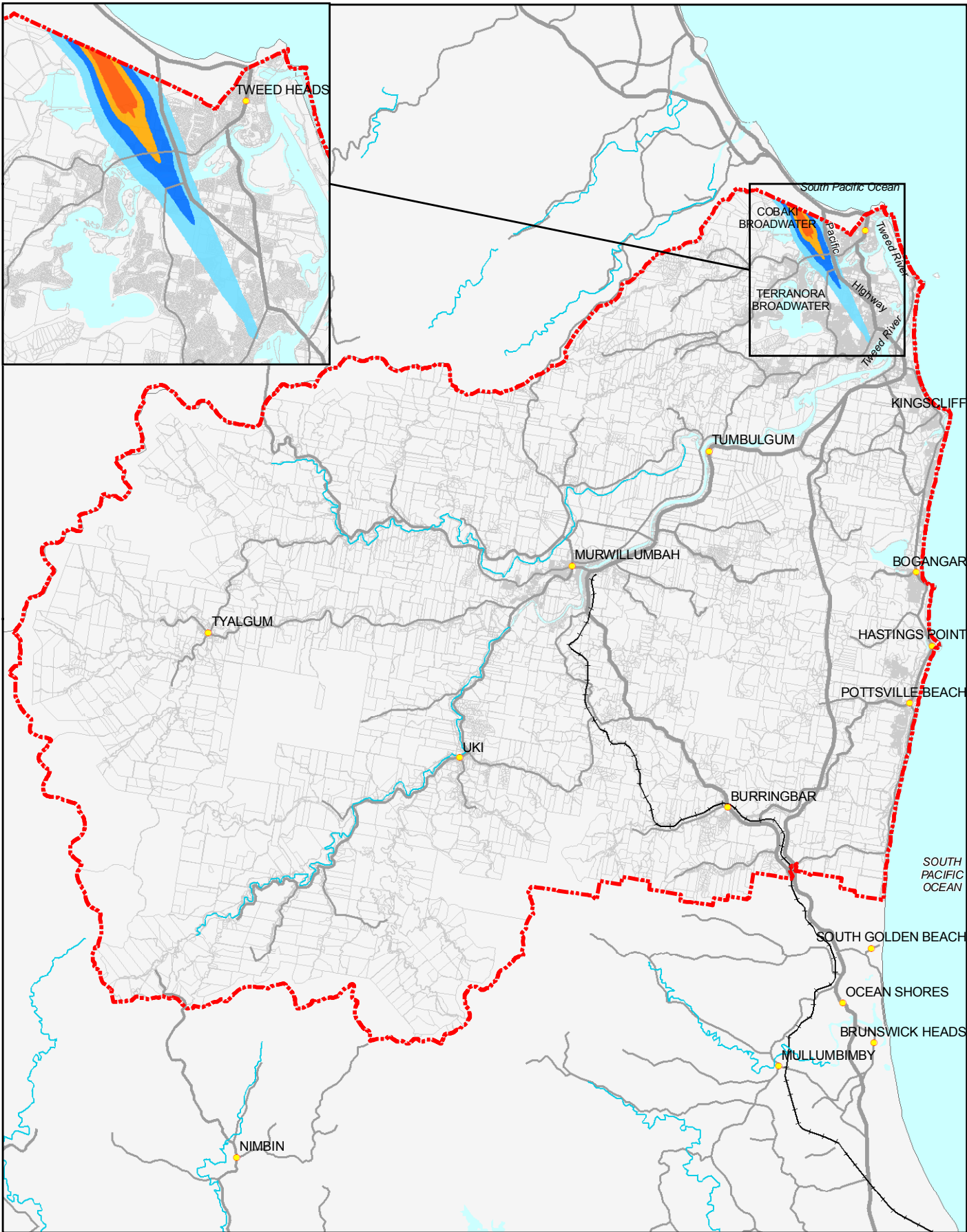
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Tweed Shire Council

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rev no. | A

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

2 | October 2007



LEGEND

LGA Boundary

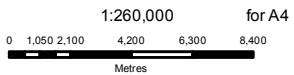
ANEF Ranking

> 40

30 - 40

25 - 30

< 25



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



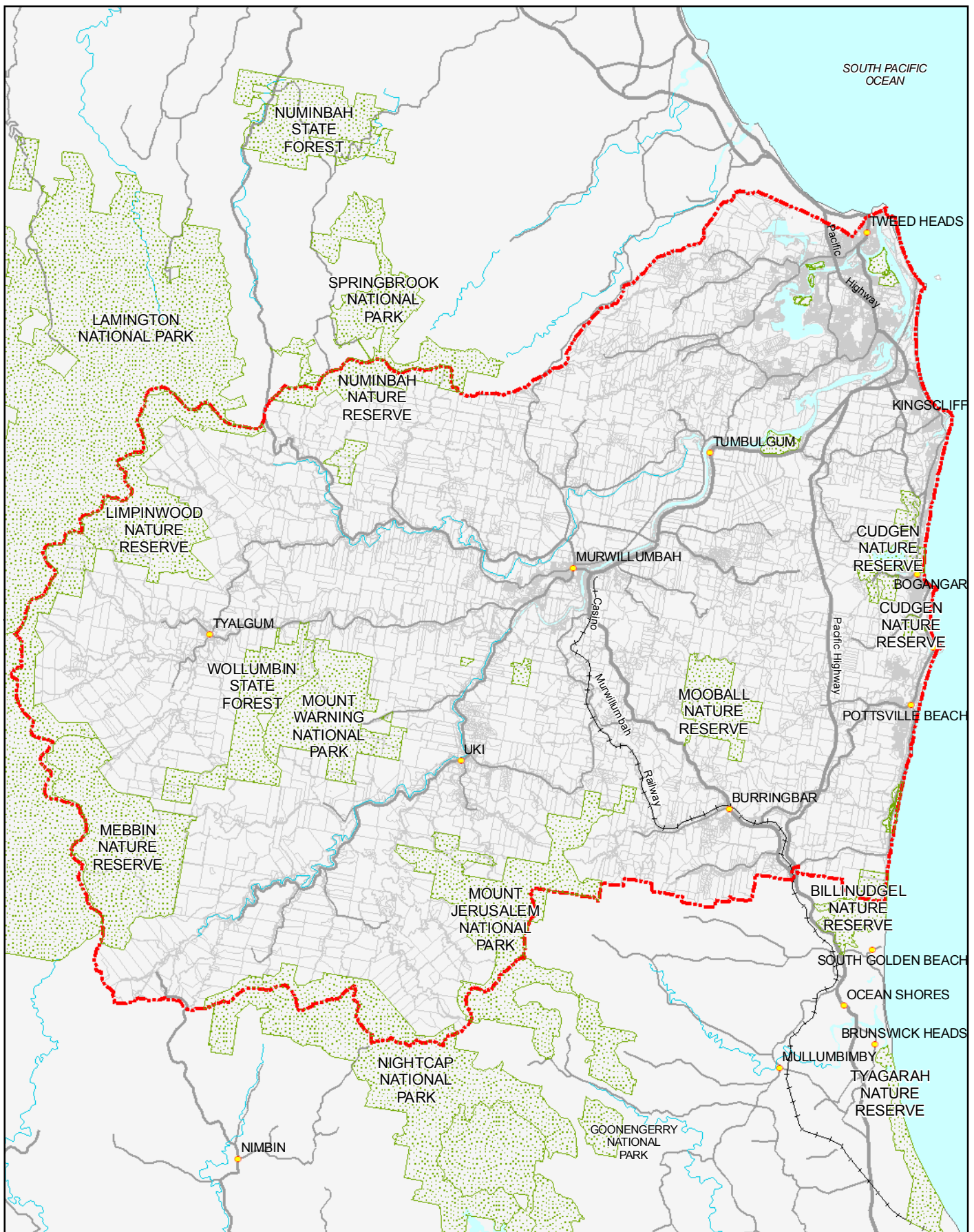
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Aircraft Noise
2 | October 2007

Figure 12



LEGEND



LGA Boundary

National Parks, Nature Reserves, State Forests

1:260,000 for A4
 0 1,150 2,300 4,600 6,900 9,200
 Metres

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



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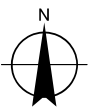
Tweed Shire Council

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 rev no. | A

National Parks, Nature Reserves and State Forests

Figure 13

2 | October 2007

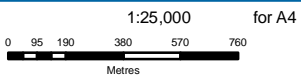


LEGEND

LGA Boundary
 Cadastre

Railway Line
 Watercourse Areas

Potential Employment Lands
 Area deleted from the Strategy



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

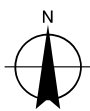


CLIENTS | PEOPLE | PERFORMANCE

Tweed Shire Council
 Tweed Employment Lands Strategy
Potential Employment Lands
 Tweed Heads West
 28 January 2009

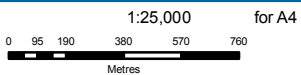
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Figure 14



LEGEND

- LGA Boundary
- Railway Line
- Potential Employment Lands
- Cadastre
- Watercourse Areas



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

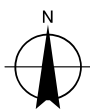


CLIENTS | PEOPLE | PERFORMANCE



Tweed Shire Council
 Tweed Employment Lands Strategy
Potential Employment Lands
 Chinderah
 14 | February 2008

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 rev no. | B


Figure 15



LEGEND

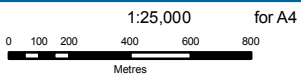
 LGA Boundary
 Cadastre

 Railway Line

 Potential Employment Lands

 Potential Employment Lands

 WatercourseAreas



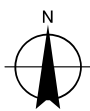
Map Projection: Universal Transverse Mercator
 Horizontal Datum: Geodetic Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56



CLIENTS | PEOPLE | PERFORMANCE

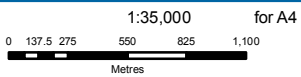
Tweed Shire Council
 Tweed Employment Lands Strategy
Potential Employment Lands
 South Murwillumbah & Wardrop Valley **Figure 16**
 14 | February 2008

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 rev no. | B



LEGEND

- LGA Boundary
- Railway Line
- Potential Employment Lands
- Cadastre
- Waterbody



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



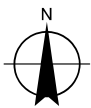
CLIENTS | PEOPLE | PERFORMANCE

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 Tweed Employment Lands Strategy
Potential Employment Lands
 Cudgera Creek & Pottsville
 14 February 2008

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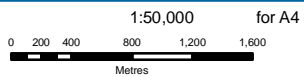
Figure 17

GIS Filename: \\ghd\nt\ghd\AU>Newcastle\Projects\2214195\GIS\Maps\Far_North_Coast_Strategy\ELS\2214195_FNC_Fig18_ELS_KingsCliff_Area.mxd



LEGEND

- Employment Lands
- LGA Boundary
- Cadastre



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



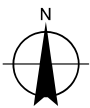
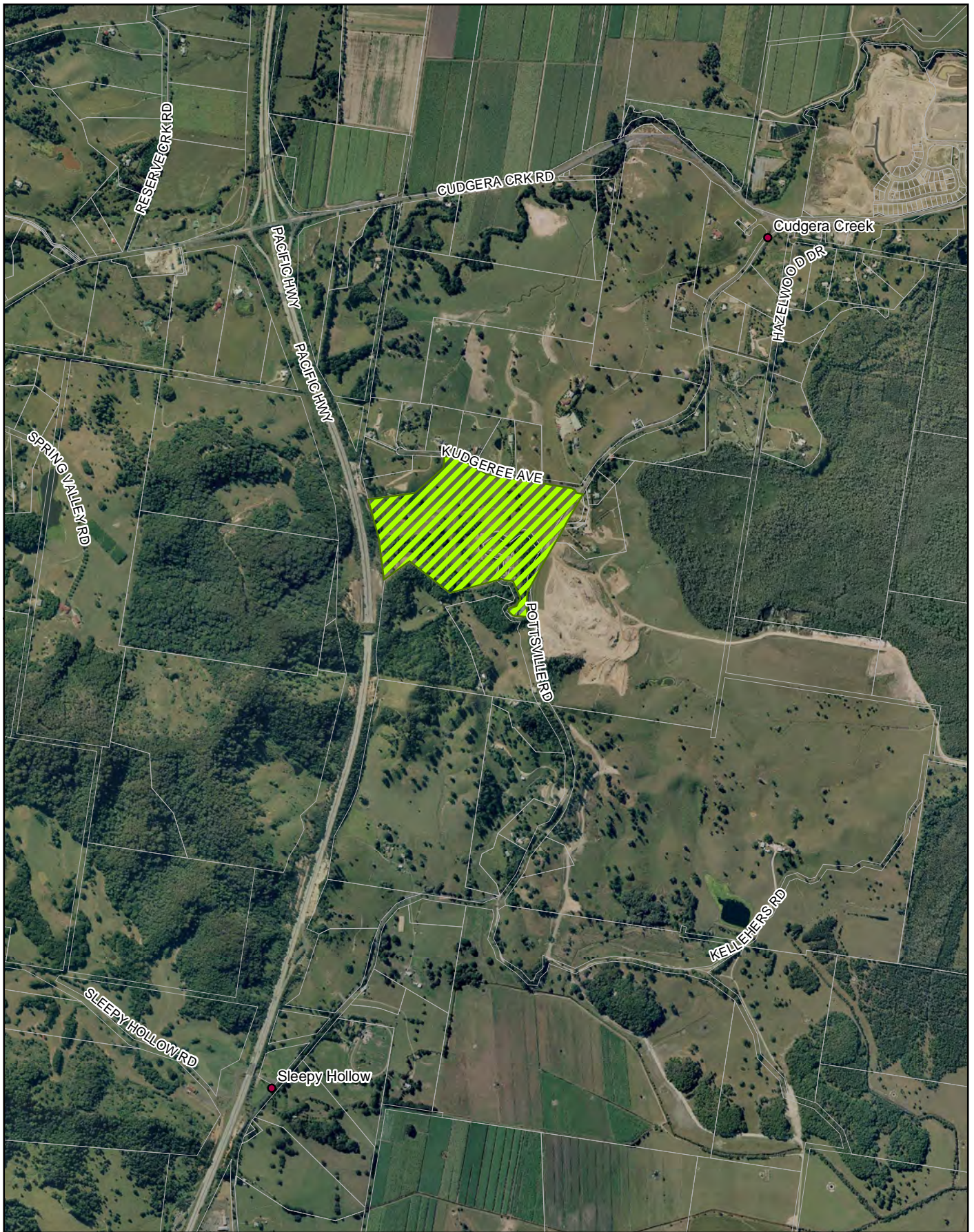
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Tweed Shire Council
 Far North Coast Regional Strategy
Employment Lands
 Tweed Heads / Kingscliff
 4 | February 2009

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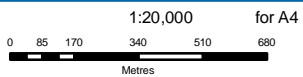
Figure 18

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LEGEND

- Employment Lands
- LGA Boundary
- Cadastre



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

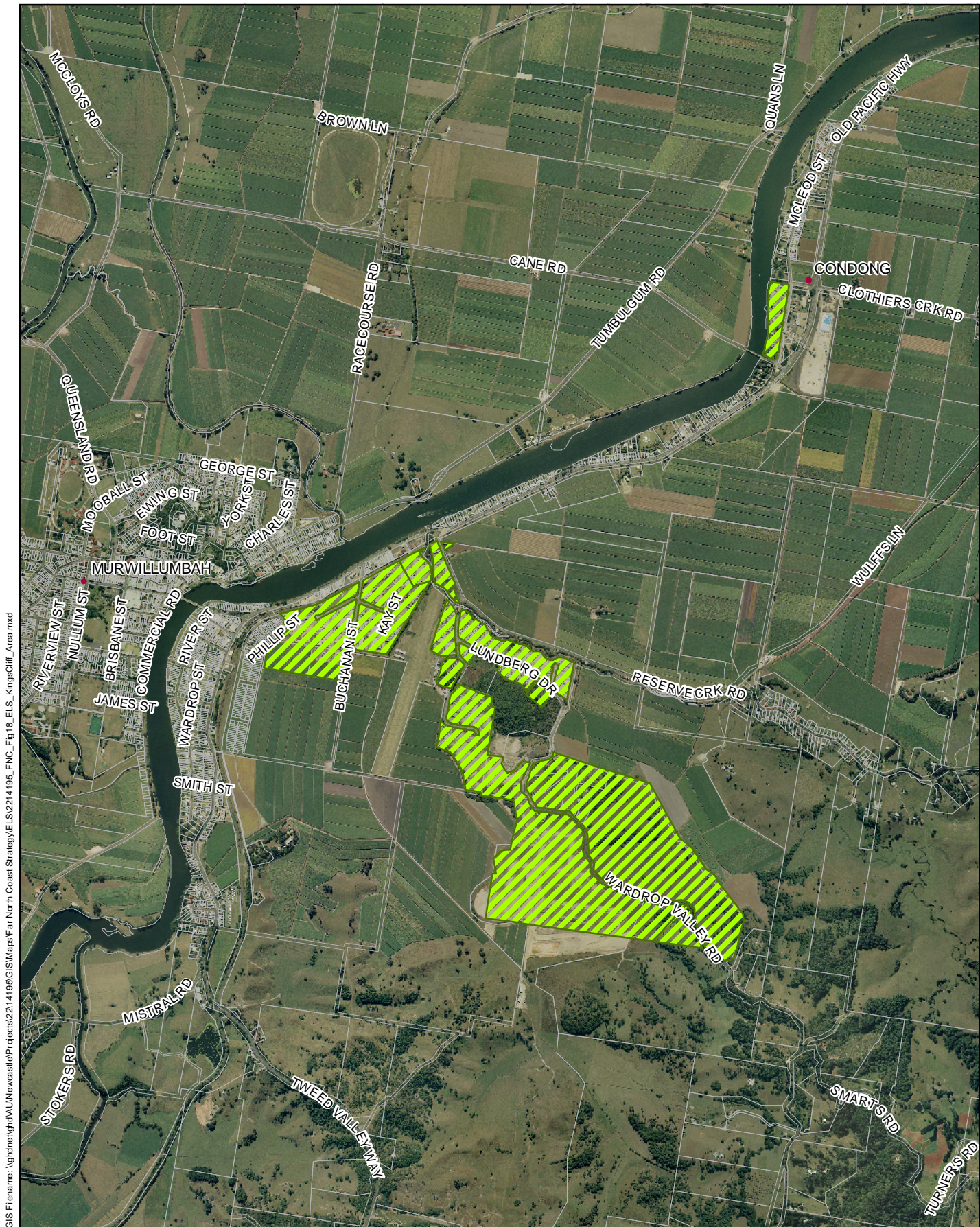


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Tweed Shire Council
 Far North Coast Regional Strategy
Employment Lands
 Tweed Coast
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Figure 19



GIS Filename: \\ghdnet\gdn\Newcastle\Projects\22-14-195\GIS\Maps\Far North Coast Strategy\EL\22-14-195_FNC_Fig18_ELS_KingsCliff_Area.mxd



LEGEND

- Employment Lands
- LGA Boundary
- Cadastre



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
 Far North Coast Regional Strategy
Employment Lands
 Murwillumbah / Condong
 4 | February 2009

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Figure 20

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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		Nov 2007
1	M Svikis B Wilkinson	S.Lawer		S.Lawer		Feb 2008
2	M Svikis B Wilkinson	S. Lawer		S. Lawer		Feb 2009

