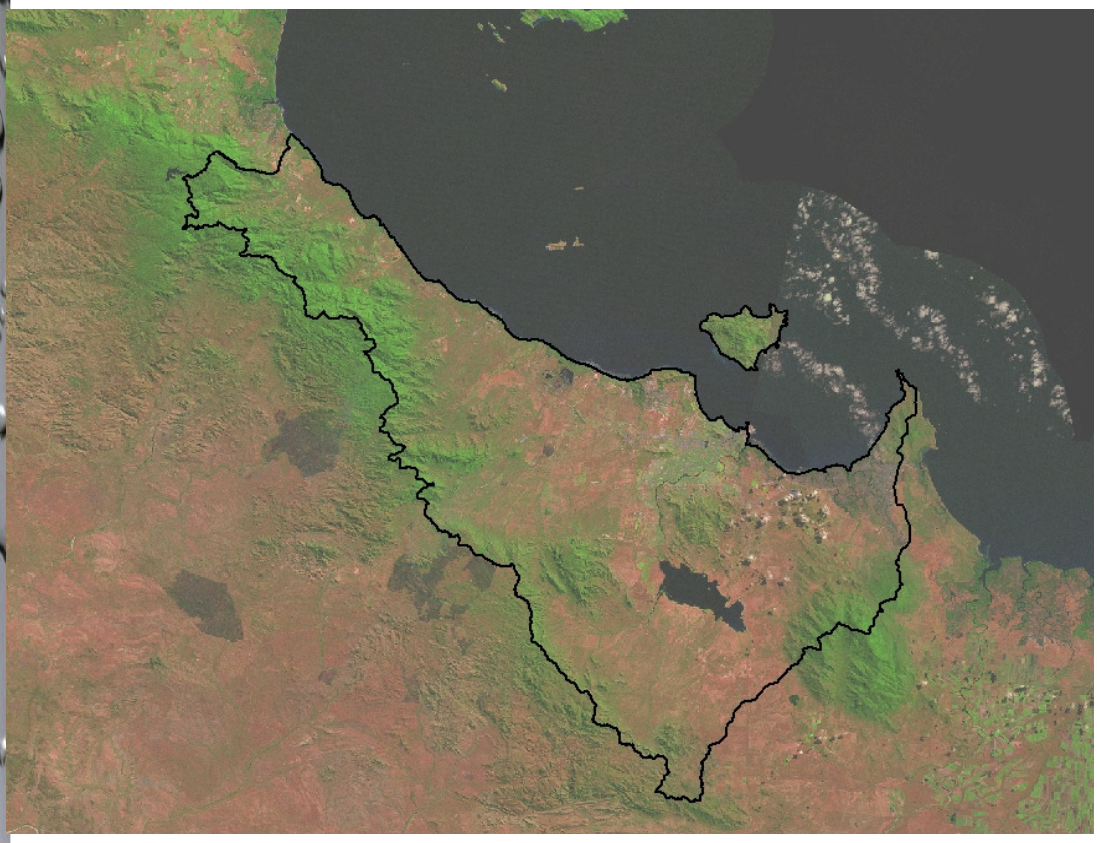

Creek to Coral Coastal Catchment Initiative

Legislation, Institutional Arrangements and Planning Instruments Review for Water Quality Improvement

Townsville City Council

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Executive Summary

The Creek to Coral program was formally launched in October 2003 as a combined Townsville and Thuringowa Local Government infrastructure-based initiative to maintain and enhance our healthy waterways in the coastal dry tropics.

Creek to Coral is managing the Townsville Coastal Catchments Initiative (CCI) project, which includes the development of a Water Quality Improvement Plan (WQIP) for the Black and Ross River Basins.

The CCI is a Commonwealth Government funded program aimed at achieving targeted reductions in pollution discharges to coastal water quality 'hot spots'. Hot spots are broadly defined as coastal waters of high conservation value threatened by pollution. The Great Barrier Reef Catchment is considered to be one hot spot.

A requirement of the Creek to Coral CCI WQIP is to review existing legislation and institutional arrangements to identify areas that are relevant to water quality and to suggest amendments that may lead to improved water quality outcomes.

The review involves two principle levels of enquiry:

- State and Commonwealth legislation and institutional arrangements, and
- Planning Instruments specific to the Black/Ross WQIP area (Townsville City Council local government area).

Contents

List of Figures and Tables

Abbreviations
CCI - Coastal Catchments Initiative
C2C - Creek to Coral
WQIP - Water Quality Improvement Plan

1. Introduction

1.1 Background

The Coastal Catchments Initiative (CCI) is a Commonwealth Government funded program aimed at achieving targeted reductions in pollution discharges to coastal water quality 'hot spots'. Hot spots are broadly defined as coastal waters of high conservation value threatened by pollution, and where there is a strong jurisdictional commitment and capacity to improve water quality. The Great Barrier Reef Catchment is considered to be one hot spot.

The CCI supports the development and implementation of Water Quality Improvement Plans in accordance with the Australian Government *Framework for Marine and Estuarine Water Quality Protection* (EA 2002). The Framework is based on the *National Water Quality Management Strategy* (DEW 2007) and the *National Principles for the Provision of Water for Ecosystems* (ARMCANZ and ANZECC 1996); both approved by Australian Government/State Ministerial Councils.

The Creek to Coral program was formally launched in October 2003 as a combined Townsville and Thuringowa Local Government infrastructure-based initiative to maintain and enhance healthy waterways in the coastal dry tropics. The vision of Creek to Coral is to achieve, sustain and promote the benefits of a clean, fresh and marine water ecosystem and to encourage, educate and involve community in integrated waterway management.

Creek to Coral is managing the Townsville CCI project, which includes the development of a Water Quality Improvement Plan (WQIP) for the Black and Ross River Basins, the area covered by the Creek to Coral CCI project (see **Figure 1-1**). Development of the WQIP involves a number of interrelated tasks with the overall development of the plan to be coordinated by Creek to Coral.

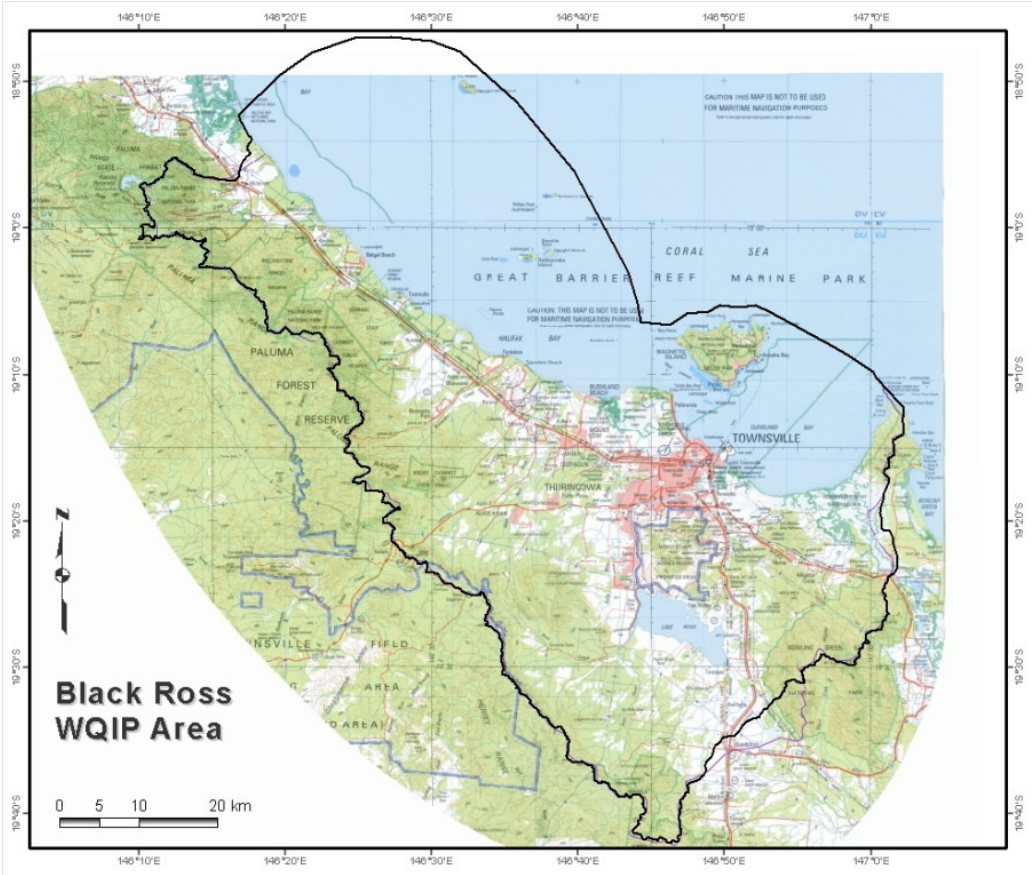

Figure 1-1 Black River and Ross River WQIP study area

1.2 Purpose of this document

The purpose of this document is to review existing legislation and planning instruments to identify areas that are relevant to water quality and to suggest amendments that may lead to improved water quality outcomes. Suggestions are in the context of the Black/Ross WQIP and do not include generic suggestions for amendments to legislation.

The review involves two principle levels of enquiry:

- State and Commonwealth legislation and institutional arrangements, and
- Planning Instruments specific to the Black/Ross WQIP area (Townsville City Council local government area).

An overview of the State and Commonwealth legislation and institutional arrangements has been kindly provided by Olwyn Crimp based on a review of previous work of the Environmental Defenders Office Inc. (EDO) for the SEQ Healthy Waterways Partnership (2007). The content has been modified as appropriate to reflect the situation in the Black/Ross WQIP area (see section 2), and recent amendments to Queensland legislation.

The second part of the enquiry (see section 3) involved the review of the Planning Schemes and Policies of the former Thuringowa and Townsville City Councils. These planning instruments remain operational until such time as a new integrated planning scheme is developed for the post-amalgamation Townsville City Council local government area.

Local level recommendations (see section 3.3) have been made on the basis of the views of the authors and results of a consultation process with Townsville City Council staff members (see Appendix A).

2. State and Commonwealth Level

2.1 Introduction

Achieving water quality improvement in the Great Barrier Reef (GBR) lagoon will require the right mix of institutional arrangements, planning and regulatory frameworks and fostering of innovation and beyond best practice through incentive and assistance measures to industry, particularly agricultural industries. Urban areas are included in the GBR catchment and are already regulated to a greater degree than rural industries. Potential improvements to institutional arrangements and planning and regulatory frameworks are therefore particularly relevant to urban areas.

2.2 Context

In 1975 the Australian Government gazetted the Great Barrier Reef Marine Park under the *Great Barrier Reef Marine Park Act*. In 1979, the Australian and Queensland Governments signed the Emerald Agreement, which provided for both governments to cooperatively manage the waters, reefs and islands of the Great Barrier Reef. In 1982 the Queensland Government enacted the *Queensland Marine Parks Act 1982* to enable complementary zoning of the marine park. Zoning plans for sections of the reef have been gazetted and reviewed by both Governments under their respective legislation. Up until the early 2000s, conservation and management of the GBR centred around managing activities within the Marine Park itself by the Great Barrier Reef Marine Park Authority and the Queensland agency responsible for marine parks, (currently) the Environmental Protection Agency.

Concurrently with the focus on the reef itself, during the 1990s there was an increasing focus within Queensland on conserving Queensland's natural assets, particularly vegetation and biodiversity, water quality, and coastal ecosystems. A suite of legislative reforms were undertaken including:

- *Nature Conservation Act 1992;*
- *Environmental Protection Act 1994;*
- *Fisheries Act 1994;*
- *Land Act 1994;*
- *Coastal Protection and Management Act 1995;*
- *Integrated Planning Act 1997;*
- *Vegetation Management Act 1999;* and
- *Water Act 2000.*

A similar focus from the Australian Government resulted in the *Environmental Protection and Biodiversity Conservation Act 1999.*

Despite the suite of legislative reforms of the 1990s water quality in the inshore waters of the GBR lagoon has continued to decline.

Increasing concern by the Australian Government that run-off of pollutants, particularly sediments and nutrients, principally from coastal development and agriculture were significantly impacting the Great Barrier Reef led initially to the development of the Reef Water Quality Protection Plan (Reef Plan) which was approved by both Governments in 2003.

Agriculture is by far the greatest contributor of water-borne pollutants entering the GBR lagoon. Other sources include urban coastal development, mining and other industries (Vandergragt et al. 2008). Discharge of sewage comprises around 3% of total nutrient, although it is obviously significantly higher in the source catchments. Currently the annual input of sediment discharge from GBR catchments is 4 times the pre-European levels (Vandergragt et al. 2008).

An effective policy, planning, regulatory and institutional framework is needed to reduce diffuse agricultural and urban diffuse and point source run-off into the GBR lagoon to a level than does not:

- Negatively impact on the health of the reef;
- That gets the "best bang for the buck"; and
- Is manageable by landholders particularly farmers and graziers, and local government.

This section examines the existing policy, planning and legislative framework, its strengths and weaknesses and makes recommendations for improvement. Along with the overall rural diffuse water quality issues this section also addresses the urban diffuse and point source issues.

2.3 Policy, Planning and Legislative Framework

In Queensland, a policy and planning framework underpinned by legislation is used to control water-borne point-source pollutants and urban diffuse-source pollutants; but focuses on using education, capacity building, industry codes of practice and incentive mechanisms to reduce agricultural diffuse source pollutants.

Urban development is controlled under a suite of Queensland legislation under the umbrella of the *Integrated Planning Act 1997* (IP Act). Pollutant discharges from some intensive agricultural industries are regulated e.g. piggeries and feedlots, however most run-off from agricultural enterprises is unregulated as general agricultural activities are not assessable development under that IP Act.

In terms of protecting water quality in the GBR lagoon from run-off from the mainland catchments, the key legislative instruments are the IP Act, the *Environmental Protection Act* (EP Act), the *Coastal Protection and Management Act* (Coast Act) and the *Water Act 2000*. These four acts use both planning and assessment mechanisms.

The other legislative instruments referred to earlier also contribute to the management of catchment water quality through regulation of vegetation clearing, removal of marine plants, works in tidal wetlands, and the management of leasehold land. The *Vegetation Management Act* (VM Act) however has limited applicability to the urban area, as clearing for urban purposes is not regulated to anywhere near the same extent as for rural areas.

In addition to the general State legislation the *Local Government Act 1993* (LG Act) provides local government with the head of power to prepare local laws autonomously, in addition to State legislation. Local laws have been made to do such things as protect vegetation in the urban context.

Planning that deals with the quantity and quality of water, which ultimately enters the GBR lagoon, takes a number of forms:

- Statutory – focusing on managing growth and development including:
    - Regional plans, state planning policies and planning schemes under IP Act;
    - State and regional coastal management plans under the Coastal Act;
    - Local government urban stormwater, sewage and trade waste management plans under the EP Act and EP (Water) Policy;
    - Water resource plans, resource operations plans, and land and water management plans (for irrigation areas) under the *Water Act 2000*;
    - Property vegetation management plans and regional vegetation management codes under the *Vegetation Management Act 1999*;
    - Marine park zoning plans under the *Great Barrier Reef Marine Park Act 1975* and Queensland *Marine Parks Act 2004*; and
    - The *State Rural Leasehold Land Strategy (Delbessie Agreement)* under the *Land Act 1994*.
- Non-statutory – strategic such as:
    - The *National Water Quality Management Strategy* (NWQMS),
    - *Wetlands Policy for the Commonwealth of Australia 1997*,
    - *Strategy for the Conservation and Management of Queensland's Wetlands*.

- Non-statutory – action and target based such as regional natural resource management (NRM) plans and Reef Plan; and
- Standards and guidelines such as the Australian Water Quality guidelines as part of the NWQMS, and the Queensland Water Quality Guidelines (which are given statutory effect under the EP Act).

The main legislation associated with water quality is discussed below followed by the main non-statutory arrangements.

2.4 Integrated Planning Act 1997

The key legislative instrument for managing development in Queensland is the IP Act. The objective of the IP Act is to seek to achieve ecological sustainability through:

- Coordinating and integrating planning at the local, regional, and state levels;
- Managing the process by which development occurs; and
- Managing the effects of development on the environment.

The IP Act provides for the development of State Planning Policies, regional plans and local planning schemes, and the assessment of certain types of development against these plans. Amendments to the IP Act in 2007 allow for new and amended regional plans to be statutory.

The Townsville-Thuringowa Strategy Plan was released in 2000 and because of an expected increase in population of 56,000 by 2026 was updated in 2007. This was done before the amendments to the IP Act to allow regional plans to be statutory. Thus it is non-statutory and acts as a guide to managing development for the Townsville City Council local government area (which now includes the former Thuringowa City Council local government area).

2.5 Environmental Protection Act 1994

"*The object of the EP Act is to protect Queensland's environment while allowing for development that improves total quality of life both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development). Mechanisms used to achieve the objective of the Act include State of the Environment Reporting, Environmental Protection Policies (EPPs) to enhance or protect Queensland's environment, the use of environmental authorities ('licences) or a development approval under the Integrated Planning Act 1997 (Qld) ("IP Act") to control certain environmentally relevant activities (ERAs), the creation of environmental evaluations and environmental offences, and the ability to make environmental protection orders and to require development of environmental management programs."* (Environmental Defenders Organisation 2007).

With respect to managing contaminants released to waterways, there are several ways the EP Act and its Regulations operate including:

- Through 22 defined environmentally relevant activities (ERAs) which require licences directly under the Act and via development approvals under IP Act;
- The Environmental Protection (Water) Policy 1997 (EPP (Water)); and
- The Environmental Duty of Care provisions.

When considering an ERA application, the relevant authority must consider the provisions of the EPP (Water). With respect to managing land-based run-off of pollutants to waterways, the EPP (Water) has some key provisions, in particular:

- Consider any Environmental Values (EVs) and Water Quality Objectives (WQOs) and the Queensland Water Quality Guidelines; and
- Ensure that the stormwater management is adequate to minimise environmental harm to waterways.

The EPP (Water) also requires local governments to prepare plans for managing urban stormwater, sewage and trade waste. Urban stormwater is further controlled through it being an offence under the EPP (Water) to allow any contaminant (e.g. soil, oils, cements) to runoff into roadside gutters or stormwater drains. The EP Act and EPP (Water) are particularly relevant to the urban environment and local government.

The general environmental duty of care states that, *"a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm*".

Because very few agricultural activities are ERAs, it is the general environmental duty of care that has application to diffuse source run-off into waterways. Meeting the provisions of an approved code of practice is one way of complying. Codes of practice have been approved for agriculture, sugar cane production, dairy farming, and fruit and vegetable production.

The EP Act could regulate contaminants/pollutants entering waterways from agricultural activities through section 442 of the EP Act. Under this section it is an offence to release a prescribed contaminant into the environment. This section has not been operationalised, as 'prescribed contaminant' is defined to mean a contaminant prescribed by an EPP for this section, and there does not appear to be any contaminants so prescribed as yet. There is also the potential to regulate some impacts through ERA 38 – land clearing but this ERA is not operational.

On 1 January 2009, the new *Environmental Protection Regulation 2008* commenced and changes the way some environmental matters are managed in Queensland.

The new approach is based on evidence and the potential to cause environmental harm. The objective of the new Regulation is to protect Queensland's unique environment from point source pollution while allowing ecologically sustainable development.

The new Regulation includes an updated list of environmentally relevant activities (ERAs) that will require regulation; and broader responsibility for local government, who will now manage matters related to environmental nuisance (from both commercial and residential) and minor water pollution. (Source:http://www.epa.qld.gov.au/about_the_epa/legislation/environmental_protection/environmental_protection_regulation_2008/)

One of the changes that will potentially impact the delivery of the Black/Ross WQIP relates to penalties for offences relating to water contamination, which have been increased under section 440ZG (chapter 8, part 3C) of the *Environmental Protection Act 1994*. The water contamination offences have been moved from the *Environmental Protection (Water) Policy 1997* to the *Environmental Protection Act 1994* so that penalties of greater than 20 penalty units can be imposed for their contravention.

Schedule 9 of the Regulations provides a list of substances prescribed as water contaminants for the purposes of chapter 8, part 3C of the *Environmental Protection Act 1994* (Offences relating to water contamination), in particular sections 440ZF (Prescribed water contaminants) and 440ZG (Depositing prescribed water contaminants in waters and related matters). Local governments have been devolved responsibility for the administration and enforcement of provisions in part 3C of the *Environmental Protection Act 1994*.

Further enquiry is needed to understand the full ramifications of the changes however it is likely that additional Council staff will be required and/or existing staff will need training to undertake their new responsibilities effectively. The Regulations are 209 pages with explanatory notes being 113 pages.

2.6 Coastal Protection and Management Act 1995

In 2001, the State Government released the State Coastal Management Plan – State Coastal Policy. This plan is a statutory and operates under both the *Coastal Protection and Management Act 1995* (Coastal Act) and as a State Planning Policy under IPA. All local governments that fall within the

coastal zone need to ensure that their planning schemes reflect the principles and policies of the State Coastal Management Plan and any regional coastal management plans.

The State Coastal Management Plan has principles and policies on coastal use and development that have the potential to impact on run-off water quality as well as specifically for water quality, including wastewater discharges, waste-disposal facilities, stormwater management, groundwater quality and acid sulphate soils.

The State Coastal Management Plan is currently being reviewed and there is an intention to remove the principles and policies dealing with water quality. It is understood that these provisions will form part of a State Planning Policy for Water (under the IPA) that is currently being prepared. (John Lane, EPA pers. comm.).

As part of the review process for the State Coastal Plan, in 2007 a review was undertaken of its implementation. The review report has not yet been released. Currently only seven of the coastal local government planning schemes have been endorsed as incorporating the policies and principles of the State Coastal Plan and relevant regional Coastal Management Plans.

Within the GBR catchment, these include the planning schemes for Broadsound, Bowen and Hinchinbrook Shire Councils and Rockhampton and Gladstone City Councils. In 2008, the EPA released "*State and Regional Coastal Management Plans Queensland's Coastal Policy Implementation Guideline for Planning Schemes*" to assist local governments in interpreting and implementing the State and Regional Coastal Plans through planning schemes.

The Black/Ross WQIP area is part of the Dry Tropical Coast Regional Coastal Management Plan (DTCRCMP) area, which covers the coastline from Crystal Creek to Eden Lassie Creek (southern boundary of former Bowen Shire). The preparation of the DTCRCMP was announced in 2006 with a range of preliminary work carried out before work was suspended pending the review of the State Coastal Plan. The finalisation of a Coastal Management District for the Dry Tropical Coast will continue.

2.7 Water Act 2000

One of the main objectives of the Act is to provide a legislative base for water resource plans. Water resource plans (WRPs) have been prepared for some parts of Queensland in an attempt to ensure the sustainable use of the state's water resources. WRPs specify allowable water allocations in a designated area, and generally include conditions relating to environment flow water.

With some exceptions approval is required for taking water, or interfering with water flows. Approvals come in the form of water licenses (s 206) and water permits (s 237). If a water resource plan is in place then decisions on the grant of a license or permit must be in accord with the plan. The most significant difference between the license and permit is that a water license is 'attached' to a parcel of land while a water permit is granted for a specified activity not necessarily associated with a particular property e.g. water for road construction works. Water licenses and permits are obtained from the Department of Natural Resources and Water.

The relationship of the Water Act to the IP Act is defined in sections 966 to 971. This generally relates to development applications under the IP Act, which are referred to DERM for assessment. The activities defined by the Water Act that are assessable development are:

- Operational work for taking or interfering with water from;
    - A watercourse, lake or spring, or a dam constructed in watercourse,
    - An artesian bore,
    - A sub-artesian bore in a declared groundwater area other than for stock and/or domestic use,
    - Construction and expansion of referable dams (generally >8 metres),
    - Overland flow.

- Removal of quarry material.

Other approvals required under the act include; riverine protection permits, which can be issued for destroying vegetation, excavating, or placing, fill in a watercourse, lake or spring (s 266), and allocation of quarry material (s 280). Riverine protection permits can be obtained directly from the Department of Natural Resources and Water.

While the Water Act is more a delivery mechanism for the management water allocations it also has the capacity to impact water quality in a [positive way.

The Water Act has a section on declared catchment areas, which states "For preserving the quality of water, a regulation may declare an area to be a catchment area." (s 258, p.212) The following section of the Water Act states that

"(1) The regulation may regulate—
(a) the use of land in the catchment area, or a part of the area, identified in the regulation; and
(b) the construction and use of buildings and structures on the land.
(2) To the extent that a planning scheme under the *Integrated Planning Act 1997* or a local law is inconsistent with the regulation, the planning scheme or local law is ineffective." (s 259, p.).

Schedule 5 of the Regulations lists catchment areas declared under the Water Act. Ross River Dam catchment is not listed.

2.8 Vegetation Management Act 1999

The purpose of the act is aimed at achieving sustainability. The act, in the simplest sense, defines what native vegetation can and cannot be cleared. The Department of Environment and Resource Management (DERM) administer the VM Act.

The act operates in conjunction with the IP Act, which defines the clearing of most native vegetation as 'assessable development' requiring development approval. Exceptions, not requiring development approval, are listed in Schedule 8 of the IP Act.

The Environmental Protection Agency (EPA), through the Queensland Herbarium, has determined the extent of regional ecosystems and their conservation status. The regional ecosystem maps are defined by the VM Act as the principle reference for assessing development applications involving clearing of remnant native vegetation.

In general terms clearing of remnant vegetation will not be allowed:

- In any remnant endangered regional ecosystem;
- In any remnant regional ecosystem to the extent of causing a change to its conservation status;
- Within 25 metres of each bank of a creek or waterway;
- Within 50 metres of significant wetlands, lakes or springs;
- Where clearing may result in mass movement or soil erosion (slopes >8-18%, depending on soil erodibility);
- In areas where salinity or waterlogging is likely to be increased as a result;
- Where acid sulphate soils will be disturbed;
- Where land is not capable of sustainable use.

There are exceptions to the restrictions above including where "the clearing is essential for establishing a necessary fence, road or other built infrastructure and no other suitable alternative site exists".

The VM Act has taken on greater importance in terms of development and water quality since the introduction of the Concurrence Agency Policies and Regional Vegetation Management Codes that are triggered when a development application under the IP Act involves land with remnant vegetation. This

is particularly so for non-urban areas, which includes rural residential and most peri-urban areas. In urban areas the only restriction is on the clearing of 'Endangered' regional ecosystems. Virtually all other clearing, including adjacent to waterways, is allowed under the VM Act in urban areas. Non-urban areas are relatively well regulated in comparison.

On 7 April 2009, the Queensland Government announced a three-month moratorium on clearing high value regrowth vegetation. The moratorium took legal effect on 8 April 2009 under the Vegetation Management (Regrowth Clearing Moratorium) Act 2009 (the Moratorium Act). Under the moratorium all native regrowth vegetation within 50 metres of a watercourse in the priority reef catchments of the Wet Tropics, Burdekin and Mackay/Whitsunday regions and endangered regrowth vegetation in rural areas across the State on freehold and agricultural and grazing State leasehold land is protected for a period of at least three months.

The VM Act also allows for the declaration of areas of high nature conservation value, or areas vulnerable to land degradation. Any proposed declaration must include a proposed code for the clearing of vegetation in the stated area and in preparing the declaration the Minister must consult with each local government whose area is affected by the declaration.

When making a declaration of an area of high nature conservation value the most relevant criteria for water quality protection is if an area contributes to the conservation value of a wetland, lake or spring. Water quality is more relevant for declaration of an area vulnerable to land degradation with criteria being if an area is subject to:

- Soil erosion;
- Rising water tables;
- The expression of salinity, whether inside or outside the area;
- Mass movement by gravity of soil or rock;
- Stream bank instability;
- A process that results in declining water quality.

2.9 Local Government Act 1993

Two of the principle objectives of the Local Government Act 1993 (LG Act) include:

- Providing a legal framework for an effective, efficient and accountable system of local government; and
- Recognising a jurisdiction of local government sufficient to allow a local government to take autonomous responsibility for the good rule and government of its area with a minimum of intervention by the State.

The LG Act provides the head of power for the operation of local government and among other things makes provision for the making of local laws and subordinate local laws (Chapter 12, p.549). "Each local government has jurisdiction (the ***jurisdiction of local government***) to make local laws for, and otherwise ensure, the good rule and government of, its territorial unit" (s 25, p.74).

The LG Act also provides power to local government in relation to levee banks, foreshores and stormwater drainage (Chapter 13) and to levy rates and make charges (Chapter 14).

The LG Act also provided for the establishment and operation of the Townsville–Thuringowa Water Supply Joint Board, which traded as NQ Water prior to the amalgamation of the two City Councils in March 2008.

2.10 Reef Plan

The ReefPlan commenced in 2003 following scientific evidence indicating a decline in water quality on the GBR. It is a 10 year joint Commonwealth and Queensland Government initiative. Its objectives are:

- *"to reduce pollutants such as sediments, nutrients and pesticides entering the GBR lagoon from its catchment; and*

- *To rehabilitate and conserve areas of the reef catchment that have a role in removing waterborne contaminants."* (The State of Queensland and the Commonwealth of Australia, 2003).

ReefPlan addresses land-based sources of diffuse pollutants entering the GBR lagoon. It does not address urban point and non-point source pollutants. ReefPlan contains 65 actions to be implemented by a partnership of all levels of government and key stakeholders such as the 6 natural resource management bodies including Townsville City Council through its Creek to Coral initiative.

One of the actions of ReefPlan is to prepare WQIPs such as this one for the GBR catchments.

ReefPlan is currently in the process of being updated to ensure its focus is on outcomes, with clear strategies and plans for achieving the outcomes underpinned by a monitoring, evaluation and reporting process (State of Queensland, Queensland Department of Premier and Cabinet, 2008).

2.11 Caring for Our Country

"Caring for our Country is the Government's new natural resource management initiative. It is designed as an integrated package with one clear goal, a business approach to investment, clearly articulated outcomes and priorities and improved accountability. It commenced on 1 July 2008 and aims to integrate delivery of the Commonwealth's previous natural resource management programs, the Natural Heritage Trust, the National Action Plan for Salinity and Water Quality, the National Landcare Program, the Environmental Stewardship Program and the Working on Country Indigenous land and environmental program." (Source: http://www.nrm.gov.au/ accessed 20/9/08)

"The goal of Caring for Our Country is to have an environment that is healthy, better-protected, well-managed, resilient, and that provides essential ecosystem services in a changing climate." The 6 national priorities under Caring for Our Country are:

- a national reserve system,
- biodiversity and natural icons,
- coastal environments and critical aquatic habitats,
- sustainable farm practices,
- natural resource management in remote and northern Australia, and
- community skills, knowledge and engagement.
  (Source:http://www.nrm.gov.au/funding/future.html#priorities accessed 20/9/08)

Outcome statements for the 6 priorities were released in September 2008 and a business plan is due by the end of 2008. The business plan will:

- *"Identify outcomes for the first five years of the program against each of the national priority areas for investment;*
- *Outline the first series of short-term (1 to 3 year) targets to achieve these outcomes; and*
- *Invite proposals for activities to deliver investments against these priorities and targets."* (Source: http://www.nrm.gov.au/funding/cfoc-faq.html)

The Caring for Our Country program will invest $200 million over 5 years to deliver the Reef Rescue Plan.

2.12 Reef Rescue

The objective of the Reef Rescue Plan "*is to improve the water quality of the Great Barrier Reef lagoon by increasing the adoption of land management practices that reduce the run-off of nutrients, pesticides and sediments from agricultural land.*" The Plan will see all levels of government, regional NRM bodies, industry groups, Indigenous and conservation groups working in partnership. Reef Rescue has 5 components:

- Water Quality Grants ($146 million over five years)

- Reef Partnerships ($12 million over five years)
- Land and Sea Country Indigenous Partnerships ($10 million over five years)
- Reef Water Quality Research and Development ($10 million over five years)
- Water Quality Monitoring and Reporting, including the publication of an annual Great Barrier Reef Water Quality Report Card ($22 million over five years).

The implementation of the Black/Ross WQIP will be part of the Reef Rescue Business Plan, however there appears to be no provision for urban based WQIP funding.

2.13 Burdekin Dry Tropics Regional NRM Plan

The Burdekin Dry Tropics Regional NRM Plan became operation in 2005 after an extensive period of preparation. BDT NRM has indicated that the Black/Ross WQIP will be incorporated into the next iteration of the BDT NRM Plan as appropriate. Under Caring for Our Country (CfOC) regional NRM plans have become less important at the national level with funding proposals to reference the CfOC Business Plan rather than regional plans. It is assumed that the regional plan will retain its significance at the local/regional level and continue to guide priority NRM actions within the new CfOC framework.

2.14 Funding

Funding needs to be considered because it determines what is achieved from any policy, planning and regulatory framework and in the case of improving water quality to the GBR is complex and changing.

Up until 30 June 2008, funding from the Commonwealth and State came via two bilateral agreements for the Natural Heritage Trust Extension and the National Action Plan for Salinity and Water Quality and the National Landcare Program. It was delivered via a range of national, state and regional programs including the Coastal Catchments Initiative (which funded this WQIP), the Wetlands Program, State Investment Projects (particularly those for agriculture and water quality), cross-regional projects and the 6 regional NRM bodies' investment strategies. State funding was provided through the bilateral via a mix of cash and in-kind. Integration of funding programs was largely achieved regional NRM bodies via their 3 year regional NRM plans and regional investment strategies (RIS) such as the BDT NRM RIS which had to have Australian and State Government Ministerial approval. The Australian and Queensland Governments' Joint Steering Committee was responsible for ensuring that plans and investment strategies reflected National and State priorities; that delivery met the agreed outputs and milestones and that regional NRM bodies had appropriate levels of governance.

Local governments and industry, including individual landholders also provided considerable funding directed to improving water quality.

With the election of the Rudd Government in late 2007, the Australian Government's Caring for Our Country Program (which includes the $200 million Reef Rescue Plan) has replaced the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality. Currently the Australian and Queensland Government are negotiating a bilateral arrangement for the delivery of environmental and natural resource management in Queensland.

Caring for Our Country delivery mechanisms include a much higher proportion of contestable/ competitive funding, as outlined in the CfOC Business Plan 2009-10.

2008-09 is a transition year with regional NRM bodies being provided baseline and hardship funding; one-off open grants for general NRM focusing on the 6 priorities as well as specific one-off open grants for landcare; community coastcare, national reserve system and threatened species. Reef Rescue is also a separate funding program.

As yet the Caring for Our Country program does not include clear mechanisms for linking regional NRM plans and investment strategies to the national outcomes and priorities. Thus it is unclear how integration of the various components of Caring for Our Country will occur to ensure that all the various

buckets of funding from all levels of government will be coordinated to ensure that it is used to best effect.

2.15 Institutional Arrangements

Policy development, planning and regulatory responsibilities for improving GBR water quality are currently spread across the three layers of government. Within the Australian and State governments, responsibilities are spread across different ministerial portfolios (and thus agencies). Local governments in Queensland do not follow catchment boundaries and thus a range of local governments are involved. This has improved somewhat with the amalgamation of local governments in 2007-08. In the case of non-statutory planning, the Burdekin Dry Tropics NRM body is also involved through the development of regional natural resource management plans and a water quality improvement plan.

The governance arrangements established under Reef Plan have been an attempt to coordinate how rural land use is managed to reduce diffuse source pollutants. The Reef Plan committees attempt to ensure that all the government agencies, regional NRM bodies, research and industry bodies activities are coordinated and working effectively to achieve the activities and targets in Reef Plan.

Figure 1 maps the current institutional arrangements with respect to reducing rural diffuse pollutants impacting water quality in the GBR.

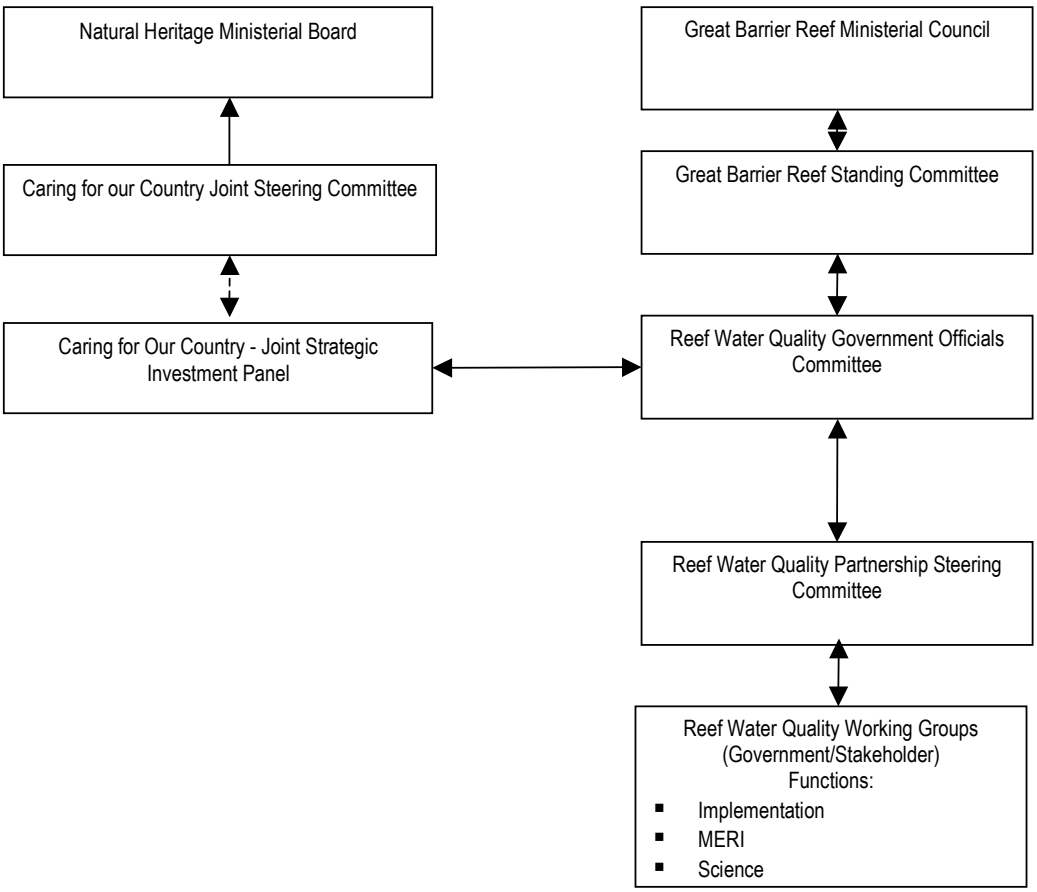

Figure 1: ReefPlan Governance Arrangements (from State of Queensland - Queensland Department of Premier and Cabinet 2008)

2.16 Adequacy of the Policy, Planning and Regulatory and Institutional Framework

Given that water quality in the GBR lagoon is still declining, the adequacy of the existing policy, planning, regulatory and institutional framework needs to be considered in relation to how it manages pollutants entering the reef particularly diffuse runoff from agriculture in the catchments.

There are numerous statutory and non-statutory plans, 9 pieces of legislation and at least 15 Commonwealth and State agencies and local governments involved in managing the activities that can impact on the water quality in the GBR lagoon. Only the Reef Plan through its committee structures tries to ensure that everyone is "singing from the same hymn sheet" and Reef Plan only does this for rural diffuse source pollutants. It could be argued that Reef Plan should be expanded to include all land-based sources of pollutants entering the GBR.

The complexity of the planning and regulatory framework and the large number of agencies and local governments involved creates confusion for landholders and the community as well as staff working in government agencies and regional NRM bodies (EDO, 2007; Drewry et al, 2008).

Having multiple agencies responsible for water produces sub-optimal outcomes. This is particularly apparent in the administration of the *Water Act 2000* and the EP Act by two separate agencies, the former of which sees itself largely dealing with water quantity and the latter with water quality. Additionally works in waterways are dealt with by the Water Act for freshwater areas and the EP Act for estuaries i.e. tidal waters.

Water Resource Plans made under the *Water Act 2000* should be considering fully the need for water for the environment both in quantity and quality. The *Water Act 2000* allows for the sustainable management of water with 'sustainable' defined to include "*protect the biological diversity and health of ecosystems"* and to contribute to *"maintaining or improving the quality of naturally occurring water…"* and *"protecting water, watercourses, lakes, springs, aquifers, natural ecosystems … from degradation and, if practicable, reversing degradation that has occurred."* Despite the wording of the *Water Act 2000,* water resource plans prepared under it for coastal catchments have generally only dealt with flow. The EDO (2007) report that scientists are frustrated that in Technical Advisory Panel reports used in the development of water resource plans they are restricted to reporting only on flows. These plans should in the future fully integrate the environmental values and water quality objectives developed for the WQIP. A Water Resource Plan has not been prepared for the Black and Ross River Basins, so the opportunity still exists to incorporate environmental values and water quality objectives determined as part of the Black/Ross WQIP preparation.

The current policy, planning and regulatory framework is inadequate to deal with diffuse source pollution generally coming from agriculture. It cannot be adequately addressed in the IPA planning framework including the coastal plans and is generally not regulated under existing legislation. The current approach is one of providing incentives to landholders to improve their management practices in line with Reef Plan, the regional NRM plans, this and other WQIPs and Reef Rescue. It uses the ABCD framework proposed initially in the Mackay Whitsunday WQIP (Drewry et al., 2008) and Reef Rescue to classify landholder management practices into 4 categories with A being cutting edge and D being below acceptable.

The State of Environment Queensland 2007 (SOE) report points to shortcomings in the EP Act in dealing with diffuse source pollutants and cumulative impacts because most activities are not ERAs and because of a lack of scientific data (State of Queensland 2008). The SOE report also states that the EPPs should be reviewed to align with the current planning and natural resource legislative framework and that ERAs and licensing arrangements should be amended as scientific data becomes available. The EPPs are currently being reviewed by the EPA.

Should regulation be considered, it should be targeted at landholders in the D category in industries that contribute the greatest loads. It could be implemented through amending the EP Act to include codes of compliance, which meet the minimum Duty of Care under the EP Act. Before any legislative change occurs however, a regulatory impact statement should be undertaken to consider the

economic and social costs on landholders of complying and the full costs of administration. Most of the legislation developed during the 1990s had no or limited regulatory impact statements.

Overall however, the planning and regulatory framework is largely adequate to manage urban run-off from both point and non-point sources and a limited range of rural point source run-off where the activities being undertaken are declared ERAs. In saying that, there are improvements that need to be made to the management of urban run-off relating to making full use of existing legislation, and improving compliance and enforcement.

Under both the EP Act and the State and Regional coastal management plans, local governments are required to have sewage and stormwater management plans. Fifteen years after the EP Act commenced and 8 years after the State Coastal Plan was approved, many coastal local governments do not have these plans and those that do are not "approved" by the EPA. Under the State Coastal Plan, where nutrients have been identified as a problem, sewage treatment works discharging effluent from the mainland were to be designed and managed by 2010 to enable appropriate nutrient removal. While many local governments have improved their management of sewage, stormwater and waste, many still fall short.

Similarly despite the State Coastal Plan having been in force for 8 years, only 5 coastal local governments have conforming planning schemes. This indicates a failure to implement the State and regional coastal plans which should be rectified. Under the Coastal Act, regional coastal management plans are to be prepared for the whole of the Queensland coast. Priority was to be given to GBR regions. Three were finalised in 2003 and since then, there have been no new regional coastal management plans completed and only one draft released (for the Mackay Whitsunday Regional Coastal Management Plan).

The EDO (2007) report points to a number of tools available under existing legislation that could contribute to protecting ecosystems and water quality including:

- Declared catchment areas and water use plans under the *Water Act 2000*; and
- Declaration of high nature conservation value areas to protect riparian vegetation under the *Vegetation Management Act 1999*.

The existing regulatory framework could be improved by more attention being given to compliance and enforcement. The EDO (2007) report is critical of the compliance and enforcement being undertaken of both the EP Act and the Water Act 2007 and put this down to:

- Organisational culture (particularly within the Department of Natural Resources and Water);
- A lack of funding; and
- Loss of technical expertise.

The development of environmental and natural resource regulation in Queensland and across Australia has been developed by different agencies each operating largely in isolation (silos) and each with specific policy agendas. Martin et al. (2007) proposes a number of reforms to Australian environmental laws aimed at delivering the following efficiency goals:

- Effectiveness in changing behaviour;
- Minimising transaction costs to those being regulated;
- Least possible cost to government; and
- Equitable allocation of resources.

The reforms Martin et al. (2007) propose include:

- Reducing the number of environmental laws;
- Using systems-focused multi-instrument strategies to create 'smart' regulation;

- Feasible strategies within available resources and capacity of governments;
- Implementing a principled approach to fairly allocating costs and benefits.

Given that the planning and regulatory framework in Queensland consists of 8 legislative instruments created between 8 and 16 years ago, it could be argued that it is time for a major review of all the existing environmental laws in line with the reforms Martin et al. (2007) proposes.

3. Local Level

3.1 Introduction

This section summarises the review of Townsville and Thuringowa City Planning Schemes and Policies to identify potential options to support the Water Quality Improvement Plan (WQIP) for the Black and Ross River Basins in the Townsville City Council local government area.

Two meetings were held with Townsville City Council (TCC) staff in December 2008 and January 2009 to discuss and identify the existing key planning schemes and policy sections applicable to improving water quality conditions and recommendations for improvement. Several staff provided written comments for water quality improvement. Also identified were areas where planning schemes, regulations, guidelines and policies contradict each other, and where positive linkages are possible.

The tables (see Appendix A) prepared as part of the review:

- Identify existing measures in the Planning Schemes and Policies for water quality improvement,
- List key planning scheme and policy sections where significant impacts can be made, and
- Provide general recommendations to improve water quality conditions.

These key planning schemes and policy sections were also ranked (high, medium, low) for their potential significance in improving water quality. The summary results of the review are presented below.

3.2 Discussion

There are presently numerous water quality measures imbedded in the Townsville and Thuringowa planning schemes and policies that are related to improving water quality conditions. Based on practical consideration of available Council staff resources and funding, the key areas of planning schemes and policies where significant improvement in water quality can be made include the following precinct assessment criteria, overlays, codes and policies shown in Table 3-1 and Table 3-2.

Table 3-1 Former Townsville City Planning Instrument Key Areas

Precincts Assessment Criteria, Plan Overlays and Codes	Policies
Waterways and Wetlands Overlay and Code	Soil Erosion and Sediment Control
Steep or Unstable Land Code	Environmental Impact Assessment and Management
Biodiversity Overlay and Code	
Water Resources Catchment Overlay and Code	Compliance Monitoring
Acid Sulphate Soils Overlay and Code	
Rural and Community and Government Precincts	
Material Change of Use (in non-infill areas)	

Table 3-2 Former Thuringowa City Planning Instrument Key Areas

Precincts Assessment Criteria, Plan Overlays and Codes	Policies
Rural Planning Area	Sustainable Development Policy Riverway
Acid Sulphate Soils	Ross River Dam and Haughton River Catchment
Filling and Excavation	Compliance Monitoring
Material Change of Use (in non-infill areas)	Infrastructure and Control Stormwater and Transport Steep or Unstable Land

There are several Townsville and Thuringowa Planning Policies that impact water quality not listed in the summary tables above which are addressed in the listed planning codes and overlays. The Policies are described in detail in the tables in Appendix A. A general discussion including limitations and areas of improvement in relation to bother former Council Planning Schemes and Policies is provided below.

3.3 Former Townsville City

Planning Scheme

Development Assessment tables, as per standard guidelines in the *Integrated Planning Act 1997*, generally require more detailed assessment for more intensive land use activities. This assessment system provides some support for maintaining water quality, however more stringent requirements may be necessary for non-infill and steep gradient areas where soil disturbance is greater. The higher risk areas need to be reviewed with the objective of determining the appropriate level of assessment for deemed higher risk areas where they are currently not adequately regulated.

Development creates substantially more sediment runoff in less developed areas such as rural and greenfield sites, and on steep infill sites. This issue has not been adequately addressed in the Townsville City Plan (and Policies).

One option is to create an overlay that indicates areas of high, medium and low sensitivity for soil erosion. All development applications should be subject to this soil erosion sensitivity overlay. This overlay may be able to be incorporated into the Steep or Unstable Land Code, rather than creating a 'new' code.

The Steep or Unstable Land Code seeks to avoid risks to environmental values, ensure development is carried out with best management practices, and verifies that stormwater and wastewater is managed in an ecologically sustainable manner. This is to be achieved in developments by providing for natural drainage patterns, protecting water quality, avoiding land slips and subsistence, and minimising erosion potential.

It appears, however, that some codes e.g. Steep or Unstable Land Code, are not consistently applied or enforced. The intent of these codes to improve water quality conditions seems adequate, but often do not list specific/overall water quality outcomes or benchmarks to assist Council staff involved in the development assessment process. Development of more specific outcomes and benchmarks would assist with interpretation and application of planning codes seeking to protect water quality.

There are some apparent contradictions between Planning Scheme codes and, in some instances; codes are not supported by other relevant legislation. For example, there is some ambiguity between the Biodiversity Code and other codes in the Townsville Planning Scheme. This needs to be investigated in more detail and in this respect Integrated Sustainability Services is reviewing this code in conjunction with staff from Planning and Development. The Vegetation Management Act provides virtually no restrictions on clearing in urban areas, which renders the Biodiversity Code less effective when associated conditions are disputed by developers.

One of the directly applicable water quality protection measures is the Acid Sulphate Soils (ASS) Overlay and Code. If triggered by the ASS overlay (map), the code requires that developers provide an ASS study and management plan as part of the development application, in line with the State Planning Policy for ASS.

An acid sulphate course should be offered for Council staff including the Development Assessment Section and for local developers. Also, Council development review procedures should require applicants to provide acid sulphate soils tests before approval. This could reduce and/or prevent acid sulphate release, which is particularly important for major excavation projects such as underground car parks.

For the Water Resource Catchment and Waterways & Wetlands overlays, develop a map and evaluation system that assigns environmental values to different land areas and uses based on the amount of sediment run-off. This system would also place values on ecosystem services i.e. how much sediment run-off can be reduced through a specific measure or treatment. In addition, anti-sedimentation measures and treatments would be assigned a cost amount. Through this system of

targeting specific locations and uses with cost effective sediment reducing treatments, the City can achieve the 'most bang for the buck'.

The Water Resources Catchment Overlay and Code, and the Waterways and Wetlands Overlay and Code, are to be updated and are awaiting new aerial photography images to assist with the process. Amongst other things these improvements to mapping will help identify environmentally sensitive lands and appropriate buffer zone locations. The Local Government Association of Queensland (LGAQ) has issued a draft code on buffer zones, which may be useful. Probable Solutions (PS) have not been developed for this planning code. These need to be researched and local waterways also need to be prioritised.

In the Rural and Community Government precincts, where livestock grazing is permitted, grazing is presently categorised as exempt from development assessment in these two precincts. Grazing can result in increased sediment in stormwater run-off.

While not a popular option the possibility of stricter guidelines for livestock grazing and intensive agriculture in rural areas should be considered in priority areas for water quality protection i.e. riparian zones (proximity to waterways), wetlands, steep slopes and unstable soils. Development applications could be re-categorised as Assessable to encourage better land management practices in line with the appropriate Codes. This could be reinforced in the Policies section by adding language to limit the intensity of livestock, through grazing ratios (max head per hectare), and to restrict grazing near waterways.

Feasibility and safety should also be factored into any planning codes to improve water quality conditions.

Policies

The Soil Erosion and Sediment Control Policy should be reviewed in its entirety to reflect current operational works involving the disturbance of land, and the erosion and sediment control plan (ESCP) requirements. Maintenance is essential for any stormwater or soil erosion management devices and should be reflected in the policy and planning codes.

Council also requires that an Erosion and Sediment Control Plan (ESCP) accompany any application for the approval of operational works involving a disturbance of land. Council conducts an Erosion and Sediment Control training course principally for Council staff, consultants and the development/construction industry. Successful completion of the course is equivalent to being accredited as a competent ESCP provider for Council development application purposes.

From 1 January 2009, Council becomes the principle compliance body for water quality matters such as erosion and sediment control under new regulations associated with the *Environmental Protection Act 1994*. The future level of success of the City's on-the-ground compliance enforcement will be key to water quality improvement.

The circumstances in which an environmental impact assessment study or environmental management plan (EIS/EMP) may be requested includes a material change of use (MCU) or reconfiguring a lot (RaL) for residential purposes. Information requirements for an EIA may relate to buffers, stormwater management and water quality.

The Environmental Impact Assessment and Management policy is useful but doesn't always get enforced as Planners don't always understand the policy. Therefore, the policy needs to be reviewed and reworded for more effective implementation. The creation of risk assessment categories and criteria should be researched as well as categories for construction phases including pre-construction, construction and post construction.

A separate section should be created for stormwater quality management in the City Policies with requirements for a stormwater quality management plan (SQMP) in the supporting information section.

The planning codes could then reflect these policies and show linkages to other policies and parts of the planning scheme.

Other matters
State Policy indicates that Councils cannot use funds collected for most infrastructure for non-infrastructure actions such as water quality studies. However, stormwater drainage headwork charges may be used for water quality measures as in the Thuringowa Policy. This should be further investigated for application in Townsville.

The 2006 Stormwater Quality Management Framework under the Public Open Space Policy should be implemented.

An integrated unit with a purpose designed management system should undertake management of open space areas.

Incorporated into the various tasks and on-going activities managed under the Creek to Coral initiative, should be a review of sediment control best practices for other regions such as SE Queensland and South Australia. This process could be complimented by inviting qualified leading experts to Townsville to provide short informational sessions.

3.4 Former Thuringowa City

Planning Scheme
The Development Assessment tables effectively provide some regulation of water quality. However, the situation is the same as for Townsville in that stricter measures should be adopted for non-infill and steep slope areas where construction typically results in more erosion and soil in run-off. Stricter guidelines should also be considered for livestock grazing and agriculture in rural areas as for Townsville.

The Thuringowa Planning Scheme has some similarities to the Townsville Planning Scheme with one of the most relevant water quality protection measures incorporated in the Acid Sulphate Soils Overlay and Code.

The Steep or Unstable Land Code has performance criteria for building works, design and construction, cut and fill work and access, with acceptable (pass) or non-acceptable (fail) solutions. Some performance criteria for filling and excavation are sufficient in areas that do not impact adjoining land, or natural areas by contamination, flooding or stormwater. However, performance criteria for this code should be added to specifically address water quality issues.

The issue of erosion and sediment runoff in development areas should be addressed in the same manner as per the suggested overlay for the City of Townsville.

It is considered that the following codes are in need of Performance Criteria (PC) regarding water quality: Landscaping, Filling and Excavation and Transport. Currently, water quality is not specifically addressed. Acceptable Solutions (AS) and incentives also need to be developed and added.

The Planning Scheme and Policy should be changed and added to restrict livestock grazing and agriculture in intensity and location. Maximum livestock ratios should be adopted (see City of Townsville recommendations above). Applications for livestock grazing should be categorised as Assessable (not as Exempt).

Policies
In the Thuringowa Sustainable Development Policy for Riverway, water sensitive urban design principals include preventing pollutants from entering the river and concentrating stormwater and detaining it on site for as long as possible to prevent erosion and settle sediment. Good practical measures and implementation strategies are listed to control erosion to waterways. Work is to be carried out to avoid erosion, contamination and sedimentation to the site, surrounding areas and

drainage systems. All control measures limit the amount of site disturbance to control runoff and prevent increased movement of sediment into waterways. These measures include temporary drains, catch drains and/or dispersal of concentrated water flows. Water management includes landscape initiatives to capture overland flows and prevention of stormwater to the river system.

The Ross River and Haughton River Catchment Policy supports the rural planning code and ensures development within surface and groundwater catchment areas in the Ross River Dam and Haughton River Catchments does not detrimentally impact the water quality of water supply storages. A list of risks to water quality provides useful information that may also be able to be applied to urban areas in some situations. Rural lot size performance criteria do not allow development to detrimentally impact storages for water supply by taking into account water-cycle management. There are also stormwater management standards suggesting probable solutions including uses located, designed and operated to minimize sediments, pathogens or nutrient contamination to downstream waters, so the environmental values of ground and surface waters for ecosystem health and consumption are not degraded. As well, there are probable solutions for activities resulting in the disturbance of earth, to prevent erosion and sediment outflow from a site.

The Natural Areas Policy needs additional information or examples of properly managed activities to ensure soils are managed in accordance with EP Act and development is ecologically sustainable.

The 2008 Thuringowa Policy for Infrastructure Contributions from Stormwater and Transport Infrastructure calculated infrastructure contributions to be paid to Council as a consequence of development approval. The scope covers all trunk infrastructure for stormwater and transport. Appendices to this Policy discussed planning for water quality and quantity as part of the infrastructure charge schedules, to be introduced under the Integrated Planning Act.

Other matters
Flood mapping needs to be reviewed.

4. Conclusions

4.1 Queensland Legislation-p098764321

There are a number of areas at the state level where water quality improvement measures could be realised. Areas of potential application of State legislation at the local and regional level are listed in Table 4-1.

Table 4-1 Queensland Legislation Application

Legislation	Application
Integrated Planning Act 1997	• Preparation of a Regional Plan for Townsville, which includes waterway and wetland priority conservation areas, biodiversity corridors and catchment management principles with associated measures for water quality protection. • Greater integration of State Planning Policies in the new Planning Scheme.
Environmental Protection Act 1994	• Development of an effective Urban Stormwater Quality Management Plan, and associated plans. • Greater surveillance of ERAs and monitoring of licence conditions. • Stricter enforcement of breaches of Duty of Care in regard to water quality, particularly in relation to development sites.
Coastal Protection and Management Act 1995	• Active involvement in the development of the Dry Tropical Coast Regional Coastal Management Plan. • Incorporation of water quality protection measures in the new Planning Scheme for the Coastal Management District.
Water Act 2000	• Restriction of water extraction to sustainable levels for all surface (environmental flow) and groundwater entitlements. • Declare the upper Ross River as a catchment area.
Vegetation Management Act 1999	• Declare any areas that are vulnerable to land degradation.
Local Government Act 1994	• Prepare Local Laws to reinforce the strength of measures that are ambiguous in the Planning Schemes, and to enable protection of critical areas outside the development framework e.g. vegetation management in urban areas.

4.2 Local Planning Instruments Recommendations

A single plan and policies for the new Townsville City Council local government area will be developed as part of the post amalgamation requirements in Queensland. The integrated single plan and policy could either adopt the prescriptive Townsville approach, or the broader Thuringowa outcomes approach. Both approaches have benefits. In reality the updated plan and policies will be guided by the framework provided by the Queensland Department of Infrastructure and Planning (DIP).

Discussion and suggested measures for water quality improvement for the Townsville and Thuringowa planning codes and policies, including, comments from the consultation process, are included in Tables 1 and 2 in Appendix A.

Recommendations relevant to the former Townsville and Thuringowa City Planning Schemes and Policies are provided below. It is considered that these recommendations, if incorporated into the preparation of the new planning scheme and policies will contribute to improved water quality outcomes for Townsville City. Any amendments that can be implemented in the interim will also contribute to water quality outcomes.

Table 4-2 Local Planning Instruments Recommendations

Planning Instruments and recommendations	LG
Planning Schemes - Development Assessment	Both
• More stringent requirements for development on steep gradients and especially high	

erosion risk areas (see Steep or Unstable Land Code). • Incorporate various improvements to Overlays, Codes and Policies.	
Waterways and Wetlands Overlay and Code	TCC
• Update mapping and overlay to identify environmentally sensitive and risk areas. • Develop a system to determine appropriate buffer zone widths for waterways and wetlands to protect water quality as part of the development assessment process. • Include water quality environmental values and water quality objectives (WQO) in the development assessment approval process. • Define acceptable stormwater quality parameters for all new development and link the achievement of WQOs to implementation of Water Sensitive Urban Design (WSUD) measures. • Consider flooding as a component of waterways and wetlands. • Guidelines and training for development assessment staff. • Consistent application and enforcement.	
Steep or Unstable Land Code	Both
• Develop an overlay showing areas of high, medium and low sensitivity/risk for soil erosion. • Development of more specific outcomes and benchmarks. • Develop performance criteria to specifically address water quality issues. • Consistent application and enforcement. • Guidelines and training for development assessment staff.	
Biodiversity Overlay and Code	TCC
• Review and integration with other Codes. • Development of more specific outcomes and benchmarks. • Consistent application and enforcement. • Guidelines and training for development assessment staff.	
Water Resources Catchment Overlay and Code	
• Review current development assessment conditions and management guidelines. • Consider catchment area declaration under the Water Act.	
Acid Sulphate Soils Overlay and Code	
• Provide acid sulphate soils tests before development approval. • Guidelines and training for development assessment staff and development industry.	
Community and Government Precincts	TCC
• Management guidelines in priority areas for water quality protection i.e. riparian zones (proximity to waterways), wetlands, steep slopes and unstable soils.	
Rural	Both
• Guidelines for livestock grazing and intensive agriculture in rural areas in priority areas for water quality protection i.e. riparian zones (proximity to waterways), wetlands, steep slopes and unstable soils. • Development applications categorised as Assessable.	
Soil Erosion and Sediment Control Policy	TCC
• Review soil erosion and sediment control requirements for all development. • Greater level of monitoring and enforcement including maintenance of soil erosion and sediment control devices. • Update Erosion and Sediment Control training course. • Guidelines and training for development assessment staff. • Create a separate section or new policy for stormwater quality management.	
Environmental Impact Assessment and Management Policy	TCC
• Review requirements for Environmental Impact Assessment. • Create risk assessment categories. • Research categories for construction phases including pre-construction, construction and post construction	
Ross River Dam and Haughton River Catchment	CoT

• Measures may be translatable to other planning scheme and development assessment areas.	
Filling and Excavation	CoT
• Develop Performance Criteria and Acceptable Solutions for water quality	
Landscaping	CoT
• Develop Performance Criteria and Acceptable Solutions for water quality	
Transport	CoT
• Develop Performance Criteria and Acceptable Solutions for water quality	
Compliance Monitoring	Both
• General increase in compliance monitoring.	
Infrastructure Contributions	Both
• Apply a component of stormwater contributions to water quality improvement e.g. for compliance monitoring.	

4.3 Creek to Coral Actions

This local level component of this report has been based on the review of current plans and policies, which will remain in place until a single planning scheme and set of policies are prepared for the amalgamated Townsville City local government area. Both the existing planning schemes as well as the new planning scheme need to be considered when working towards water quality improvements.

The Creek to Coral managed Coastal Catchments Initiative (CCI) project has been instrumental in the preparation of Water Sensitive Urban Design (WSUD) guidelines and products for the Townsville region. Incorporation of WSUD into the new Planning Scheme and development assessment process will be a significant step in water quality improvement outcomes for Townsville City and the iconic Great Barrier Reef. Where possible the WSUD guidelines and products should also be included in current development assessment and approval processes to ensure future outcomes are not diminished through a lack of action.

The opportunity currently exists to influence the preparation of a Planning Scheme for the new Townsville City local government area that could achieve the purpose of the Integrated Planning Act i.e. ecological sustainability.

Ideally the objective of maintaining and protecting water quality will be built into the overarching objectives of the new planning scheme and become an integral component considered when drafting the plan and policies.

Of equal significance is the lead up work required to inform the preparation of the planning scheme i.e. planning studies. Without the appropriate studies, and considered analysis and interpretation, the ability of the planning scheme to protect environmental values such as water quality and biodiversity will be greatly diminished.

A fully integrated approach across Council in the initial scoping stages for the preparation of the Townsville City Planning Scheme would ensure all the appropriate information is collated and studies required to inform the preparation of the plan are identified.

The draft Water Quality improvement Plan (WQIP), developed as part of the Creek to Coral CCI project, has also identified a number of condition assessment and planning type studies which would compliment the development of the preparation of the Townsville City Planning Scheme. The potential exists to link the implementation phase of the WQIP with the planning study stage of the Townsville City Planning Scheme for mutual benefits and cost savings through a coordinated approach to resource use and the achievement of common objectives.

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Appendix A

Local Level Consultation Results

Table 1 Planning Schemes

TOWNSVILLE CITY PLAN					
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
PART 3 – DESIRED ENVIRONMENTAL OUTCOMES 3.1 (g) Environmental Management	p.15	Existing language appears sufficient, facilitating development that protects natural drainage from siltation and reduction of water quality through engineering and retention of riparian vegetation.			
PART 4 – DISTRICTS 4.22 Rural Precinct; and 4.25 Community & Government Precinct	p.81 p.94		Animal husbandry and Agriculture MCU, are presently categorized as Exempt from development assessment in these two precincts. High ratios of livestock and agriculture causes heavy sediment run-off.	Add prescriptive language which limits the intensity of livestock and agriculture in these two precincts and to refer to other necessary water quality measures. Establish sustainable grazing rates and guidelines for agriculture for WQ.	Also create language in Townsville City Policies to address animal husbandry and agriculture. Managing intensity of grazing and agriculture is linked to biodiversity health and quality.
PART 5 – OVERLAYS					
5.6 Acid Sulfate Soils Overlay	p.242	State Planning maps are presently the most accurate in mapping acid sulfate soils.	Sometimes, developments are approved, and acid sulfate soils tests required afterwards. This has resulted in releases of significant amounts of acid sulfate through drainage and aeration. Underground car parks have been a major contributor to acid sulfate release.	Acid Sulphate course for Council staff and developers	DERM provide specialist advice with limited no. of staff.
5.7 Acid Sulfate Soils Code	p.245	State Planning policy is presently the most comprehensive for acid sulfate soils (ASS). In Townsville,	Developers are required to provide a study per State Planning Policy and a management plan. In acidic areas, site	Areas that should be avoided. Material change of use (MCU) underground car parks. Require acid	

		this code is based on State policy.	fills up with contaminated water. Aerated, run-off Fairfield Water is an example of problems.	sulfate soil study for proposed MCU. Difficult at MCU stage to argue for a study.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
5.11 Biodiversity Overlay & Code	p.259	Townsville Biodiversity Code also protects areas outside the designated biodiversity area whose ecology is dependent on areas with the City.	Some contradiction between the biodiversity code and other codes. The code is not consistently applied and is not supported by other legislation. For example the State Vegetation Management Act (VMA): in urban areas all vegetation can be cleared unless it is an Endangered Regional Ecosystem (RE). Endangered status triggers the VMA which is administered by the Department of Environment and Resource Management (DERM).	Consider borrowing from models in other North Queensland shires planning schemes for identifying local specific vegetation such as Town of Port Douglas. Vegetation clearing should be categorized as an assessable action.	Townsville Council Integrated Sustainability Section is reviewing this code. Requires more investigation.
5.16 Good Quality Agricultural Land Overlay	p.283	Less relevant as there is not a lot of good quality agricultural land (GQAL) in Townsville. The land overlay is based on a state policy.	Alligator Creek has GCAL but much of this is being rezoned to rural residential.		
5.17 Good Quality Agricultural Land Code	p.285	See above, Section 5.16			
5.21 Steep or Unstable Land Code	p.292	Overall outcomes listed appear adequate, i.e. (a) avoid risks to	The Code is not really applied as a lot of sediment is going into waterways.	Consider advantages of constraints mapping.	

		environmental values, (b) development carried out with best management practices, and (c) storm and wastewater managed in an ecologically sustainable manner providing for: -Natural drainage patterns. -Water quality protection. -Avoid risks of land slips and subsidence. -Minimize erosion potential.	The intent is good but does not list specific outcomes. Difficult to enforce. Probable solutions have no benchmark. Developers use probable solutions as minimum standards. If the code had been applied properly, homes on downtown slopes would have had a stricter review.	In the future, use water quality monitoring results to evaluate the effectiveness of present water quality measures that have been implemented/adopted.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
5.22 Water Resource Catchment Overlay	p.295				Water Resource Catchment Overlay covers approx 750 sq km.
5.23 Water Resource Catchment Code	p.298			Examine current State-wide review framework for development assessment in dam catchments: Identify useful ideas. Consider creating an assessment mechanism based on environmental economics to assist in the allocation of ecosystem services for water quality improvement. I.e. amount of sediment run-off associated with a location or particular use. i.e. If spend X amount of dollars on mitigation, will result in Y	Deemed to Comply Guidelines? Various State regs have been prepared for SEQ. Also, look at BPs in places like S Australia and SEQ. Consider bringing experts to Townsville for seminars on environmental

				amount of WQ improvement. This will help City Staff and developers better decisions towards WQ. New aerial photography images will become available.	economics for ecosystem services and BPs.
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
5.24 Waterways and Wetlands Overlay	p.299			Better mapping. Should identify environmentally sensitive land.	
5.25 Waterways and Wetlands Code	p.302		No probable solutions yet identified.	Determine top of bank. Should the buffer be 20m or 50m. Various factors affect the top of the bank and buffers. Water Sensitive Urban Development (WSUD) guidelines workgroup is also looking at this. New draft code is coming out on this. The Draft Code has been issued recently by the Local Government Association of Queensland (LGAQ). This may be useful. There probably needs be a separate study to identify values for the local area and priority waterways and streams as well as reviewing literature on appropriate buffers for various objectives. Constraints mapping may be an option to define waterways and appropriate buffers as a product of the study. Developers should have to identify	

				probable solutions as good or better than those listed.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
PART 6 – ASSESSMENT CRITERIA FOR DEVELOPMENT FOR A STATED PURPOSE OR OF A STATTED TYPE					
6.23 Landscaping Code	p.411	Specific Outcomes (SOs) that appear to be sufficient: -SO 5: Retain vegetation. -SO 9: Ensure water infiltration. -SO 12: Mulching to retain moisture and reduce erosion. -SO 15 Landscaping does not adversely affect Stormwater management.		For Overall Outcomes, include a reference to water quality regarding soil particle runoff (as there is currently no reference to water quality). Add a SO referring to porous hard surfaces such as porous pavement and pervious concrete and consider incentives. Add a SO regarding swales including around gardens and trees and to catch lawn and parking lot runoff. Add SO regarding Fin/French drains for catching run off from hard surfaces and slopes and diverting it to planted areas. Consider incentives for active and passive water harvesting. For example, a reduced required amount of landscaped space on a lot.	
6.24 Parking and Access Code	p.432	SOs that appear to be sufficient: -SO 14: Car washing areas with central drains and silt traps,		Add a note regarding water quality for Overall Outcomes (currently no reference to water quality).	

		contaminated run-off to sewers and preventing ingress of stormwater to sewers. This is also a probable solution.		Consider a SO for infiltration and curbing such as porous pavement or pervious concrete and consider incentives. A dry tropics study is required to determine if permeable pavement works to determine if it is a prescriptive measure. Underlying soils in Townsville may not be suitable due to low permeability and near surface water tables. WSUD guidelines may be the best avenue for testing the various options. Maintenance is essential to plan for stormwater quality devices i.e. the ability to access and clean. Feasibility and safety also needs to be looked at to ensure any environmental elements are not overbearing. Drainage works require access. Private enterprise needs to ensure that water coming off their premises is of a suitable quality.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
6.25 Reconfiguring Lots Code 1) Lot size	p.442		Presently, regulations for Reconfiguring Lots are the same in terms of water quality measures for infill areas as they	Create an overlay to indicate areas of high, medium and low sensitivity for soil disturbance. Each Reconfiguring	Soil sensitivity overlay should be updated by Council staff at regular

2) Street and Lot Layout 3) The Road Network 4) Pedestrian Cyclist Facilities 5) Public Transport 6) Public Open Space			are for Rural and Greenfield areas. Development creates substantially more sediment run-off in less developed areas than infill areas. This has not been addressed in Townsville Planning Scheme and Policies.	Lots application should refer development applicant to the soil sensitivity overlay.	intervals.
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
6.26 Works Code	p.457	-The Overall Outcome listed is sufficient in regards to works to be undertaken in an environmentally sensitive manner. -SO 2 is sufficient: measures versus dust pollution during construction. -SO 3 is sufficient: earthworks. -Footnote 321: "applicants should refer to Council's 'Urban Stormwater Quality Management Plan'. USQMP is incomplete and of little use in the context of informing development. -SO 7: People and habitable buildings are provided with an acceptable level of flood immunity in the event of a 1 in 50 year flood. -SO 8: Roads to accommodate drainage systems. -SO 13: Rural or rural residential to have on site sewage disposal that does not have an adverse environmental impact.		-Add SO for footpaths and cycleways regarding drainage, porous pavement and pervious concrete. -Add SO so that a MCU and Other Development in Rural Residential and Rural Precincts that falls in Self-Assessable, Code Assessable or Impact Assessable categories comply with stricter development measures regarding water quality. -Add a SO for retention ponds (important). Could be a probable solution, not a specific outcome. Need to define the difference between ponds and wetlands and their role and between retention and detention e.g. Mt View Park detention. Also, a significant component of WSUD integration. Natural creeks require less maintenance (repair, mowing etc) than trapezoidal channels. Grass and trees also provide shade.	-SO 6: The design and construction of major and minor stormwater drainage systems are founded on accepted principles and current design practice. Probable solutions listed are Aus-Spec specifications.

		Current design standards require that stormwater headworks include gross pollutant traps to catch sediment, etc.			
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
SCHEDULE 6 - PEFORMANCE INDICATORS	p.506				To be discussed.
MATERIAL CHANGE OF USE: Presently, for MCU applications, under Assessable Development, in terms of water quality measures, there are no categories for infill vs. infill steep slope, greenfield and rural areas.		Development Assessment tables, per standard State integrated Planning Act (IPA) guidelines, require more detailed review for more intensive uses.	Development creates substantially more sediment run-off in undeveloped areas such as rural and greenfield sites and sloped infill sites than for most infill sites. However, This has not been addressed in the Townsville Planning Scheme and Policies.	Create an overlay to indicate areas of high, medium and low sensitivity for soil disturbance. Each Material Change of Use Table in the Planning Scheme should refer development applicant to the soil sensitivity overlay. Precincts most likely to be affected by the new overlay would be Rural, Government & Community and Greenfield Precincts and infill sites with steep slopes. Also urban growth boundaries should provide clear dividing line between designated urban footprint and rural areas. Rural areas should maintain minimum lot size to prevent intensification of livestock and agriculture to unsustainable levels.	Soil sensitivity overlay should be updated by Council staff at regular intervals.
THURINGOWA CITY PLAN					
PART 2 DESIRED ENVIRONMENTAL OUTCOMES AND CITY STRATEGIES	Part 2 p.2	2.2 Environmental Quality appears to have sufficient language i.e. reusing and recycling water, maintaining water quality, environmental flows and resources, and providing a safe pattern of		New planning scheme structure etc will be guided by the Qld Department of Infrastructure and Planning (DIP).	

		development.			
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
PART 3 PLANNING AREAS					
3.1 Rural Planning Area	Part 3 p.3	Rural Planning Area Character Statement lists intensive animal husbandry as inconsistent with desirable outcomes in the Rural 10 Sub-Area.	Intensive animal husbandry is currently categorized as Code Assessable in Rural 40 and Rural 400 Sub-Areas. Overgrazing and improperly managed agricultural operations result in high level of soil disturbance causing heavy sediment run-off into waterways.	Establish sustainable grazing rates (max. no. livestock/Ha) and guidelines for agriculture for WQ. These uses should be further restricted near waterways and wetlands.	Also create language in Thuringowa City Policies to address animal husbandry and agriculture. Managing intensity of grazing and agriculture is linked to biodiversity health and quality.
PART 5 CITY-WIDE CODES	Part 5 p.2				
5.4 Natural Hazards	Part 5 p.13				
5.4.1 Flooding	Part 5 p.13	Performance Criteria regarding flooding appears to be sufficient, i.e. development to be free of risk regarding a Defined Flood Event, habitable building to be above Defined Flood Event, and development to be carried out not to increase flood water or flow levels.		Mapping needs to be reviewed. Which Council Department will do this?	
5.4.2 Steep or Unstable Land	Part 5 p.14	Performance Criteria appears to be sufficient for Building Works, Design and Construction, Cut and		Add note of applicability that MCU and Other Development in Rural Planning Area and Open Space & Recreation	

		Fill Work and Access. Pass/fail acceptable solutions.		Planning Area that falls in Self-Assessable, Code Assessable or Impact Assessable categories comply with stricter development measures re water quality.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
5.4.3 Acid Sulphate Soils	Part 5, p14	Same comments as in Townsville planning scheme.			
5.4.6 Salinity	Part 5 p.16	Performance criteria appears to be sufficient.			
5.5 General Development	Part 5 p.21				
5.5.1 Landscaping	Part 5 p.21			-Add a performance criteria entry regarding water quality (currently no reference). -Add Acceptable Solutions regarding water harvesting i.e. swales for trees and gardens, and using Fin/French drains to catch water from hard surfaces and slopes and divert it to planted areas. -Add an Acceptable Solution for porous pavement or pervious concrete for patios, pathways etc. -Add an Acceptable Solution regarding active and passive water harvesting. Consider incentives. For example reduced required amount of	

				landscaped space on a lot. -add an Acceptable Solution regarding retention ponds (important).	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
5.5.2 Filling and Excavation	Part 5 p.24	Some performance criteria appears to be sufficient, i.e. where it does not impact adjoining land or natural areas by contamination, flooding or stormwater		-Add a performance criteria entry regarding water quality (currently does not refer to water quality). -Consider an Acceptable Solution of temporary containment ponds during construction. -Add performance criteria for Transport Network and Vehicle Parking and Internal Circulation in regards to water quality (currently no reference to water quality).	
5.5.3 Transport	Part 5 p.25			-Add an Acceptable Solution to increase infiltration and to slow runoff for including considering porous pavement or pervious concrete. -Is porous pavement practical for major streets (consider heavy vehicles and drainage)?	
5.5.4 Infrastructure	Part 5 p.34	Performance criteria for Stormwater Drainage and Erosion Control appears to be sufficient, i.e. maintaining natural drainage systems, protecting WQ, minimizing erosion potential, avoiding risk of land slips and subsidence.		-Add an Acceptable Solution regarding retention ponds (important).	
PART 6 PERFORMANCE INDICATORS	Part 6 p.2	2. Environmental Quality: Detail of Performance Indicator (d) appears to be sufficient, "% change in			

		volume of urban run-off based on urban density".			
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not working**	**Regulations to be Changed/Added**	**Notes**
MATERIAL CHANGE OF USE Presently, for MCU applications under Assessable Development, in terms of water quality measures, there are no categories for infill vs. greenfield and rural areas and infill sites with steep slopes.		Development Assessment tables, per standard State integrated Planning Act (IPA) guidelines, require more detailed review for more intensive uses.	Development creates substantially more sediment run-off in less developed areas such as rural and greenfield sites and in steep slope infill sites than most infill areas. This has not been addressed in the Thuringowa Planning Scheme and Policies.	Create an overlay to indicate areas of high, medium and low sensitivity for soil disturbance. Each MCU Table in the Planning Scheme should refer development applicant to the soil sensitivity overlay. Precincts most likely to be affected by the new overlay would be Rural Planning Sub Areas; Open Space & Recreation Planning Areas; Ross & Haughton River Dam Catchment Areas; portions of Residential Planning Areas; and infill sites with steep slopes.	Soil sensitivity overlay should be updated by Council staff at regular intervals.

Table 2 Policies

Section	Page No.	Existing Regulations/Guidelines Working	Existing Regulations/Guidelines Not Working	Regulations to be Changed/Added	Notes
TOWNSVILLE CITY POLICY 1-Supporting Information					
2 – *Environmental Impact Assessment and Management* 2.1 Circumstances in which an environmental impact study or environmental management plan may be requested. (c) involve a material change of use (MCU) or reconfiguring a lot (RaL) for residential purposes, if on land:	2		This policy is good but it doesn't get enforced as planners don't always understand this policy and it's not specific enough.	ADD: (v) where rural land is redeveloped to significantly higher density. In existing urban areas less sediment runoff is likely than building in rural/undeveloped areas. -Also need to look at risk assessment criteria for blocks. -Need to reword to ensure rural and greenfield development is captured by this policy as opposed to infill development where there will be less disturbance. -Also consider lot size, or size of area disturbed and gradient. -Consider creating risk categories and criteria.	
2.2 Information Requirements Range of issues that may be required to be addressed in an EIS/EMP include buffers, stormwater management, and water quality.	3-4			Soil erosion and sediment control plans (SESCP) are required as part of Operational Works as are other matters. Need to include in the SESCP and site based stormwater management plans (SBSMP) allowance for ongoing maintenance and monitoring for water quality outcomes, with the provision to modify	This section merely sets out the issues that may need to be addressed, for example water quality. It should not prescribe how that matter is managed or achieved for each site.

				plans to address outstanding issues. Definitions may be required from ISS. Compliance issues through Townsville City Council previously chose not to take on the requirements under the EPAct. Thuringowa did take on the compliance. Will be mandatory from 1 January 2009. Consider creating categories for construction phases: pre-construction, construction and post construction. Staff need to be able to do modelling for stormwater, or have the ability to assess modelling.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
10. *Reconfiguring a Lot Involving Overall Concept Planning* 10.2 Landscape Vegetation Management Plan (LVMP) may address environmentally sensitive areas, landscaping details including water features.	23			Refer to 6.25 Reconfiguring Lots Code Review May want to add: the landscape vegetation management plan may include clearing only those areas essential for completing construction activities, leaving other areas undisturbed. Pollutants addressed may include suspended solids and nutrients. Design around the environmental elements of the site and determine areas to be cleared for infrastructure	

				and construction. If there are 'rules' associated with development applications then in urban areas developers may clear areas prior to a development application submission. Look at possibilities for staged development in urban areas/smaller blocks.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
12. *Soil Erosion and Sediment Control* 12.2.1 Operational Works (a) Council requires any application for approval of operational works involving disturbance of land to be accompanied by an Erosion Sediment Control Plan (ESCP).	26	Council provides a course on this for staff and developers.		May want to add: An erosion sediment control plan includes preparing a plan that will describe how a contractor or developer will reduce soil erosion and contain and treat runoff that is carrying pollutants such as eroded sediments. Pollutants addressed should include suspended solids and nutrients. Another component to this would be inspecting the site after storm events, which will indicate whether or not the specific measures in the plan were installed or maintained properly, as well as whether the devices require a cleanout, repair, reinforcement or replacement with a more appropriate measure. May want to add: a sediment basin may be utilized to capture waterborne sediment and debris for short-term storage. The basin is to be	The policy should be reviewed in its entirety to reflect current requirements.

				constructed specifically for sediment retention. Also a new state policy will be introduced which will need to be taken into account.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
12.2.2 Building Work, Drainage Work, and Plumbing Work Applicants required to have erosion risk self assessment form.	27			May want to add: by completing an erosion risk assessment form, the applicant would be evaluating potential pollutant sources (material stockpiles, borrow areas, access roads, and other land disturbing activities) from critical areas such as steep slopes, highly erodible soils, and areas that drain into sensitive waterbodies. Need to identify sensitive waterbodies etc.	Applicant must consider erosion risk of their site.
12.3. Certification and Appendix A (Guidelines for Preparing ESCPs). Appendix refers to determining baseline surface water quality.	28-36				ESCPs are prepared by practioners with experience and training in soil and water management. The ESCP training course details applicable water quality parameters and the process.
13. *Public Open Space* 13.2 Site Specific Considerations (ii) Land should be selected for public open space having regard to-environmental sensitivity.	95-97			The stormwater quality management framework (2006) actions should be implemented. May want to add: it is important that public open space land should be selected in close proximity	Development should be designed having regard to water quality management.

(iii) Land unsuitable for residential, commercial or industrial subdivision includes wetlands and riparian corridors and waterways identified under the Townsville City Urban Stormwater Quality Management Plan (1998) (iv) Linear and Waterside Open Space, used to facilitate riparian zones.				to environmental sensitive lands to avoid locating potential pollutant sources away from critical areas such as wetlands and riparian corridors by avoiding pollutants draining directly into sensitive waterbodies i.e. use public open space as a buffer to environmentally sensitive areas. The potential for public open space to have multiple purposes such as flood mitigation, water quality outcomes, recreational space, etc. For e.g. Matthew Park (Thuringowa near Bamford Lane). Safety should be considered. Management of open space areas needs to be undertaken by an integrated unit with a specifically designed management system.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
15. Compliance Monitoring 15.3.1 Prestart Compliance Monitoring (v) Significant environmental areas are protected and soil erosion and sediment control measures are in place.	102		City of Townsville presently commits limited staff to inspection of development sites. Many developers comply with requirement for silt fences. However, majority of sites do not maintain fences nor remove sediment as necessary.	May need to be an emphasis on waterways in developments to ensure sediment doesn't enter creeks. Also needs to be integrated with WSUD measures. Need to ensure concept designs take into account natural features such as waterways. Consider compliance methods in Brisbane: City inspectors count number of shovel scoop depths of	Operational works are made assessable or otherwise through the tables of assessment in the planning scheme. The pre-start provisions are in place. The detail is covered by the SESCP policy.

				number of shovel scoop depths of sediment to measure sedimentation and to decide violation fines.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
A separate section should be created for a SQMP.				An additional section for stormwater quality management should be added with requirements for a SQMP in the supporting information section. The planning scheme codes could then reflect these policies.	
TOWNSVILLE CITY POLICY 2-Development Standards					
2. Groundwater Supply to Land in the Rural Precinct or Rural Residential Precinct 2.1 (2). Potable Water Quality (ii) the installation of on site sewerage treatment facilities must not affect WQ. 2.2 Requirements for Supporting Information A study should include: an	2-8			May want to add: it's important to review past and existing studies for managing discharge of contaminated soils, ponded runoff, and groundwater monitoring for the minimization and elimination of pollutants from entering stormwater drains and watercourses including groundwater. Need to look at the criteria for the	Previous studies/evidence should be considered. Need to consider what the average daily consumption rate is and establish this in the policy.

investigation of previous land uses and the possibility of contamination of aquifers to determine the quality of groundwater.				installation of septics and size of blocks, soils, slope, proximity to waterways and groundwater basins etc. Also the maintenance of septic systems etc. Wet season and holidays are also issues for septic systems, as they are often overloaded and seep. Blocks under 4000 sq m may not be suited to septic systems. Citiplan is currently doing a project on septic systems due to Alligator Creek developments. In dry season, with low creek levels pollutant ratio is higher and risk of contamination is higher.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**

9. Earthworks 1. Objectives-ensure that acceptable water quality guidelines are adhered to in relation to stormwater runoff from the development site. 2. Structure and Application Stormwater drainage, environmental factors, clearing of vegetation, soil erosion/sediment control and water quality is addressed in order to ensure that earthworks are undertaken to the appropriate standards and do not cause environmental nuisance or harm. 4.5 Storage and Disposal of Material. Developers must provide for waste materials to be sited at least 10 metres away from any watercourse or defined drainage line. 4.6 Stormwater Drainage. Filling or excavating must not cause any increase in flooding or drainage problems.	67-72			What are the acceptable water quality guidelines in relation to stormwater runoff? This needs to be more clearly stated and referred to. Unclear what environmental factors elements means in this context. What are the appropriate standards in stormwater runoff? This needs to be more clearly stated and referred to. May want to add: Developers should develop and implement a waste disposal program to reduce the potential for runoff contamination. May want to add: a stormwater drainage management system should be implemented to control flooding, minimize sediment, reduce flows and control flooding from filling or excavating activities. Include this above information in a 'new' section dealing with Stormwater Management Quality and also show linkages to other policies and parts of the planning scheme. WSUD guidelines will have discharge recommendations.	There should be a section on stormwater quality. Erosion and stormwater control plans implemented in the SESCP policy.
TOWNSVILLE CITY POLICY 3-Contributions					

Section	Page No.	Existing Regulations/Guidelines Working	Existing Regulations/Guidelines Not Working	Regulations to be Changed/Added	Notes
6. Stormwater Drainage Headworks 6.1 Development to which this section applies includes a material change of use or reconfiguring a lot development where the subject activity facilitates the generation of increased stormwater runoff, peak flows, stormwater quality degradation.	39		State policy indicates that cities can not use funds collected for infrastructure towards studies for WQ improvement.	Stormwater drainage headworks may be able to be used for water quality as for Thuringowa. However, other headworks programs cannot divert funds for other reasons. Cannot separate quantity and quality. Small to medium sized gross pollutant traps should be required at intervals in new subdivisions. Currently, single large traps in subdivisions become filled up quickly, and additional incoming sediment is not caught.	The City cannot use contributions for other infrastructure to improve water quality.
THURINGOWA CITY POLICIES					
Natural Areas- 1.1 Policy supports the natural areas code. Purpose is to conserve, maintain and enhance natural areas to protect biodiversity values, protect and manage important areas and maintain or establish habitat corridors. 3.1 Policy provides guidance on how a development proposal may address Performance Criterion 1 of the Natural Areas Code to provide natural buffer areas of native vegetation to diffuse potential impacts on water quality, improve	1-9			May want to add: erosion and sediment control programs may include fencing, tree armouring and retaining walls to protect trees from being damaged by construction equipment. May want to add: Seeding should be established to provide a vegetative cover on disturbed areas to control soil erosion. Planting vegetated buffers provide a physical separation between a construction site and a waterbody. The vegetated buffer is a naturally occurring filter system that can remove nutrients and other	A single policy for the new Council area will be developed. The single policy could either adopt the prescriptive Townsville approach or the broad principle Thuringowa approach. Both have benefits.

condition and values of watercourses and wetlands. 3.2 Council may request additional information including Biodiversity Assessment Report and Environmental Management Plan to avoid causing env. harm to env. sensitive areas. 5. Council must also have regard to the State Coastal Plan, as it's a key document.				pollutants from runoff, trap sediments, and shades the waterbody to optimize light and temperature conditions for aquatic plants and animals. May want to add: design practices including wildlife corridors and walkways in natural areas to provide connectivity for wildlife and people and to protect ecologically sensitive areas. May want to add: An Environmental Management Plan would help minimize the exposure and risk of runoff and hazardous waste contamination in areas where construction will be occurring. It should also describe how a contractor or developer will reduce soil erosion and contain and treat runoff and sediment carrying eroded and/or hazardous materials.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
Natural Areas- 2.1 Strategy identifies natural hazards that have the potential to affect the City. 5.1 Provides for the management of actual acid sulfate soils and potential acid sulfate soils to ensure there is no environmental harm caused to	1-9			May want to add: Erosion and sediment control plans would describe how a contractor or developer will reduce soil erosion and contain and treat runoff that is carrying acid sulfate soils. Part of this strategy could include construction project scheduling so clearing and grading	The approach adopted by Thuringowa was non-prescriptive. The policy established the objectives and the developer had to demonstrate how this is achieved. The policy can take this approach or adopt

natural systems assoc. with development. 5.3 Release of acid and metal contamination can have significant adverse effects on the ecology of wetlands and shallow freshwater and brackish aquifer systems by degrading water quality. Mapping of acid sulfate soils by Council identifies areas most likely to contain acid sulfate soils. 5.4 Ensure no env. harm from ASS/PASS exposure caused. Acceptable Solution A1-Dev does not involve excavation or filling of land below 5m AHD and (b) include excavation of subsoil below 5m AHD. 5.5 Council may request additional information to ensure acid sulfate soils managed in accordance with EPA 1994 and ecologically sustainable development.				are done during the time of minimal erosion potential (dry season). Other strategies could include construction site phasing to disturb only small portions of a site. Grading activities would be completed and soils stabilized at one part of the site before grading and construction commence at another part. Other practices may include covering or stabilizing soil stockpiles. This would include covering small stockpiles with a tarp to prevent erosion, seeding or mulching. There may need to be additional information or examples on the types of properly managed activities to ensure soils are managed in accordance to EPA 1994 and ecologically sustainable development.	that of Townsville City.
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
Ross River Dam and Haughton River Catchments 1.1 Supports the rural planning code. Ensure development within surface and groundwater catchment areas in the Ross River Dam and Haughton River Catchments does not detrimentally impact water quality of	1-8	Section 2.2 has good information on risks to water quality which could also be utilized for urban areas.	3.1 Rural lot size: Presently, relatively small lots are resulting in intensification of livestock grazing and agriculture and unsustainable use. Effects are degradation and sedimentation.	Rural Lot size: increase in minimum rural lot size is required to prevent intensive livestock grazing and agriculture at unsustainable levels. Not clear what the measures are to ensure development within surface and groundwater catchment areas of	The approach adopted by Thuringowa was non-prescriptive. The policy established the objectives and the developer had to demonstrate how this is achieved. The policy can take this approach or adopt

water supply storages. 2.2 Risks to Water Quality (gives a comprehensive list). 3.1 Rural Lot Size Performance Criterion. Development will not detrimentally impact storages for water supply taking into account-water cycle management. 3.2 Standards for Stormwater Management suggest probable solutions that address the main issues. P1 Uses located, designed and operated to minimize sediments, pathogens and nutrient contamination of downstream waters so that the env. values of ground and surface waters for ecosystem health and consumption are not degraded. Probable solutions include A1(c) stormwater from impervious surface collected and broadcast discharged onto vegetated, stable areas to prevent erosion, and scour clear of riparian areas. P2 Activities resulting in disturbance of the earth managed to prevent erosion and outflow from the site of sediments. Probable solutions include A2(a) Stormwater drainage properly designed, constructed, installed and				the Ross River Dam and Haughton River Catchments does not detrimentally impact water quality of water supply storages. May want to add: Stormwater runoff can contribute sediment, oil and grease, solid waste, nutrients, biochemical oxygen demand, toxic substances and other pollutants to groundwater and surface waters. Standards for stormwater management should include using environmental planning and design management to establish sufficient setbacks during construction to minimize environmental disturbance. The establishment of a Stormwater runoff/erosion control plan will control runoff from land disturbing activities, help manage soils and water to minimize or eliminate pollutants from entering storm drains and watercourses, reduce flows, and control flooding. An assessment of a Stormwater runoff/erosion plan should be done after storm events to show whether the devices were installed or maintained properly, as well as whether the devices require cleanout, repair, reinforcement or replacement with a more appropriate practice.	that of Townsville City. Until 2003, NQ Water had absolute control over water. Since then, water is shared jurisdiction between NQ Water and Townsville City Council.

maintained. P5 Env. corridors including riparian land are managed to maximize capacity to reduce contaminants, polluted runoff from entering waterways and minimize potential for bank instability and erosion. Probable solution A5 environmental corridors, including riparian land are maintained in their natural state.				Planning activities may include phased construction activities (disturbing small portions of a site at a time to prevent erosion) and scheduling projects so clearing and grading are done during the time of minimal erosion potential. Specific implementation devices include vegetated, low gradient buffer strips that filter overland sheet flow. Runoff must be evenly distributed across the filter strips. Another device may include a spill prevent and control plan to prevent and control spills to eliminate or minimize the discharge of pollutants from construction sites. Using fencing, tree armouring and retaining walls or tree wells should be utilized to protect trees and riparian areas from being damaged by construction equipment. Planting vegetated buffers to provide a physical separation between a construction site and a waterbody could also be utilized. The vegetated buffer is a naturally occurring filter system that can remove nutrients and other pollutants from runoff, treats sediment, and shades the waterbody to optimize light and temperature conditions for aquatic plants and animals.	

				Small to medium sized gross pollutant traps should be required at intervals in new subdivisions. Currently, single large traps in subdivisions become filled up quickly, and additional incoming sediment is not caught.	
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
Urban Growth Boundaries 1.1 Policy supports the urban growth boundaries code. The code seeks to ensure (d) areas outside the City's Urban Growth Boundaries are retained for natural resources protection and significant water catchments. 4.0 It is intended that land outside the urban growth boundary areas will be retained for specific env reasons such as significant water catchments. 5.2 Scope of a master plan is required for a subdivision of 50 lots or greater and will establish major stormwater flow paths.	1-17			There are no specific measures outlined for the protection or preservation for areas with environmental or scenic constraints including wetlands and areas with local WQ protected from possible acid sulfate soil runoff and contamination. Should this be addressed under natural areas? Urban Growth boundaries should provide clear dividing line between designated urban footprint and rural areas. Rural areas should maintain minimum lot size to prevent intensification of livestock and agriculture to unsustainable levels.	Some specific measures are listed in the Riverway Plan.

5.4 Land with Env or Scenic Constraints. The following are to be preserved or protected in any development proposal (c) wetlands and env corridors (f) local water quality shall be protected from possible acid sulfate soil runoff and contamination. 6.4 Details in the Master Plan. Must show the location of major stormwater flow paths.					
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
Volume Three: Sustainable Development Policy: Riverway Sustainability and Urban Design Policy, Thuringowa Riverway 2.1.1 Water Sensitive Urban Design principals include preventing pollutants from entering the river, concentrating stormwater to be held on site for as long as possible to prevent erosion. 4.1 Plan and carry out the work to avoid erosion, contamination and sedimentation of the site, surrounding areas and drainage systems. Ensure all control measures taken to limit the amount				Good practical measures and implementation strategies already listed to control erosion to waterways.	

of site disturbance to control runoff and prevent increased movement of sediment into waterways. Measures include provide temporary drains and catch drains and/or dispersal of concentrated water flows. 5. Water Management including landscape initiatives such as using soft landscaping to capture overland flows and increase levels of groundwater discharge to prevent stormwater from filtration to river system. Stormwater, retain minimum 70% of stormwater on site for reuse and prevent stormwater from filtration into river system.					
Planning Scheme Policy for Infrastructure Contributions- Stormwater and Transport Infrastructure (2008) Intent: Calculating infrastructure contribution to be paid to council as a consequence of development approval. The scope covers all trunk infrastructure for stormwater and transport.. Schedule 11A shows existing and planned future trunk network for stormwater and Appendix D discusses planning for water quality and quantity as part of the infrastructure charges schedules				Examine development contributions as it relates to water quality improvement in all areas of development (roads, parking lots, residential and community buildings, infrastructure).	

to be introduced under IPA.					
Section	**Page No.**	**Existing Regulations/Guidelines Working**	**Existing Regulations/Guidelines Not Working**	**Regulations to be Changed/Added**	**Notes**
TOWNSVILLE CITY PLAN-Schedule 1/The Dictionary-Defined Uses					
Division 2-Administrative Terms 2.1 Defined Administrative Terms				**Need to add terms**: Acid Sulfate Soils Potential Acid Sulfate Soils Biodiversity *(in Thuringowa Plan)* Brackish Catchment Design Storm *(in Townsville City Policy Manual)* Drainage Ecosystems Environmental Corridors Erosion *(in Townsville City Policy Manual)* Flood Event *(in Thuringowa Plan)* Flood Line *(in Thuringowa Plan)* Habitat Riparian Sediment Sustainable Stormwater Water Quality Wet Season *(in Townsville City Policy Manual)* Top of Bank Lawful Point of Discharge	
Section	**Page**	**Existing**	**Existing Regulations/Guidelines**	**Regulations to be Changed/Added**	**Notes**

	No.	Regulations/Guidelines Working	Not Working		
THURINGOWA CITY PLAN-Part 7 Definitions-The Dictionary					
Table 7.2 Explanatory Definitions		Has definitions for: Biodiversity Buffer Area Defined Flood Event Flood Line Habitat		**See above**	