

10.0 ENVIRONMENTAL STRATEGY



10.0 Introduction

TAPL promotes an environmental culture that is founded on stakeholder participation and shared ownership. TAPL is focussed on delivering safe, healthy and environmentally responsible aviation operations in accordance with legislative obligations. This is achieved through the development, implementation and continual improvement of its strategies, management systems and processes.

This Airport Environment Strategy (AES) replaces the Townsville Airport 2009-2014 AES and is the fourth environment strategy prepared for the Civil Area since the Townsville Airport was leased by the Commonwealth Government in 1998. This AES represents the first environment strategy forming part of the 2016 Master Plan and has been developed in accordance with the *Airports Act*.

Integration of the AES into the 2016 Master Plan aligns the previously misaligned periods of the master plan and environment strategy documents. As a result, TAPL has reviewed this strategy over an extended period with the AES being in force for a period of six years, one year beyond the traditional review period.

This AES outlines the key environmental issues and management strategies to which TAPL is committed, to mitigate and manage its impact upon the natural environment, relevant to the following aspects:

- Environmental management
- Compliance (including stormwater, soil and groundwater, hazardous materials, ground-based noise and local air quality)
- Resource use (including energy efficiency, water resources, waste, sustainable development and climate change)
- Land and heritage (including biodiversity, wildlife hazard risk and cultural heritage).

Identification and mitigation of potential environmental impacts associated with the implementation of the 2016 Master Plan, including the development of airport facilities, is detailed in **Chapter 11.0**.

The environmental requirements set out in the AES, apply to all airport activities within the Civil Area of the Townsville Airport. This encompasses activities

undertaken by airport operators, including TAPL staff, tenants and contractors.

TAPL, airport tenants, operators and contractors are responsible for ensuring that all reasonable steps are taken to comply with the AES. TAPL is obliged to make all airport tenants, operators and contractors aware of the requirements.

10.1.1 Objectives of the AES

The key objectives of the AES are outlined in *section 71 (3)(h)* of the *Airports Act 1996* (Airports Act) and includes:

- Identification of the current environmental status of the Civil Area including areas of environmental significance
- Identification of sources of environmental impact associated with civil aviation operations at the airport
- Summary of the proposed environmental studies, review and monitoring of current and future activities associated with civil aviation operations at the airport and a timeframe for their completion and reporting
- Summary of measures to be carried out for the purposes of preventing, controlling or reducing the environmental impact associated with civil aviation operations at the airport and timeframes for their completion
- Details and outcomes of consultation undertaken in preparing the AES
- Any other matters that are prescribed under the *Airports (Environmental Protection) Regulations 1999 (Cth)* (AEPR).

10.1.2 Other Airport Users Obligations

TAPL

TAPL is responsible for the management of the Civil Area of Townsville Airport. TAPL also contributes to the maintenance of the Jointly Used Area (runways), under the terms of the JUD discussed in **Chapter 3.0**.

TAPL has a range of duties under the Airports Act and AEPR to identify sources of environmental impact from civil aviation operations and manage programs to control, limit or prevent these impacts. To maintain



compliance, TAPL provides regular updates to the Commonwealth on its progress in meeting the targets and objectives of the AES and submits an Annual Environment Report (AER) to DIRD, in accordance with regulatory requirements, detailing:

- The results of any monitoring undertaken
- Any pollution events or environmental issues and subsequent remediation plans
- TAPL's progress in achieving the targets and objectives of the AES.

Department of Defence

The Defence is responsible for the overarching environmental management of the Military Area and Jointly Used Area through the implementation of their own strategies, management systems and processes. However TAPL and Defence strive to facilitate cohesive environmental management across the wider land tenures.

Airport Environment Officer

The Airport Environment Officer (AEO) is the statutory regulator appointed by the DIRD to oversee the management of airport operations within the Civil Area at Townsville Airport. The AEO ensures management of the airport environment is undertaken in accordance the Airports Act and the AEPR.

This is achieved through regular monthly meetings with TAPL, site inspections and review of the AER.

Airport Tenants and Operators

Townsville Airport has a variety of tenants, contractors and other operators and the risk each poses to the environment is dependent on their activities. All airport operators have a responsibility to comply with the TAPL AES and prevent environmental harm that may arise from their operations. This includes undertaking relevant monitoring activities in line with their regulatory obligations and ensuring systems and / or procedures are in place appropriate to the nature and scale of operations at the airport.

All airport tenants and operators are assessed by TAPL for environmental risk and categorised according to the following revised environmental risk categories:

- Category One – Activities or operators with the

potential to cause environmental nuisance

- Category Two – Activities or operators with the potential to cause material environmental harm
- Category Three – Activities or operators with the potential to cause serious, long term environmental harm
- Category Four – Activities or operators with the potential to cause serious, permanent environmental harm.

Tenants and operators must adhere to specific environmental management requirements relevant to their risk category.

10.2 Environmental Management

10.2.1 Overview and Objectives

Objective: To promote environmental management at Townsville Airport to minimise potential adverse impacts from airport activities on the environment.

TAPL maintains an Environmental Management System (EMS) to the ISO14001:2004 standard, to manage environmental aspects and impacts within the Civil Area at Townsville Airport. The Defence maintains a separate ISO14001:2004 EMS to manage its operations and to facilitate cohesive environmental management across the wider land tenures.

All airport operators are also required to have systems in place to manage environmental aspects and impacts associated with their activities.

10.2.2 Environment Policy

TAPL's Environmental Policy forms the foundation for the Airport Environment Strategy (AES), which is implemented through the EMS. The TAPL Environmental Policy, including objectives, is provided in **Figure 10.1** and is a living document that is periodically reviewed. The current version of the Policy is available on the Townsville Airport website townsvilleairport.com.au.

10.2.3 Environmental Management System

The TAPL EMS, updated in 2012, is maintained to ISO14001:2004 standard. This system provides the detailed framework for implementing the Environmental Policy and also defines applicable legislative requirements and significant environmental aspects



associated with TAPL's activities, including procedures to minimise adverse environmental impacts.

The key objectives of the TAPL EMS are to set objectives and targets (including those set in this AES) and mechanisms to achieve these objectives and targets.

The TAPL EMS also strives to engage and partner with relevant stakeholders, including airport operators, to ensure the continual improvement of their environmental management practices at airport.

TAPL has developed procedures to manage environmental aspects associated with civil aviation operations for defining responsibility and authority, processing and investigation of non-compliance, mitigation of impacts and implementation of corrective and preventative actions.

The TAPL EMS is reviewed annually to ensure adequacy and effectiveness and regularly audited, to monitor its implementation and conformity to the ISO14001 standard.

10.2.4 Legislative Framework

Townsville Airport is located on Commonwealth land and is subject to compliance with relevant Commonwealth legislation, which is principally the Airports Act and *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act).

Under the Airports Act, with reference to the AEPR, TAPL is required to develop and implement an AES that outlines how environmental impacts associated with airport operations within the Civil Area are prevented, controlled or mitigated in accordance with environmental standards for federally-leased airports.

Some aspects of environmental management are outside the scope of this AES including noise and pollution generated by aircraft (excluding ground running). These matters are regulated by the Commonwealth through other legislation and managed by other organisations. TAPL is however, committed to working with airlines and third parties to reduce the environmental impact of their operations at the airport.

The EPBC Act details requirements for the management of matters of national environmental significance such as threatened flora and fauna species. The EPBC Act

also details the requirement for approval of activities involving Commonwealth land and activities by Commonwealth agencies.

In addition to Commonwealth legislation, Townsville Airport is required to comply with Queensland State legislation where Federal legislation is silent. TAPL will consider state legislation to achieve best practice environmental standards assessed against Schedule 4 of the AEPR.

10.2.5 Environmental Monitoring and Reporting

Environmental monitoring is undertaken within the Civil Area of Townsville Airport to demonstrate compliance with legislative requirements, to identify trends and highlight areas requiring management for continual improvement and to enhance awareness and understanding of the environment.

Table 10.1 outlines the revised environmental monitoring program to be undertaken at the airport. The frequency of monitoring is included as a guide only and is subject to change in response to onsite environmental conditions and / or monitoring program review. Monitoring sites are identified in **Figure 10.2**.

TAPL analyses monitoring results and provides a summary to DIRD in the AER. If a non-conformance or declining trend is identified, corrective actions are implemented to achieve compliance and improve performance.

Copies of monitoring results and reports are provided by TAPL to the AEO. Environmental incidents are reported through the EMS incident reporting system including notification of the AEO. Incidents are followed up to avoid reoccurrence, which may include initial investigations and ongoing monitoring and site management.

Management programs are discussed in more detail in **Sections 10.3 – 10.14**. All monitoring activities associated with the AES are undertaken by suitably qualified staff or consultants with laboratory analyses conducted at National Association of Testing Authorities (NATA) accredited facilities. These will ensure that all necessary environmental requirements are met over the next five years.





Townsville Airport Environmental Policy

Townsville Airport Pty Ltd promotes an environmental culture that starts with the Chief Operating Officer based on participation and shared ownership. Airport employees, tenants, visitors, business partners and contractors are encouraged to communicate any environmental issues, concerns, improvements or lessons learned to facilitate continuous improvement in environmental management across all organisations at the airport.

Our Vision

To provide safe, healthy and environmentally responsible operations at Townsville Airport. Reducing and maintaining the risk of harm to persons, property and the environment as low as reasonably practicable through a continuing process of hazard identification and risk management.

Our Mission

Protection of the Environment is considered a critical corporate value in planning for future development and undertaking operations at Townsville Airport. The development, implementation and continual improvement of strategies, management systems and processes ensure that operations at Townsville Airport are conducted in a safe, secure, efficient and environmentally responsible manner in accordance with regulatory requirements.

Our Objectives

| | |
|--|---|
| Legislation & Regulatory Requirements | To develop, implement and maintain policies, procedures and systems to ensure operations at Townsville Airport comply with applicable legislation, regulations, standards and industry best practice. |
| | To develop, implement and maintain an Environmental Management System (EMS) that identifies environmental aspects, control measures and feedback mechanisms which is audited and reviewed regularly to facilitate continuous improvement. |
| Assurance | To define roles and responsibilities which are accountable for the effectiveness of the EMS starting with the COO and senior management. |
| | To provide adequate resources including finances, to facilitate the fulfilment of Townsville Airports environmental responsibilities. |
| Culture | To develop, embed and continually encourage an environmental culture where environmental aspects are a priority for all operations at Townsville Airport, recognising the importance and value of an effective EMS. |
| | To develop, embed and continually encourage a Reporting Culture that focuses on identifying causes and not attributing blame. |
| Risk Management | To minimise and maintain at or below an acceptable level, pollution and the risk of harm to persons, property and the environment at Townsville Airport through a continuous process of identifying, recording and reviewing risks, environmental objectives, targets and indicators. |
| Communication | To develop, implement and maintain successful tools that encourage open communication, delivery of key messages and awareness of responsibilities under the EMS to airport employees, tenants, visitors, business partners and contractors. |
| Training | To ensure there are sufficient skilled and trained resources available to develop, implement, maintain and improve the EMS. |
| Infrastructure & Facilities | To develop, implement and maintain a maintenance system that ensures new and existing infrastructure and facilities at Townsville Airport are kept clean, safe, operational and compliant with applicable legislation, regulations, standards and industry best practice. |
| Participation & Action | To actively encourage airport employees, tenants, visitors, business partners and contractors to participate in the EMS. |
| | To encourage activities that promote and establish environmentally responsible airport operations. |

Kevin Gill
Chief Operating Officer
Townsville Airport Pty Ltd

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PO Box 7636, Garbutt QLD 4814 Australia | Cnr Halifax St & Stinson Ave, Garbutt QLD 4814 Australia
P: +61 7 4727 3211 | F: +61 7 4779 1843 | E: info@tsairport.com.au | W: www.townsvilleairport.com.au | ACN 081 257 490

Figure 10.1 Townsville Airport Pty Ltd Environment Policy



10.2.6 Environmental Research

TAPL has engaged James Cook University to undertake environmental research on the airport under a co-operative agreement. This agreement fosters a greater understanding of flora and fauna at Townsville Airport and facilitates the input of university experts in relation to their management.

10.2.7 Training, Communication and Awareness

As a minimum, TAPL's environment staff are required to hold tertiary qualifications in a relevant field e.g. environmental management and / or environmental science.

TAPL also promotes environmental awareness through site induction programs and identifies training requirements for staff and airport operators whose work may have an adverse environmental impact at Townsville Airport. Training may include environmental awareness, management, spill response and awareness of legislative responsibilities.

TAPL undertakes environmental audits of tenants to further promote environmental management awareness and communicate associated issues with civil aviation operators.

Airport users, including tenants, their subtenants, contractors and subcontractors have similar obligations to those of Townsville Airport. These other airport users are required to undertake all relevant actions allocated to tenants in the Airport Environment Strategy and take all reasonable and practicable steps to ensure the Airport Environment Strategy is complied with.

Environmental management issues are also communicated to internal and external stakeholders through a number of committees and forums including the Townsville Airport Community Aviation Consultation Group (CACG), Runway Safety Committee and Wildlife Hazard Management Committee, as well as the Aerodrome Reporting Officer, Aviation Team and lunchbox meetings.

Involvement of the local community and airport users in the development of this strategy has been through consultation described in **Section 2.5**.





Table 10.1 TAPL Environmental Monitoring Program for Townsville Airport

| Attribute | Parameter(s) Monitored | Frequency |
|------------------------------------|--|--|
| Tenant audits | Activities with potential to harm the environment | As required (Category 1) 3 yearly (Category 2) Annually (Category 3 and 4) |
| Stormwater | Integrity of stormwater control devices Heavy metals and analytes against Schedule 2 of the AEPR | Quarterly 3 (wet season) 1 (dry season) |
| Groundwater and Soil | Heavy metals and analytes against Schedule 2 of the AEPR | 6 monthly |
| Hazardous materials | Use and storage of hazardous substances and manifests Integrity of known asbestos | Annually and as required 5 yearly and as required |
| Ground-based noise | Ground running activities and construction noise Noise enquiry register Review of Defence noise monitoring data | As required Quarterly Annually |
| Local air quality | Review of Queensland Department of Environment and Heritage Protection (DEHP) monitoring data (Pimilico station) National Pollutant Inventory Landside point source air quality monitoring | Annually and as required Annually As Required (Category 3 and 4) |
| Energy and sustainable development | Energy and fuel consumption Building performance through the Terminal building management system Carbon footprint, including ozone depleting substances, in accordance with National Greenhouse and Energy Reporting Act 2007 (NGER Act) | Annually Quarterly Annually |
| Water resources | Analytes against the Australian Drinking Water Guidelines and standards Potable water consumption Analytes against Schedule 2 of the AEPR | Monthly 6 monthly As Required |
| Waste | Volumes of waste generated by TAPL facilities and activities and percentage recycled | Annually |
| Effect of climate change | Fire fuel loads Structural integrity of TAPL buildings and infrastructure Adequacy of stormwater control devices to manage increased stormwater volume Tropical cyclone forecasts in cyclone season Storm event monitoring | Annually As required Quarterly Weekly Inspections of high risk construction site undertaken after significant rainfall amounts |
| Biodiversity | Flora and fauna species composition and abundance Weed species abundance and distribution | 2018, 2021 and as required Annually |
| Wildlife hazard risk | Airside Wildlife monitoring (bird counts) Species counts Wildlife strikes and near misses Wildlife species abundance and distribution Mosquito breeding grounds and abundance | Weekly Weekly Monthly and annually 6 monthly Weekly |
| Cultural heritage | Presence of cultural or European heritage artefacts | As required |

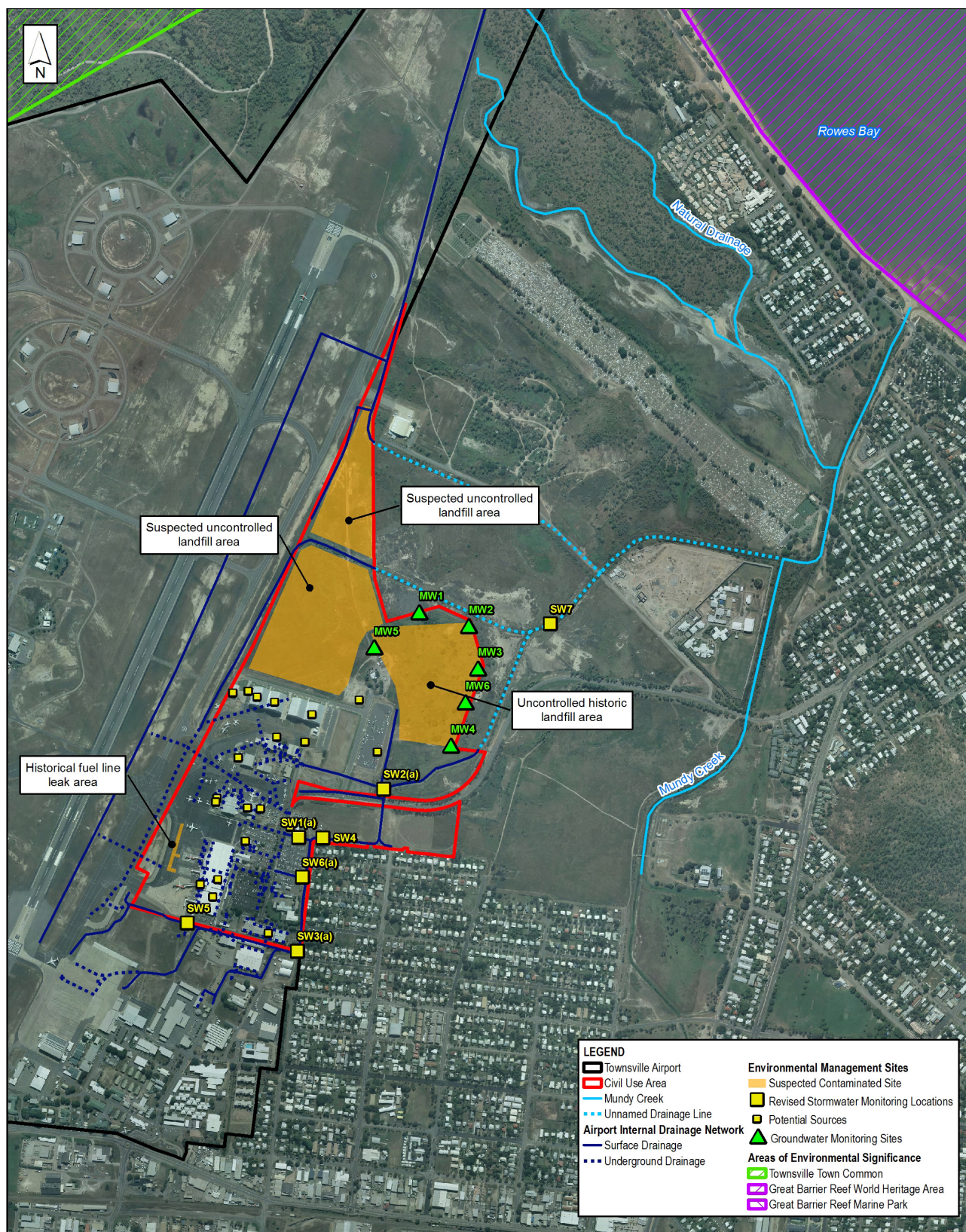


Figure 10.2 Environmental Management Areas and Monitoring Sites in the Civil Area





10.2.8 Environmental Site Register

TAPL has developed and maintains an Environmental Site Register (ESR) for the Civil Area of Townsville Airport. This register collates information from a range of existing TAPL environmental management registers (e.g. contaminated sites) and creates a whole site approach to environmental monitoring and management.

The TAPL ESR identifies the location of every site within the Civil Area that has been or has the potential to be a source of environmental impact and / or is subject to environmental monitoring and auditing. The register is a living register that is periodically reviewed and also includes areas considered to be of environmental significance as defined in **Section 10.2.9**.

Details within the ESR include the environmental condition of the site, previous environmental site assessments, remedial plans and monitoring results. Suspected contaminated sites identified within the Civil Area of Townsville Airport are illustrated in **Figure 10.2**.

10.2.9 Areas of Environmental Significance

TAPL is required to identify areas of environmental significance within the Civil Area of Townsville Airport.

The methodology to identify areas of environmental significance was developed in 2015 in conjunction with development of the 2016 Master Plan to ensure consistency with relevant legislation. Consultation was undertaken in relation to the review of the method at Townsville Airport with DIRD.

Areas of environmental significance include:

- Those areas considered matters of national environmental significance under the EPBC Act
- Matters of state environmental significance under the SPP
- Areas identified as being of cultural heritage significance.

In the context of habitats and vegetation communities, these areas must also demonstrate a high level of connectivity or ecological functionality in order to be considered an area of environmental significance.

There are no areas of environmental significance currently recorded on the ESR for the Civil Area of

Townsville Airport. TAPL does however, acknowledge the presence of areas of environmental significance in the vicinity of the Civil Area including the Townsville Town Common and Great Barrier Reef Marine Park and World Heritage Area.

The Civil Area of Townsville Airport drains away from the Townsville Town Common and into a network of constructed channels and eventually flowing onto the Rows Bay outlet, which forms part of the Great Barrier Reef Marine Park and World Heritage Area.

10.2.10 Achievements in Environmental Management 2009-2015

- Reviewed and revised the TAPL Environmental Policy to align with updated regulatory requirements
- Developed and implemented standard requirements for Construction Environmental Management Plans (CEMP's) through the TAPL CEMP proforma
- Defined methodology for the identification of areas of environmental significance at airport and the environmental sites register. Identified and delineated environmental sites including areas of environmental significance
- Reviewed and revised the TAPL environmental audit program including categorisation of environmental risks associated with airport tenants and operations
- Reviewed and revised the environmental inspection and audit program and reporting procedure for civil aviation operations at Townsville Airport. Roll-out of the revised TAPL inspection and audit program
- Established regular meetings with the AEO, on a minimum monthly basis, to communicate AES progress
- Reviewed and revised TAPL EMS training, communication and awareness procedures to ensure effective communication and reporting of environmental issues at airport
- Developed and implemented the TAPL Environment Alert and Environment Handbook to facilitate communication of the AES and EMS to TAPL tenants and staff
- Hosted work experience students from local schools and provided airport tours to primary schools and scout tours to educate students on airport operations including environmental management
- Financially contributed to the 'Buy a Bale' campaign to provide meaningful support for farmers and facilitate environmental management in the greater



- region
- Reviewed the adequacy and effectiveness of TAPL EMS annually and updated accordingly to maintain ISO14001 standard
- Included environment as a standard agenda item to internal and external stakeholder consultation committees and meetings
- Developed and implemented environmental management clauses to all new lease agreements
- Revised the Queensland Airports Limited (QAL) Procurement and Sustainability Policies to enhance socially responsible, safe, environmental and sustainable procurement
- Undertook gap analysis of the TAPL EMS.

10.2.11 Proposed Targets for Environmental Management from 2016

Table 10.2 lists the proposed targets to meet TAPL's objective for environmental management at Townsville Airport.

Table 10.2 TAPL Environmental Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-----------|
| Review and update the TAPL Development Guidelines and development controls including provisions for CEMP requirements, for new development at airport | 2016 |
| Continue to undertake tenant environmental audits and assess new airport operators for environmental risk | Ongoing |
| Continue to ensure all construction projects are assessed for environmental management practices including the requirements for preparation of specific Construction Environmental Management Plans (CEMP's) for all new development | Ongoing |
| Maintain and review TAPL Environmental Management System (EMS) to ISO14001 standard | Ongoing |
| Implement environmental management awareness training and inductions for TAPL staff, airport operators and contractors | Ongoing |
| Continue to undertake environmental monitoring in accordance with the TAPL Environmental Monitoring Program | Ongoing |
| Continue to promote sound environmental management practices in the fields of energy, waste, water, resource and wildlife management as part of our general environmental duty of care. | Ongoing |





10.3 Stormwater

10.3.1 Overview and Objectives

Objective: To monitor stormwater quality in accordance with statutory requirements and minimise impact to stormwater quality from activities under TAPL operational control.

The Civil Area of Townsville Airport is situated approximately two kilometres west of Rowes Bay, in the upper reaches of the Captains Creek catchment. Rowes Bay forms part of the Great Barrier Reef Marine Park and World Heritage Area (**Figure 10.2**).

Stormwater enters the Civil Area from residential development and airport land (under the management of the Defence) to the south and west. An internal drainage network directs the majority of this stormwater into the upper reaches of Mundy Creek, which discharges into Rowes Bay.

There are no naturally occurring waterways or waterbodies within the Civil Area of Townsville Airport and the Civil Area drains away from the Townsville Town Common.

10.3.2 Potential Environmental Impacts

Surface water is an integral part of the natural environment and stormwater management is essential to maintaining aquatic ecological health and hydrological regimes and mitigating flood risk.

The TAPL internal drainage network also plays a role in flood mitigation within the local catchment. Changes to this drainage or in the surrounding area have the potential to detrimentally impact flood management of the local area.

Civil aviation activities with the potential to impact stormwater quality at Townsville Airport include:

- Construction, earthworks and vegetation removal
- Weed and pest control
- Aircraft refuelling
- Vehicle and aircraft washdown
- Aircraft, vehicle and mechanical plant and equipment maintenance
- Storage, handling, use and disposal of hazardous

materials

- Historical land uses such as landfill and waste disposal
- Waste management infrastructure and storage
- Surrounding land use (including activities undertaken within the Military Area and Jointly Used Area of Townsville Airport).

Civil aviation activities have the potential to lead to the following environmental impacts:

- Contamination from spillage, leakage or seepage into stormwater infrastructure
- Contamination from disturbance of actual and / or potential acid sulphate soils
- Sedimentation leading to eutrophication of waterways and changes to hydrological regimes
- Introduction and / or spread of pest animals and weeds
- Degradation and / or loss of aquatic ecological values
- Creation of mosquito breeding habitat leading to public health risk.

10.3.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including impacts to stormwater, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

Stormwater within the Civil Area is managed through the TAPL Water Quality Management Plan. Stormwater quality is monitored at sites within the internal drainage network and the stormwater retention basin, and along Mundy Creek downstream of the Civil Area (**Figure 10.2**). Stormwater quality is measured in accordance with the requirements and prescribed analytes of the AEPR. Parameters include physio-chemicals e.g. dissolved oxygen, heavy metals, hydrocarbons and nutrients.

The Defence also undertake stormwater quality monitoring within the military and Jointly Used Area before water enters the Civil Area.



Table 10.3 TAPL Stormwater Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|-------------|
| TAPL will engage the Defence to investigate a collaborative approach to stormwater monitoring and management across airport land, such as the sharing of water quality monitoring results and collaborative management strategies | 2017 |
| Implement the stormwater quality monitoring and management through the TAPL WQMP (2016 half yearly | 2016 |
| Continue to provide guidance to stakeholders on stormwater quality improvement strategies | Ongoing |
| Continue to implement the Stormwater Quality and Drainage Strategy to achieve stormwater design objectives for future developments | Ongoing |
| Install stormwater treatment devices at all new discharge points | As Required |
| Continue to ensure all CEMP(s) incorporate measures to minimise potential adverse impacts to stormwater associated with construction activities | As Required |
| Undertake event based stormwater monitoring in accordance with the TAPL Water Quality Management Plan | As Required |

Management measures have been developed and are being implemented through the TAPL EMS to prevent, control or reduce potential impacts to stormwater quality at Townsville Airport, including:

- Environmental inductions
- Spill response and reporting procedures
- Waste handling procedures
- Vegetation removal and weed and pest control procedures
- Installation and maintenance of stormwater treatment devices
- Installation and maintenance of pollution control devices including oil-water separators and bunding
- Tenants and construction audits
- Stormwater management design considered in new development and infrastructure design
- Erosion and sediment control measures implemented through construction and operational EMP's
- Involvement in catchment risk management committees and forums.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities. In accordance with the TAPL EMS, airport tenants, contractors and operators undertaking any construction activities are required to prepare and implement a relevant construction or operational EMP outlining measures and responsibilities for reducing and managing that risk.

TAPL undertakes regular inspections of the Civil Area and tenants, contractor and operator activities to ensure compliance. Where activities have resulted in stormwater contamination, airport operators are required to undertake relevant measures to monitor, manage or remediate contamination caused by their operations.

TAPL also maintains an interest in catchment issues that they are unable to directly manage, through involvement in stakeholder programs.

10.3.4 Achievements in Stormwater Management 2009-2015

- Reviewed, updated and implemented the stormwater monitoring program to improve efficiency, include water clarity testing (e.g. turbidity) and to allow further delineation of stormwater quality entering and exiting the Civil Area
- Prepared and implemented the stormwater monitoring through the TAPL Townsville Airport Water Quality Management Plan 2010
- Developed and implemented standard stormwater management requirements for CEMP's through the TAPL CEMP proforma, including distribution of an environmental management information handbook to operators at the airport
- Maintained existing gross pollutant traps within the Civil Area
- Reviewed and updated spill management and reporting procedures





- Trial installation of heavy water hydrocarbon boom downstream of apron to improve water quality and improve management of hydrocarbon spill risk
- Maintained and rectified the stormwater retention basin treating runoff from developed areas before exiting the Civil Area
- No increase in rate of stormwater runoff flow per unit area within the Civil Area from 2009 – 2014
- Conducted annual erosion and sedimentation inspections across the Civil Area prior to the wet season
- Engaged upstream stakeholders including the Mundy Creek Landcare Group to discuss opportunities to improve stormwater quality and management.

10.3.5 Proposed Targets for Stormwater Management from 2016

Table 10.3 lists the proposed targets to meet TAPL's objective for stormwater quality management at Townsville Airport.

10.4 Soil and Groundwater

10.4.1 Overview and Objectives

Objective: To monitor soil and groundwater quality in accordance with statutory requirements and minimise impact to soil and groundwater quality from activities under TAPL operational control.

The Civil Area of Townsville Airport is situated on sub-coastal land predominantly characterised by thin, sandy loam soils overlying heavy clay subsoils. These soils are poorly draining and highly dispersive with adverse chemical properties causing corrosion of underground services and have the potential to become acid sulphate soils when exposed to air. Groundwater in this area is shallow and flows towards residential development to the south-east.

Townsville Airport, including the Civil Area, has operated as an active airport since 1939, including as an intensive military base during World War II. The airport overlies various depths of imported fill, some of which is known to be contaminated (**Figure 10.2**).

There is also a possibility of dangerous items of Unexploded Ordnance (UXO) present in the Civil Area.

10.4.2 Potential Environmental Impacts

TAPL has a responsibility to ensure the Civil Area is not polluted and that contaminants do not impact soil or groundwater features on site or in the surrounding area. TAPL must undertake all practicable measures to minimise environmental and health risks associated with soil and groundwater contamination within the Civil Area.

Civil aviation activities with the potential to impact soil and groundwater at Townsville Airport include:

- Construction and earthworks
- Grounds maintenance including vegetation removal and weed control
- Storage, handling, use and disposal of hazardous materials
- Aircraft refuelling
- Vehicle and aircraft washdown
- Aircraft, vehicle, and mechanical plant and electrical equipment maintenance
- Car parking
- Historical land uses such as landfill and waste disposal
- Importation and placement of fill materials
- Waste management infrastructure, storage and disposal
- Demolition of buildings containing hazardous materials
- Surrounding land use, including activities undertaken within the Military Area and Jointly Used Area of Townsville Airport.

Civil aviation activities have the potential to lead to the following environmental impacts:

- Contamination from spillage, leakage or seepage or residual runoff from hardstand areas
- Contamination from disturbance of actual and / or potential acid sulphate soils
- Erosion.



10.4.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including impacts to soil and groundwater, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

The majority of operations that take place within the Civil Area are on impervious surfaces that greatly reduce the likelihood of contamination.

Soil and groundwater quality within this area are identified through the TAPL Contaminated Land Register. Activities with the potential to impact upon soil or groundwater quality undergo a risk assessment to facilitate the development of appropriate training, monitoring and incident management and reporting procedures.

Soil erosion and sedimentation inspections are conducted annually across the Civil Area. Groundwater quality is monitored within known or suspected areas or areas with the potential for contamination within the Civil Area including aviation hardstands and historical landfill areas (**Figure 10.2**). The Defence also undertake groundwater quality monitoring within the Military Area.

Groundwater quality is measured in accordance with the requirements and prescribed analytes of the AEPR. Parameters include heavy metals and hydrocarbons.

Additional management measures have been developed and are being implemented through the TAPL EMS to prevent, control or reduce potential impacts to soil and groundwater quality at Townsville Airport, including:

- Environmental inductions
- Spill response and reporting procedures
- Waste handling procedures
- Vegetation removal and weed and pest control procedures
- Installation and maintenance of pollution control devices such as bunding
- Tenant and construction audits and routine inspections of the Civil Area
- Maintenance of the ESR and Chemwatch program
- Implementation of acid sulphate soil management measures through CEMP's as required
- Implementation of soil and groundwater management measures through construction and operational EMP's.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in





place to manage specific environmental risks associated with their activities.

Tenants, contractors and operators undertaking Category two activities may also be required to prepare and implement a relevant construction or operational EMP, or provide information similar to a construction or operational EMP, if advised to do so by the ABC and / or AEO.

TAPL undertakes regular inspections of the Civil Area and tenants, contractor and operator activities to ensure compliance. Where activities have resulted in soil or groundwater contamination, airport operators are required to undertake relevant measures to monitor, manage or remediate contamination caused by their operations.

10.4.4 Achievements in Soil and Groundwater Management 2009-2015

- Implemented the groundwater monitoring program
- Conducted groundwater monitoring of the Civil Area in the wet season to characterise groundwater flow and composition to facilitate quantification of human and environmental health risks

- Prepared and implemented the TAPL Townsville Airport Water Plan
- Conducted erosion and sedimentation inspections across the Civil Area annually prior to the wet season
- Developed and implemented standard soil and groundwater management requirements for CEMP's through the TAPL CEMP proforma
- Engaged independent consultants to manage large construction works within the Civil Area
- Reviewed tenant groundwater monitoring and reporting
- Installation and maintenance of pollution control devices such as bunding
- Reviewed and integrated the contaminated sites register into the TAPL Environmental Sites Register
- Delineated areas of contamination and integrated into the TAPL Environmental Sites Register mapping interface.

10.4.5 Proposed Targets for Soil and Groundwater Management from 2016

Table 10.4 lists the proposed targets to meet TAPL's objective for soil and groundwater management at Townsville Airport.

Table 10.4 TAPL Soil and Groundwater Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|--|
| Develop and implement a Contaminated Site Management Plan with priority actions for assessment and remediation works, as required | 2017 |
| Develop Environmental Site Assessment Guidelines to guide new developments and lease terminations, based on existing Development Guidelines and development controls | 2017 |
| Review and update the TAPL Environmental Site Register | Annually, or more frequently as required |
| Implement the groundwater quality monitoring and management through the TAPL Water Quality Management Plan | Half Yearly |
| Establish and implement a consistent approach to conducting inspections of erosion and sedimentation across the Civil Area | 2017 |
| Continue to guide tenants to progressively remediate contaminated sites on a risk basis where practicable | Ongoing |
| Complete the TAPL Water Quality Management Plan | 2016 |
| Continue to ensure all CEMP(s) incorporate measures to minimise potential adverse impacts to soil and groundwater associated with construction activities | As Required |
| Abestos action plan across the site, both from the environmental and human health hazard perspective | Address through monthly meetings |
| Groundwater monitoring and storage tank and smaller contaminated sites | Address through monthly meetings |



10.5 Hazardous Materials

10.5.1 Overview and Objectives

Objective: To ensure storage, handling and use of hazardous materials are carried out in accordance with applicable requirements and where feasible, substitute, minimise or eliminate their use.

Hazardous materials used in associated with civil aviation operations and activities within the Civil Area are managed according to their nature and scale of the associated activity.

The use, handling, storage and disposal of hazardous materials within the Civil Area is managed in accordance with regulatory requirements for Workplace Health and Safety and the TAPL EMS and Aerodrome Emergency Plan.

10.5.2 Potential Environmental Impacts

TAPL has a responsibility to ensure all hazardous materials used in association with civil aviation operations and activities are managed appropriately to ensure that contaminants do not impact the Civil Area or surrounding environment. Civil aviation activities in which hazardous materials could affect the environment include:

- Bulk fuel storage and handling including aviation, unleaded and diesel fuels
- Aircraft refuelling
- Vehicle and aircraft washdown
- Aircraft, vehicle and mechanical plant and electrical equipment maintenance
- Construction, earthworks and demolition
- Quarantine operations
- General airport operation, construction, maintenance and landscaping including weed and animal pest control.

Civil aviation activities have the potential to lead to the following environmental impacts:

- Release of hazardous materials
- Water, land and air contamination
- Human and ecosystem health impacts.

10.5.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including the use, storage, handling and disposal of hazardous materials, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

Hazardous materials in the Civil Area are managed in accordance with regulatory requirements for Workplace Health and Safety and the TAPL EMS and Aerodrome Emergency Plan. These mechanisms outline procedures for spill response, major incident response, stormwater retention basin maintenance, incident reporting and tenant and construction auditing as well as maintenance of TAPL's hazardous materials registers including Chemwatch.

Hazardous materials are periodically substituted or replaced where feasible, with all associated handling and disposal works undertaken by TAPL staff or contractors with the appropriate relevant licences.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities.

Tenants, contractors and operators undertaking Category two activities may also be required to prepare and implement a relevant construction or operational EMP, or provide information similar to a construction or operational EMP, if advised to do so by the ABC and / or AEO.

TAPL undertakes regular inspections of the Civil Area and tenants, contractor and operator activities to ensure compliance.

10.5.4 Achievements in Hazardous Materials Management 2009-2015

- Implemented and maintained the Chemwatch for provision of manifest and Safety Data Sheets (SDSs) for substances used by TAPL
- Maintained and implemented the TAPL Asbestos Register
- Developed and updated the TAPL Environmental Sites Register from existing contaminated sites,



- asbestos and Chemwatch registers
- Reviewed and revised the TAPL environmental audit program including categorisation of environmental risks associated with airport tenants and operations
- Removal of asbestos from the Civil Area and TAPL infrastructure in line with regulatory procedures
- Maintained and implemented the TAPL spill response procedures and Aerodrome Emergency Plan
- Developed and implemented standard hazardous materials management requirements for CEMP's through the TAPL CEMP proforma.

10.5.5 Proposed Targets for Hazardous Materials Management from 2016

Table 10.5 lists the proposed targets to meet TAPL's objective for hazardous materials management at Townsville Airport.

10.6 Ground-based Noise

10.6.1 Overview and Objectives

Objective: To ensure all developments and airport activities comply with relevant ground-based noise regulations whilst striving for continuous improvement

Townsville Airport is located in an existing urbanised area and noise sensitive receptors neighbouring the Civil Area primarily consist of residential and commercial premises.

Under the Regulations, TAPL is responsible for managing noise generated by ground-based activities within this area. Ground-based noise generated by military

activities at Townsville Airport is the responsibility of the Defence and noise generated from aircraft during flight, landing, take-off and taxiing is the responsibility of Airservices Australia.

Noise enquiries are received and responded to by TAPL and Airservices Australia. Generally, TAPL receives a low volume of noise enquiries related to ground-based noise.

10.6.2 Potential Environmental Impacts

TAPL has a responsibility to manage noise generated by ground-based activities within the Civil Area to ensure they do not adversely impact upon neighbouring noise sensitive receptors. Civil aviation activities with the potential to generate ground-based noise include:

- Aircraft ground running and movement
- Aircraft maintenance and testing activities
- Fixed and mobile plant and equipment use
- General airport and infrastructure maintenance activities
- Construction and demolition works
- Internal road network traffic
- Tenant activities.

Civil aviation activities have the potential to lead to the following environmental impacts:

- Nuisance to airport operators and the community
- Disruption in roosting and breeding behaviour of local fauna.

Table 10.5 TAPL Hazardous Materials Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-----------|
| Review hazardous materials on site and examine options to substitute, minimise or eliminate their use | 2017 |
| Continue to conduct asbestos audits of all facilities under TAPL operational control as per regulatory guidelines | Ongoing |
| Maintain and review the TAPL Asbestos Register and develop a maintenance and containment strategy as per regulatory guidelines | Ongoing |
| Continue to undertake environmental audits of tenants and airport operations associated with the use of hazardous materials and provide guidance to stakeholders on appropriate management | Ongoing |
| Continue to store and manage hazardous substances and dangerous goods on airport land in accordance with regulatory requirements | Ongoing |
| Continue to implement emergency response plans for hazardous materials spills | Ongoing |



10.6.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including the ground-based noise, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

TAPL receives noise enquiries directly and from Airservices Australia. All noise enquiries reported to TAPL are entered into the TAPL Noise Enquiry Register, investigated and appropriate corrective actions implemented as required. Noise enquiries are also monitored and collated monthly to identify any trends or issues.

Noise measurements are undertaken by TAPL in response to noise enquiries as required. The Defence also undertake noise monitoring within the Military Area to identify trends in ground-based noise generated at Townsville Airport.

Management measures have been developed and are being implemented through the TAPL EMS to prevent, control or reduce potential impacts associated with ground-based noise in the Civil Area. This includes environmental awareness and inductions, tenant and construction audits. Aircraft ground running policy has been developed and is reviewed of the policy in response to airport operation issues and tenant feedback. TAPL also ensures regular servicing and maintenance of all vehicles, plant and equipment to assist with minimising ground-based noise.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities.

In accordance with the TAPL EMS, airport tenants, contractors and operators undertaking Category three or four activities are required to prepare and implement a relevant construction or operational EMP outlining measures and responsibilities for reducing and managing this risk. Construction and operational EMP's are developed in accordance with **Section 10.2** and are required to include appropriate noise management and suppression measures such as restricted work hours to reduce and minimise noise impact. Construction sites are also regularly inspected to ensure they meet their

CEMP requirements.

TAPL maintains an interest in noise issues that they are unable to directly manage, through involvement in stakeholder committees including the TAPL CACG.

10.6.4 Achievements in Ground-based Noise Management 2009-2015

- Monitored and responded to all ground-based noise enquiries received directly and by Airservices Australia
- Developed and implemented standard ground-based noise management requirements for CEMP's through the TAPL CEMP proforma
- Reviewed and updated the TAPL Ground Running Policy
- Conducted regular inspections of construction and ground running activities within the Civil Area
- Reviewed and revised the TAPL environmental audit program including categorisation of environmental risks associated with airport tenants and operations
- Provided input to TCC's Master Planning to assist with the development of appropriate land use planning for areas surrounding Townsville Airport
- Engaged the Defence to discuss opportunities to improve ground-based noise management.

10.6.5 Proposed Targets for Ground-based Noise Management from 2016

Table 10.6 lists the proposed targets to meet TAPL's objective for ground-based noise management at Townsville Airport.

10.7 Local Air Quality

10.7.1 Overview and Objectives

Objective: To ensure all developments and airport activities comply with relevant air quality regulations whilst striving for continuous improvement.

Townsville Airport is located within an urbanised area and air quality in the local airshed has been monitored by the Department of Environment and Heritage Protection (DEHP) for more than a decade.

Under the AEPR, TAPL is responsible for managing air emissions generated by ground-based activities





associated with civil aviation operations at Townsville Airport, within the Civil Area boundary only.

Air quality outside the airport boundary is subject to the provisions of the Queensland *Environmental Protection Act 1994 (QLD)*. Air emissions generated by aircraft are regulated by the Air Services Act 1995 and their regulations.

Data published by the DEHP shows air quality in the airshed that encompasses Townsville Airport meets the criteria of relevant regulations and *National Environment Protection (Ambient Air Quality) Measures 1998 (Cth)*.

TAPL also has a responsibility to report air emissions to the Australian Government under the National Environment Protected Measures, where relevant thresholds are triggered. To date, TAPL has not met the threshold for reporting.

10.7.2 Potential Environmental Impacts

TAPL has a responsibility to manage air emissions generated by activities within the Civil Area to ensure they do not adversely impact upon neighbouring sensitive receptors. Accepted limits of air pollutants are defined by *Schedule 1 of the Airports (Environment Protection) Regulations 1997 (Cth)*.

Civil aviation activities with the potential to generate air emissions include:

- Aircraft ground operations including refuelling
- Vehicle, plant and equipment operations
- Use of air-conditioners, pumps and generators
- General aviation maintenance including spray

painting and paint stripping activities, workshop activities and cleaning operations using organic solvents

- Use of ground power units and auxiliary power units
- Use, handling, storage and disposal of hazardous materials
- Removal and / or damage to asbestos containing materials
- Grounds maintenance including vegetation removal and weed control
- Construction and demolition works.

Civil aviation activities have the potential to lead to the following environmental impacts:

- Airborne pollution including contributions to climate change and ozone depletion
- Release of asbestos fibres
- Reduced visibility for aircraft
- Sedimentation of internal drainage network
- Public nuisance
- Offensive odours.

10.7.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including the local air quality, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

TAPL maintains and updates an air emissions inventory to identify and manage risks associated with air emissions and local air quality.

Additional management measures have been developed

Table 10.6 TAPL Ground-based Noise Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-------------|
| Review noise monitoring data collected by RAAF Base Townsville | Annually |
| Timely investigation of any reported inappropriate noise generation | As required |
| Continue to ensure all CEMP's incorporate measures to minimise potential adverse noise impacts associated with construction activities | As required |
| Continue to review and enforce the TAPL Ground Running Policy | Ongoing |
| Continue to engage with the local community on noise issues | Ongoing |
| Continue to investigate noise abatement measures and where feasible, integrate into airport operations | Ongoing |



and are being implemented through the TAPL EMS including:

- Environmental awareness and inductions
- Tenant and construction audits
- Environmental compliant management through the TAPL Customer Information Service
- Incorporated dust control measures into Method of Work Plans and CEMP's as standard
- Procedures for the use, handling, storage and disposal of hazardous materials
- Stabilisation of disturbed areas
- Collection and disposal of ozone-depleting substances from air-conditioning units
- Avoidance of pest controls containing methyl bromide
- Maintenance of vegetation cover in undeveloped areas
- Implementation and review of the TAPL Asbestos Management Plan
- Procedures for earthworks and weed control activities in windy conditions
- Maintenance of vehicles, plant and equipment to prescribed standards.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

A CEMP is required for all development and is to include specific measures to appropriately manage environmental risks posed by construction activities, including air emissions.

TAPL controls emissions from minor point sources through regular site inspections and the implementation of tenant EMP's. TAPL manages dust emissions from construction activities through mitigation strategies detailed in construction EMP's.

10.7.4 Achievements in Local Air Quality Management 2009-2015

- Developed and implemented the TAPL Refrigeration and Air Conditioning Risk Management Plan including an internal audit procedure and licencing requirements for recovery and removal of refrigerants
- Maintained and updated the TAPL Ozone Depleting Substances Register

- Responded to environmental complaints in accordance with the TAPL Customer Information Service
- Developed and implemented standard air emission management requirements for CEMP's through the TAPL CEMP proforma
- Reviewed, updated and integrated the contaminated sites register into the TAPL ESR and delineated areas of contamination and integrated into the TAPL ESR mapping interface
- Conducted regular inspections of construction activities within the Civil Area
- Reviewed and revised the TAPL environmental audit program including categorisation of environmental risks associated with airport tenants and operations.

10.7.5 Proposed Targets for Local Air Quality Management from 2016

Table 10.7 lists the proposed targets to meet TAPL's objective for local air quality management at Townsville Airport.

10.8 Energy Efficiency and Sustainable Development

10.8.1 Overview and Objectives

Objective: To minimise and improve efficiency of energy consumption for facilities and activities under TAPL operational control and incorporate sustainable development principles into new and existing TAPL facilities in a manner that minimizes cost and natural resource use.

The consumption of renewable and non-renewable resources expend natural resources and often create by-products, such as greenhouse gas emissions, which require further management.

Townsville Airport operates 24 hours a day and in the FY2013-14, TAPL consumed 7,353 MWh of electricity, a decrease of 280 MWh (or approximately 4 percent) from the previous reporting period. Energy consumption is expected to increase with the impending growth and expansion of Townsville Airport and passenger numbers.

TAPL is committed to environmental sustainability through the appropriate management of energy and fuel consumption associated with facilities and activities





under its operational control. This is achieved through the measuring of its carbon footprint and development and implementation of measures to reduce energy and fuel use, where practicable. Why TAPL does not trigger the reporting requirements under NGER, NGER reporting is undertaken periodically to facilitate ongoing changes in emissions. In 2014-2015, TAPL did not meet the requirements for emission reporting under the NGER Act.

Resource use efficiency is promoted through environmentally sustainable development. TAPL is committed to sustainable development of the Civil Area through its energy and water efficiency initiatives.

10.8.2 Potential Environmental Impacts Energy Efficiency

Activities under TAPL's operational control that consume energy or fuel and / or have the potential to generate greenhouse gas emissions include:

- Use of electricity through lighting (internal, street, carpark, air-conditioning, refrigeration, operation of terminal, sewer pump stations etc)
- Use of fuel through vehicle, plant and equipment operation, generator use, aircraft ground running activities, food preparation by operators
- Release of methane associated with historical land uses (landfill).

Civil aviation activities have the potential to lead to the following environmental impacts:

- Generation of greenhouse gas emissions
- Depletion of natural resources.

Sustainable Development

Inappropriate planning and infrastructure design have the potential to increase operation costs and associated resource consumption, generate excessive waste and degrade the natural environment.

10.8.3 Measures to Prevent, Control or Reduce Environmental Impact

Energy Efficiency

Environmental risks associated with facilities and activities under TAPL's operational control, including energy and fuel consumption, are assessed as part of the TAPL EMS as detailed in **Section 10.2**. Risks associated with the potential for environmental impact have appropriate control measures detailed in the TAPL EMS.

TAPL maintains and updates annual air emissions and energy consumption inventories to identify and manage risks associated with greenhouse gas emissions. Additional management measures are implemented to facilitate management of energy and fuel use including environmental awareness and inductions and tenant and construction audits.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

A CEMP is required for all development and must include specific measures to appropriately manage environmental risks posed by construction activities, including energy and fuel use.

Table 10.7 TAPL Local Air Quality Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|-----------|
| Continue to undertake air emissions audit in line with National Pollutant Inventory | 2016 |
| Review air quality monitoring data collected by DEHP Pimilico Monitoring Station | Annually |
| Continue to maintain and review the TAPL Ozone Depleting Substances Register and identify options to substitute, minimise or eliminate their use | Ongoing |
| Review the TAPL Refrigeration and Air Conditioning Risk Management Plan and continue to recover and remove refrigerants within the Civil Area accordingly | Ongoing |
| Ensure appropriate servicing and maintenance of TAPL plant and equipment | Ongoing |
| Continue to ensure all CEMP(s) incorporate measures to minimise potential adverse impacts to local air quality associated with construction activities | Ongoing |
| Continue to provide guidance to stakeholders on air quality improvement strategies | Ongoing |



Known and potential contaminated sites with the potential to generate methane gases are managed as outlined in **Section 10.4 Sustainable Development**

TAPL implements a number of sustainable development measures through the TAPL EMS as detailed in **Section 10.2**. Development Guidelines have been developed and are implemented within the Civil Area with the aim of integrating sustainability principles and technologies into new developments and existing facilities.

TAPL also operates a Building Management System in the terminal to optimise lighting, air-conditioning and other automated functions. Tenants are also encouraged to consider sustainable design and resource efficiency in their facilities and operations through environmental awareness and induction programs and annual audits. Landscaping guidelines have been developed and implemented at the airport with the aim to utilise drought resistant species to minimise water usage.

TAPL also adopts the revised QAL Sustainability and Procurement Policies to ensure products purchased have a minimal impact upon the environment where practicable.

10.8.4 Achievements in Energy and Fuel Management 2009-2015

- Incorporated energy conservation into environmental awareness and inductions
- Review of carbon management program in 2015 to identify measures to improve carbon management
- Installation of a building management system (BMS) in terminal to control lighting, air-conditioning and other automated functions
- Overall 7.3 percent reduction in energy use across TAPL facilities and operations from 2011
- Installation of 30kW solar system on the TAPL administration building resulting in a 50 percent reduction in energy use
- Drafted the TAPL Emissions Reduction Plan outlining an action plan to identify possible reductions through appropriate control measures
- Replacement of terminal lighting with LED fixtures resulting in a 58 percent reduction in energy use
- Upgrade of short term carpark lighting to low energy street lights
- Incorporation of energy efficiency measures in TAPL Development Guidelines

- Continued investigations into use of renewable energy sources within the Civil Area including ongoing negotiations with current electricity provider
- Replaced half of TAPL fleet with more fuel efficient vehicles.

10.8.5 Proposed Targets for Energy and Fuel Management from 2016

Table 10.8 lists the proposed targets to meet TAPL's objective for energy and sustainable development at Townsville Airport.

10.9 Water Resources

10.9.1 Overview and Objectives

Objective: To minimise and improve efficiency of water use at all facilities under TAPL operational control. TAPL is committed to environmental sustainability through the appropriate management of water consumption associated with facilities and activities under its operational control. TAPL reduced its water consumption associated with its operations by four percent from FY2012-13 to FY2013-14 whilst tenants within the Civil Area reduced their water consumption by 35 percent from the same reporting period.

Consumption of water resources is however, expected to increase over time with the impending growth and expansion of Townsville Airport.

10.9.2 Potential Environmental Impacts

The consumption of water resources at Townsville Airport has the potential to deplete town water supply as well as increase pressure on existing service infrastructure. Facilities and activities under TAPL's operational control that consume water resources include:

- Aircraft and vehicle washdown
- Aircraft water uptake and waste disposal
- Commercial kitchen facilities
- Cooling towers associated with air-conditioning units
- Cleaning, amenities and hygiene management
- Construction works
- General maintenance activities including irrigation and bushfire risk management.





10.9.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with facilities and activities under TAPL's operational control, including water consumption, are assessed and managed through the TAPL EMS as detailed in **Section 10.2**.

TAPL implements a number of measures to facilitate water resource management within the Civil Area in an effort to prevent, control or reduce consumption including:

- Maintaining and reviewing the TAPL water consumption inventory for facilities and activities under its operational control
- Water quality testing of potable water for aircraft uptake
- Water conservation awareness through inductions and TAPL Development Guidelines
- Tenant and construction audits
- Utilisation of stormwater captured from the terminal building to irrigate terminal gardens
- Encourage the use of water sensitive design in the new infrastructure
- Development and implementation of TAPL Landscaping Guidelines to guide tenants, contractors and staff in water efficiency landscape design and species selection.

Airport tenants, contractors and operators are required

to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

Tenants are also encouraged to utilise sensitive water design in their facilities.

10.9.4 Achievements in Water Resources Management 2009-2015

- Overall 20 percent reduction in water use in the Civil Area from 2009
- Incorporation of water conservation into environmental awareness and inductions
- Installation of a BMS in terminal to control lighting, air-conditioning and other automated functions
- Implemented potable water quality monitoring through the TAPL Townsville Airport Water Quality Management Plan
- Installation of rainwater tanks at terminal building to capture and reuse stormwater in terminal gardens
- Upgraded water meters and detected and rectified leaks where identified
- Regular monitoring and maintenance of water meters and water infrastructure to identify and rectify leakage
- Conducted annual water audits to quantify water usage and delineate between tenant and TAPL operations
- Incorporation of water efficiency measures and sensitive water design in TAPL Development

Table 10.8 TAPL Energy Efficiency and Sustainable Development Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|-----------|
| Develop procedure for carbon measuring for all facilities and activities under TAPL operational control, in line with NGER Act, and complete carbon footprint analysis | 2017 |
| Develop a strategy to manage and reduce greenhouse gas emissions, including participation in an affiliated carbon accreditation program and incorporating actions identified in the drafted TAPL Emissions Reduction Plan | 2018 |
| Incorporate sustainable design principles into airport environmental management guidelines for use by tenants, contractors, and TAPL staff | 2018 |
| Continue to provide guidance to tenants on techniques for measuring emissions and reducing energy consumption | Ongoing |
| Support and facilitate fuel reduction initiatives by aircraft operators where possible | Ongoing |
| Continue to improve building performance through cost-effective improvements to operation and maintenance practices | Ongoing |
| Incorporate sustainable design principles into development guidelines, encouraging adoption of energy and water efficiency measures where feasible | Ongoing |
| Continue to identify sustainable development opportunities | Ongoing |



Guidelines

- Facilitated tenant water sensitive design initiatives including the installation of 2040L rainwater tank at the AVIS car rental facility to capture and reuse stormwater for vehicle washdowns
- Review and update of TAPL Landscaping Guidelines to ensure water sensitive design and species selection utilised, where practicable, in landscaped areas.

10.9.5 Proposed Targets for Water Resources Management from 2016

Table 10.9 lists the proposed targets to meet TAPL's objective for water resource management at Townsville Airport.

10.10 Waste

10.10.1 Overview and Objectives

Objective: To minimise waste consumption and decrease waste to landfill.

Waste, as defined in the AEPR, includes refuse in any form, discarded or disused plant or equipment and industrial by-products. TAPL is committed to minimising waste generated by its facilities and activities by implementing appropriate systems for containment and disposal in accordance with relevant standards and legislative requirements.

Waste management within the Civil Area is guided by the TAPL Waste Management plan and principles of the waste management hierarchy framework of the Queensland Waste Avoidance and Resource Productivity

Strategy 2014-2024. (**Figure 10.4**)

10.10.2 Potential Environmental Impacts

Waste streams generated or with the potential to be generated at Townsville Airport include general waste, organics including food scraps and vegetation material, recyclable items including paper, glass and plastics, liquid sanitary and trade waste, hazardous wastes including oils, construction materials and discarded plant and equipment, and e-waste including computers and other electronic equipment.

Facilities and activities under TAPL's operational control that generate waste or have the potential generate waste include:

- Vehicle and aircraft washdown
- Cleaning, amenities and hygiene management
- General maintenance activities including landscaping and vegetation / weed management
- Aircraft operations
- Vehicle, plant and equipment maintenance
- Terminal operations
- Commercial kitchens
- Administration / offices
- Construction and demolition works.

Inappropriate waste management has the potential to lead to the following environmental impacts:

- Increased demand on local landfill space
- Depletion of natural resources
- Increased energy use associated with recycling of waste
- Increased fuel consumption associated with

Table 10.9 TAPL Water Resource Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|---|
| Review water audit methodology to delineate and quantify potable and non-potable water consumption associated with facilities and activities under TAPL operational control | Annually |
| New developments to incorporate water sensitive urban design features, where feasible | Ongoing |
| Continue to monitor opportunities to improve resource use during tenant audits | As required (Category 1) 3 yearly (Category 2) Annually (Category 3 and 4) |
| Monitor potable water quality to aerobridges in accordance with the TAPL Water Quality Management Plan | Ongoing |
| Strive to minimise resource use associated with construction activities | As required |





- transport of waste
- Water, air or soil contamination through incorrect waste disposal
- Increased safety risk to aircraft through presence of foreign object debris (FOD) in airfield and increased attraction wildlife attraction.

10.10.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with facilities and activities under TAPL's operational control, including waste generation and disposal, are assessed and managed through the TAPL EMS as detailed in **Section 10.2**.

TAPL implements a number of measures to facilitate waste management within the Civil Area in an effort to prevent, control or reduce consumption. Waste receptacles are provided at various locations within TAPL managed facilities and on ground (airside and landside) to collect general and organic waste materials. Receptacles are collected and disposed of to an approved waste management (landfill) facility.

TAPL minimises waste to landfill through the implementation of the TAPL Public Place Recycling Program. Co-mingled bins are provided at TAPL buildings including the terminal. Recyclable materials are collected and sorted by an approved agent.

Trade waste, including wastewater, generated by airport operators is collected and treated on site before release to the sewer network. Treated output is monitored by Townsville City Council to ensure appropriate treatment prior to transfer to the Mount St John's Wastewater Treatment Plant, to the west of Townsville Airport. All hazardous materials and waste products are handled, stored and disposed of in accordance with relevant legislative requirements.

TAPL also adopts the QAL Sustainability and Procurement Policies to ensure all products purchased have a minimal impact upon the environment where practicable.

TAPL also conducts regular inspections of the Civil Area and Jointly Used Area to ensure FOD is recovered and disposed of appropriately and waste is appropriately contained and covered to minimise wildlife attraction.

Airport tenants, contractors and operators are required



Figure 10.4 Waste Management Hierarchy

to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

TAPL also continues to encourage and facilitate best practice waste management of tenant and operator facilities and operations through awareness, inductions and stakeholder meetings.

10.10.4 Achievements in Waste Management 2009-2015

- Installed comingled recycling bins in terminal
- Encouraged environmental awareness through inductions, Environmental Alerts, distribution of information sheets to tenants
- Incorporated waste volume reporting clauses into new tenant leases
- Developed and maintained the TAPL Waste Volume Register and associated waste tracking certificates
- Developed and implemented the TAPL Regulated Waste Transport and Tracking Procedure to quantify waste generation and disposal volumes in the Civil Area
- Conducted public area waste audit for the terminal and TAPL operations
- Erected signage at waste disposal areas to encourage use
- Developed and implemented the TAPL Waste Management Plan to identify waste streams, waste generating activities and actions for improved waste management at airport
- Implemented paperless office initiative in TAPL



administration buildings and reduced office waste generation accordingly.

10.10.5 Proposed Targets for Waste Management from 2016

Table 10.10 lists the proposed targets to meet TAPL's objective for waste management at Townsville Airport.

10.11 Climate Change

10.11.1 Overview and Objectives

Objective: To improve preparedness against and manage potential impacts of climate change on airport infrastructure and operations.

According to the CSIRO and the Townsville City Council's Coastal Hazard Adaptation Study 2012, the climate in Townsville is predicted to be warmer and drier with decreasing annual rainfall and increasing frequency of hot days and extreme fire risk conditions.

Townsville is also expected to experience more severe cyclones more often than previously, though the total number of cyclones to impact Townsville is predicted to remain steady. The risk of storm surge is also expected to increase with sea level rise.

TAPL is committed to managing the potential impact of climate change on civil aviation operations and infrastructure through identification and management of associated risks.

Section 10.8 discusses managing climate change in the context of greenhouse emissions generated by facilities and activities under TAPL's operational control.

10.11.2 Potential Environmental Impacts

Changes in climatic conditions have the potential to impact civil aviation operations through:

- Deterioration of infrastructure and increase in frequency in maintenance
- Increased demand for natural resources (e.g. energy for air-conditioning) and associated operational costs
- Increased grounds maintenance
- Loss of productivity associated with airport shutdown in extreme weather conditions
- Increased stress on vegetation and turfed areas increasing exposed ground and aircraft hazard (e.g. wildlife attraction and dust)
- Increased fire risk.

10.11.3 Measures to Prevent, Control or Reduce Environmental Impact

TAPL manages climate change risk through the TAPL EMS as detailed in **Section 10.2**. Development Guidelines have been developed and are implemented within the Civil Area to guide sustainable and structurally sound development, suitable for cyclonic exposure.

Energy and water efficiency measures have been implemented to reduce natural resource use associated with TAPL facilities and activities.

Landscaping guidelines have been developed and implemented at the airport with the aim to utilise drought resistant species able to withstand predicted weather conditions.

Firebreaks are maintained along the Civil Area boundary to manage fire risk. Extreme weather conditions are further managed through the Townsville Aerodrome Emergency Plan, Townsville Airport Cyclone Plan and TAPL regularly participates and contributes to local and

Table 10.10 TAPL Waste Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|-----------|
| Review terminal public place recycling system with terminal expansion | 2017 |
| Review waste streams and management practices for opportunities to reduce waste generation requiring disposal to landfill | 2017 |
| Continue to implement and review the TAPL Waste Management Plan and waste minimisation initiatives therein | Ongoing |
| Continue to support airport tenants to expand their waste avoidance, reuse and recycling programs | Ongoing |
| Continue to provide waste management training and inductions for TAPL staff, airport operators and contractors | Ongoing |





State adaptive planning processes and committees.

10.11.4 Achievements in Climate Change Management 2009-2015

- Promoted climate change awareness through environmental awareness programs and inductions
- Promoted sustainable development design through TAPL Development Guidelines and tenant audits
- Reviewed and updated the Aerodrome Emergency Plan and Cyclone Plan
- Participated in local and State adaptive planning committees and forums
- Maintained fire breaks along Civil Area boundary
- Maintained vegetation cover across undeveloped areas of the Civil Area.

10.11.5 Proposed Targets for Climate Change Management from 2016

Table 10.11 lists the proposed targets to meet TAPL's objective for climate change management at Townsville Airport.

10.12 Biodiversity

10.12.1 Overview and Objectives

Objective: To appropriately manage biodiversity values at Townsville Airport with due regard for mitigation of bird and wildlife strike risk.

The Civil Area of Townsville Airport is a highly modified environment and characterised by landscaped gardens and turf grassed areas in association with development and infrastructure and weed dominated vegetation to the north in association with an undeveloped portion of land.

The Civil Area of Townsville Airport does not contain or lie adjacent to any areas of environmental significance

as defined in **Section 10.2.9**. Areas of environmental significance are present in the vicinity of the Civil Area including the Townsville Town Common to the north and Great Barrier Reef Marine Park and World Heritage Area, five km to the east.

The Civil Area drains to the east, away from the Townsville Town Common, and towards the coastal waters of Rowes Bay via Mundy Creek (**Figure 10.2**). The Civil Area and broader airport environs provide limited habitat value for birds including the nationally threatened Eastern Curlew (*Numenius madagascariensis*) and a number of migratory birds including the Fork-tailed Swift (*Apus pacificus*), Eastern Great Egret (*Ardea modesta*), Barn Swallow (*Hirundo rustica*), Rainbow Bee-eater (*Merops ornatus*) and Satin Flycatcher (*Myiagra cyanoleuca*). These species have been observed to utilise the Civil Area and surrounding land for opportunistic foraging purposes but not roosting or breeding purposes.

10.12.2 Potential Environmental Impacts

TAPL is committed to managing biodiversity within the Civil Area and reducing the potential impact of its operations on biodiversity of the surrounding area.

Civil aviation activities with the potential to impact upon biodiversity include:

- Grounds maintenance activities including vegetation clearing and slashing
- Weed and animal pest control
- Hazardous wildlife procedures
- Vehicle or aircraft movements
- Construction and demolition works

Sub-optimal habitat for two species listed under the EPBC Act including the Eastern curlew and the endangered Australian Painted Snipe (Ecological Values of Townsville Airport 2015)

Table 10.11 TAPL Climate Change Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|---|-----------|
| Undertake climate vulnerability and adaptation study to identify potential impacts of climate change on airport infrastructure and operations and recommend new requirements for pavement and building standards and airport drainage | 2018 |
| Incorporate recommendations of study into development and environmental management guidelines, where feasible | 2019 |
| Continue to manage extreme weather events through the Townsville Aerodrome Emergency Plan and relevant supporting plans | Ongoing |



Civil aviation activities have the potential to lead to the following environmental impacts:

- Loss of opportunistic foraging habitat
- Degradation of opportunistic foraging habitat
- Reduce native biodiversity
- Introduction and / or spread of weed and animal pest species
- Direct injury to fauna through vehicle collision or wildlife hazard procedures
- Disturbance of potential acid sulphate soils.

Surrounding land use may also impact upon biodiversity within the Civil Area through predation by domestic dogs and cats, and habitat clearance associated with development. Declared animals, such as feral pigs, may also impact on airport operations.

10.12.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including impacts to biodiversity, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

Biodiversity within the Civil Area is monitored through periodic ecological surveys and maintenance activities (such as weed control) as well as species abundance reporting associated with the TAPL Wildlife Hazard Management Plan.

Management measures have been developed and are being implemented through the TAPL EMS. These measures include:

- Environmental inductions
- Spill response and reporting procedures
- Waste handling procedures
- Landscaping procedures and guidelines with an emphasis on using locally sourced, endemic species
- Vegetation and grounds maintenance
- Weed and animal pest control procedures
- Installation and maintenance of pollution control devices such as bunding
- Tenant and construction audits and routine inspections of the Civil Area
- Relocation of fauna from construction sites
- Hazardous wildlife management procedures and training.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

CEMP's are required for all new developments. CEMP's or OEMP's outline measures and responsibilities for reducing and managing risks to biodiversity.

10.12.4 Achievements in Biodiversity Management 2009-2015

- Conducted periodic terrestrial and aquatic ecological assessments of the Civil Area including targeted searches for species of environmental significance
- Implemented weed control measures in accordance with best practice
- Implemented animal pest control measures;
- Implemented erosion and stormwater control measures and monitoring to monitor potential environmental impact to biodiversity
- Developed the Townsville Airport Weed and Pest Management Plan 2016-2021
- Implemented and reviewed the TAPL Wildlife Hazard Management Plan
- Partnered with James Cook University to research hazardous wildlife utilising the airport
- Contributed to the Common Interest Working Group to facilitate the management of the Townsville Town Common
- Contributed to the Town Common Revitalisation Program and annual biodiversity studies of Middle Reef and Magnetic Island
- Participated in weed control and rehabilitation activities in the Townsville Town Common
- Hosted work experience students from local schools and sponsored pre-launch celebration of the Common Interest Working Group
- Conducted tenant and construction audits
- Complete weed survey and mapping of the northern section of the Civil Area and preparation of the Townsville Airport Integrated Weed Management Plan.

10.12.5 Proposed Targets for Biodiversity Management from 2016

Table 10.12 lists the proposed targets to meet TAPL's objective for biodiversity management at Townsville Airport.





10.13 Wildlife Hazard Risk

10.13.1 Overview and Objectives

Objective: To minimise and manage bird and wildlife strike risks at Townsville Airport and vector risks associated with facilities and activities under TAPL's operational control.

TAPL maintains and implements the wildlife hazard management plan across the TAPL lease and Jointly Used Areas of Townsville Airport, with the objective of minimising risks to aviation safety and wildlife conservation. TAPL is also responsible for managing mosquitoes in the Civil Area and associated risks to human health.

Townsville Airport lies adjacent to a number of bird habitat areas including the Townsville Town Common. TAPL is collaborating with the Defence and other aviation and non-aviation stakeholders to identify high risk activities and areas within three, eight and 13 km of Townsville Airport in accordance with the National Airports Safeguarding Framework (NASF) Guideline on Managing the Risk of Wildlife Strikes in the Vicinity of Airport.

Townsville Airport lies adjacent to potential mosquito breeding grounds and civil aviation operations have the potential to facilitate the introduction and / or spread of mosquitoes on site and to the surrounding area. Operations and building landscapes also have the potential to create breeding grounds for mosquitoes. TAPL has a requirement to comply with the World Health Organisation International Health Regulations, relevant to mosquito management.

10.13.2 Potential Environmental Impacts

TAPL is committed to managing wildlife hazard risks at Townsville Airport and reducing the potential impact of its operations on wildlife hazard risks on airport and to surrounding land.

Civil aviation activities have the potential to impact on wildlife hazard risk through the creation of hazardous wildlife habitat through inappropriate airport maintenance and operation activities, species selection in landscaping and grounds maintenance activities and through poor quarantine management.

10.13.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including impacts to wildlife hazard risk, are assessed as part of the TAPL EMS as detailed in **Section 10.2**.

Daily airside monitoring of wildlife is conducted by airside safety officers in accordance with the wildlife hazard management plan. Hazardous wildlife are monitored regularly through opportunistic observations, periodic species abundance reporting associated with the TAPL Wildlife Hazard Management Plan.

Additional management measures have been developed and are being implemented through the TAPL EMS to prevent, control or reduce potential impacts to biodiversity.

These measures include:

- Environmental inductions
- Landscaping procedures and guidelines with an emphasis on avoiding bird attracting species

Table 10.12 TAPL Biodiversity Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-------------|
| Complete flora and fauna assessment of airport land under TAPL operational control | 2017 |
| Complete weed survey and mapping of airport land under TAPL operational control | 2017 |
| Implement Weed and Pest Management Plan | 2017 |
| Investigate opportunities for involvement in programs to increase biodiversity values within local region | Ongoing |
| Investigate opportunities to collaborate with airport neighbours on weed and animal control measures | Ongoing |
| Continue to ensure all CEMP(s) incorporate measures to minimize potential adverse impacts to flora and fauna associated with construction activities | As required |



- Waste handling procedures
- Vegetation and grounds maintenance
- Weed and animal pest control procedures
- Tenant and construction audits and routine inspections of the Civil Area
- Periodic ecological surveys of Civil Area
- Wildlife strike reporting and monitoring procedures
- Analysis of the ecological integrity and biodiversity of the Townsville Town Common to facilitate hazardous wildlife risk assessment.

Analysis of the ecological integrity and biodiversity of the Townsville Town Common to facilitate hazardous wildlife risk assessment.

The Australian Department of Agriculture conducts regular mosquito surveillance of the terminal and Townsville City Council inspect and apply mosquito treatment to the airport internal drainage network.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

10.13.4 Achievements in Wildlife Hazard Management 2009-2015

- Implemented, reviewed and updated the TAPL Wildlife Hazard Management Plan
- Implemented the TAPL Mosquito (Vector) Management Plan
- Reduction in wildlife strikes by 43 percent from 2008 to 2014 (strikes per 10,000 aircraft movements)
- Conducted periodic terrestrial and aquatic ecological assessments of the Civil Area
- Implemented weed control measures in accordance with best practice
- Maintained grass heights within Jointly Used Area to reduce bird attraction
- Revised and updated wildlife hazard management procedures
- Erected bird deterrents (e.g. bird spikes) to TAPL buildings and infrastructure to reduce attraction
- Conducted active wildlife management activities including harassment to deter bird visitation and removal of nests within the TAPL lease and Jointly Used Areas
- Maintained DEHP Damage Mitigation Permit to take birds and wildlife that present a hazard to aircraft

- Continued stakeholder engagement and information sharing through the TAPL Wildlife Hazard Management Committee
- Facilitate external stakeholder mosquito management programs within the airport.

10.13.5 Proposed Targets for Wildlife Hazard Management from 2016

Table 10.13 lists the proposed targets to meet TAPL's objective for wildlife hazard management at Townsville Airport.

10.14 Cultural Heritage

10.14.1 Overview and Objectives

Objective: To appropriately manage activities under TAPL operational control to minimize potential adverse impacts to items of indigenous or built heritage value. The Civil Area of Townsville Airport is a highly modified, built environment and does not contain or lie adjacent to any areas of cultural significance (i.e. Indigenous or built, natural value) as defined in **Section 10.2**. Areas of cultural heritage value are however, in the vicinity with RAAF Base Townsville and the airfield recognised as areas of built heritage significance.

There is a potential for artefacts Indigenous or built heritage value to be present under the Civil Area.

10.14.2 Potential Environmental Impacts

TAPL is committed to managing cultural heritage values within the Civil Area and reducing the potential impact of its operations on heritage values of the surrounding area. Civil aviation activities with the potential to impact upon heritage values include grounds maintenance activities and construction, excavation and demolition works.

Civil aviation activities have the potential to impact upon cultural heritage values through the loss or damage to unknown, buried artefacts. surrounding area.

10.14.3 Measures to Prevent, Control or Reduce Environmental Impact

Environmental risks associated with civil aviation activities at Townsville Airport, including impacts to potential cultural heritage values, are assessed as part of





the TAPL EMS as detailed in **Section 10.2**.

Potential heritage values are managed to the measures implemented through the TAPL EMS including environmental awareness training and inductions; and inspections during maintenance activities and construction / demolition works.

Airport tenants, contractors and operators are required to ensure appropriate systems and / or procedures are in place to manage specific environmental risks associated with their activities as detailed in **Section 10.2**.

Developments involving excavation and earthworks are required to undertake these activities in accordance with their CEMP, which outlines specific measures for managing suspected artefacts including notification and stop work procedures.

TAPL continues to liaise with local Indigenous groups including the Wulgurukaba and Bindal People on cultural matters associated with the Civil Area through the TAPL Indigenous Reference Group.

10.14.4 Achievements in Cultural Heritage 2009-2015

- Continued Indigenous community engagement through the TAPL Indigenous Reference Group

- Developed and implemented standard requirements for heritage management in CEMP's through the TAPL CEMP proforma
- Reviewed and updated the TAPL Development Guidelines and development controls including provisions for CEMP requirements, for new development at airport
- Conducted heritage assessment of buildings earmarked for demolition to confirm heritage value.

10.14.5 Proposed Targets for Cultural Heritage from 2016

Table 10.14 lists the proposed targets to meet TAPL's objectives for heritage management at Townsville Airport.

Table 10.13 TAPL Wildlife Hazard Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-----------|
| Review and update the TAPL Mosquito (Vector) Management Plan | 2016 |
| Identify wildlife hazard risks within three, eight and 13 km of Townsville Airport in accordance with NASF Guidelines | 2016 |
| Complete airside (Jointly Used Area) vegetation mapping and assess links between vegetation and hazardous species visitation | 2018 |
| Investigate opportunities to collaborate with airport neighbours on reduce wildlife hazard risk | Ongoing |
| Continue to review and implement the TAPL Wildlife Hazard Management Plan | Ongoing |

Table 10.14 TAPL Heritage Management Program for Townsville Airport

| Targets (2016-2021) | Timeframe |
|--|-------------|
| Continue to include heritage awareness training and inductions for TAPL staff, airport operators and contractors | Ongoing |
| Continue to promote communication between TAPL and local Indigenous groups | Ongoing |
| Continue to ensure all CEMP(s) incorporate measures to minimize potential adverse impacts to heritage values associated with construction activities | As required |