

*City of Lake Macquarie*

# Environmental Sustainability Action Plan

2014-2023



Lake Macquarie  
City Council

# Abbreviations

AM	Asset Management (Department of Council)
CI	Corporate Information (Department of Council)
CIV	CiviLake (Department of Council)
CP	Community Planning (Department of Council)
CSP	Community Strategic Plan
C&CS	Communications and Customer Service (Department of Council)
DAC	Development Assessment and Compliance (Department of Council)
DCP	Development Control Plan
EEC	Endangered Ecological Community
HRM	Human Resource Management (Department of Council)
IP	Integrated Planning (Department of Council)
kWp	Kilowatt-peak, specifies the output power achieved by a solar array - measurement based under optimum conditions - generally 15-20% lower due to heating of the solar cells

LMLEP	Lake Macquarie Local Environmental Plan
LMEAP	Lake Macquarie Environmental Action Plan 2004
MDS	Mechanical Depot and Supply Services (Department of Council)
NSW	New South Wales
OP	Operations (Directorate of Council)
PROJ	City Projects (Department of Council)
PROP	Property & Business Services (Department of Council)
SUST	Sustainability (Department of Council)
WER	Waste, Environment and Rangers (Department of Council)





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# 1. Introduction

The City of Lake Macquarie Environmental Sustainability Action Plan 2014-2023 provides a framework for sustainability planning, decision-making and action, to achieve improved environmental sustainability for the City of Lake Macquarie.

Lake Macquarie City Council has committed resources and adopted policy to make an equitable contribution to global sustainability.

The aim of Council's environmental sustainability program is to maximise the wellbeing of the City's residents, while reducing the City's environmental footprint in the most cost-effective manner possible.

Our effective and continued action is essential to achieve broader sustainability outcomes through building on existing programs and activities and collaboratively working towards a sustainable future.



## 2. Profile of Our City

Lake Macquarie is located on the east coast of Australia, 90 minutes north of Sydney, 10 minutes from Newcastle, and 40 minutes from the Hunter Valley and Central Coast.

The Awabakal tribe (Awabakal meaning 'people of the calm surface') first inhabited Lake Macquarie over 8,000 years ago. European settlement dates from 1826, with the naming of the City after Governor Lachlan Macquarie and the issuing of the first land grants, mainly for timber production and farming. The northern part of the City was developed from the 1870s primarily for the establishment of coal mining, and development in the southern part of the City in the early 1900s was aided by the construction of the railway line to Sydney.

The most significant development occurred in the years after the two World Wars, especially from the 1960s.

Lake Macquarie has a picturesque landscape of more than 780 square kilometres containing spectacular beaches, mountains, and lake foreshore. The Watagan Mountains to the west have forests, numerous lookouts, magnificent waterfalls and picnic and camping spots.

The centrepiece of the City, Lake Macquarie itself, is one of the largest coastal saltwater lagoons in Australia, about twice the area and volume of Sydney Harbour. With more than 38,000 hectares of natural ecosystems, the City is home to a variety of wildlife including more than 100 threatened species such as the: Squirrel Glider (*Petaurus norfolcensis*); Green and Golden Bell Frog (*Litoria aurea*); Powerful Owl (*Ninox strenua*); and the plant, Black-eyed Susan (*Tetradlea juncea*).



The City has an estimated population of 200,796 (ABS 2014), distributed around the lake in more than 90 settlements. This makes the City the largest in the Lower Hunter, the 5th most populous local government area (LGA) in NSW and the 13th most populous LGA in Australia (ABS 2014). The population is expected to increase by 60,000 people between 2006 and 2031, creating demand for 36,000 new dwellings and 12,200 new jobs.

The nature of economic activity in the LGA is changing. Council encourages a prosperous economy, promoting balanced economic growth, managed in a way to enhance quality of life and satisfy the employment and environmental aims of the community.

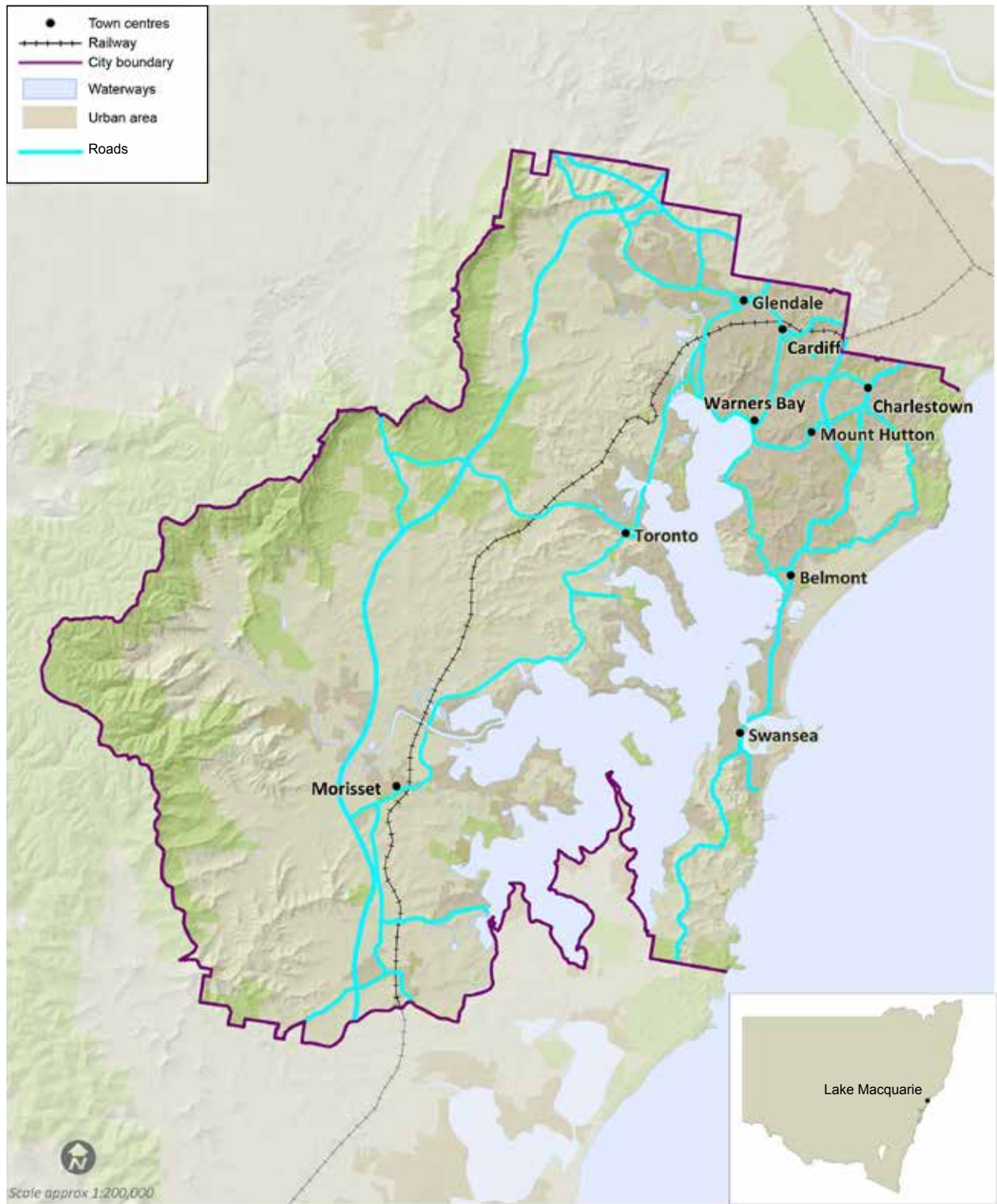
Manufacturing, a sector central to the creation and retention of jobs, has played an important role in the local and regional economy. The City's service based economies continue to grow, and the importance of town centres, supporting local economic activity, continues to increase. Non-centre based economic activity (including home based business and industries) remain very important to the prosperity of the LGA. Council continues to encourage these activities in order to increase employment, start up new business opportunity, provide an additional platform for small business growth, and to facilitate the transition of the non-centre based economic activities to traditional commercial and industrial locations.

## SNAPSHOT OF LAKE MACQUARIE CITY

City area*	Estimated 787.4km <sup>2</sup>
Lake circumference/length of foreshore*	Estimated 174km
Population (preliminary estimate) **	Estimated 200,796
Mean temperature*	Minimum 11.5° Celsius Maximum 24.1° Celsius
Rainfall (annual)*	1,150mm
Labour force*	88,252
Unemployment rate*	5.3%
Businesses ***	12,021

Source: \* LMCC (2013), \*\* ABS (2014)









# 3. Council Drivers for Environmental Sustainability

The move towards environmental sustainability in Lake Macquarie City is based on eight principle drivers, each of which exists in response to observed or predicted changes in our environment (such as loss of biodiversity, and climate change):

- Regulatory imperatives including international agreements, legislation and reporting requirements
- Government incentives that support environmental sustainability initiatives
- A quadruple bottom line approach which adds cultural sustainability (including governance) to social equity, financial prosperity and environmental sustainability goals; increased recognition of reputation; efficiency and improvement processes (i.e. reducing waste to increase productivity); rapidly escalating costs of fuel, water, energy and waste disposal
- Service delivery that manages risks and recognises the contribution of effective environmental management to ensure the ongoing provision of services
- Community expectation that local government will be a leader in environmental sustainability and govern ethically to reduce the City's environmental impacts
- Consumer demand for sustainable products and services such as use of materials from sustainable sources and use of recycled and recyclable materials
- Financial incentives to reduce future costs to Council and the community by reducing exposure to environmental hazards and vulnerability to increasing prices
- Environmental and ethical responsibility to protect and enhance our local environment and make an equitable contribution to global environmental sustainability



## 3.1 OUR MISSION AND VISION

Lake Macquarie City Council engages in a diverse range of activities and our mission is to provide services and facilities to promote a quality lifestyle and, in keeping with the vision held by Council and the community, create a City:

- Where the environment will be protected and enhanced, and where people and native flora and fauna co-exist in harmony
- Where the scenic, ecological, recreational and commercial values and opportunities of the lake and coastline are promoted and protected
- With a prosperous economy and a supportive attitude to balanced economic growth, managed in a way to enhance quality of life and satisfy the employment and environmental aims of the community
- That recognises, encourages and develops the City's diverse cultural life and talents and protects and promotes its heritage
- That encourages a community spirit, which promotes a fulfilling lifestyle, enhances health and social wellbeing, encourages family life and lifestyle choices, allows opportunities to participate in sport and recreation, promotes equal access to all services and facilities, enables all citizens to contribute to the City's economic and social development as well as increase community responsibility in management for sustainable outcomes
- That encourages and enables all people to participate fully in the economic and social life of the community as well as enjoy equal life chances and equal opportunity for access to the resources of the community
- That recognises, encourages and develops its diverse cultural life and talents, and protects and promotes its heritage

## 3.2 OUR PRINCIPLES

Through the *Lake Macquarie Community Strategic Plan 2013-2023* and other key planning documents, Council is committed to ensuring that the following four principles are addressed:

- Provide integrated environmental management, strategic planning, services and waste management to enhance and sustain the natural, social, cultural and built environment and contribute to an equitable regional and global ecological footprint
- Advocate for and develop opportunities that will ensure all residents have equal opportunity to participate in the economic and social life of the community
- Maintain and develop a sustainable road and drainage network and facilitate continual improvement of the City's transport network
- The City's economy prospers, with managed growth that enhances the quality of life, while balancing employment and environmental aims

## 3.3

### OUTCOMES AND STRATEGIES FOR QUADRUPLE BOTTOM LINE SUSTAINABILITY

Within this Plan Lake Macquarie City Council seeks to succinctly set out strategic directions, priorities, actions, community/organisational indicators and departmental responsibility for delivery of environmental sustainability outcomes, that contribute to a:

- City responsive to its environment
- City that makes an equitable contribution to global sustainability
- Well designed, adaptable and liveable City
- Well serviced and equitable City
- City of progress and prosperity
- City responsive to the wellbeing needs of its residents
- City that practices participatory democracy and is well governed

Our commitment to environmental sustainability is articulated in our Environmental Sustainability Policy.





# ENVIRONMENTAL SUSTAINABILITY POLICY



## POLICY OBJECTIVES

The commitment that Council has made to mainstream Sustainability throughout the organisation is reflected in the revised policy.

## POLICY STATEMENT

### *Our Commitment*

We are committed to making Lake Macquarie a sustainable city with healthy ecosystems and a community secure from environmental threats. We will achieve this by continually improving our services and environmental performance, and by sharing our responsibility for environmental management with all who work for us and with us.

### *Our Goal*

Our goal is to sustain an environment that is diverse and inspiring, minimally polluted, and supportive of the city's economic and social needs. We aim to contribute equitably to local and global environmental sustainability.

### *Our Plan*

**We aim to achieve this by:**

- Implementing actions that support ecologically sustainable development;
- Minimising the use of natural resources, reducing waste and limiting pollution;
- Enhancing the natural ecosystems of the City, preventing further degradation and loss of biodiversity;
- Reducing the city's exposure to risks from the environment including those from natural disasters, environmental health and climate change related impacts;
- Continually assessing environmental and sustainability risks across the organisation, implementing measures to avoid and control these risks, and using our management systems to support continual improvement in environmental sustainability performance;
- Reporting on environmental performance and continually reviewing and improving our environmental sustainability strategy and operations in consultation with others;
- Complying with all applicable environmental regulations, laws and other requirements to which Council subscribes;
- Raising environmental sustainability awareness and responsibility in our community;
- Practicing due diligence by providing appropriate awareness and training for all staff relevant to their environmental sustainability responsibilities; and
- Communicating and making available our environmental sustainability policy to staff, contractors and the community.

**Brian Bell**  
**General Manager**

**Jodie Harrison**  
**Mayor Lake Macquarie City Council**



# 4. About this Plan

## 4.1 THE NEED FOR AN ENVIRONMENTAL SUSTAINABILITY ACTION PLAN

Benefits to developing this Plan include:

- Consolidating actions to achieve the organisation's environmental sustainability priorities in a single document that is linked to the Local Government Integrated Planning and Reporting Framework
- Providing a medium term action plan aligned with the *City of Lake Macquarie Community Strategic Plan 2013-2023*

- Enabling tracking of prioritised outputs, facilitating review and revision of Council's 4 year delivery plans, annual operational plans and annual departmental plans
- Mainstreaming environmental sustainability across the organisation
- Conforming to the Environmental Sustainability Policy
- Providing a location where organisational environmental actions can be documented and tracked
- Informing annual reporting, including the State of the Environment report



## 4.2 BACKGROUND AND CONTEXT

Council strives to become a leading local government globally in achieving quadruple bottom line sustainability and its aims and priorities are implemented strategically through the following documents:

Council's *Lifestyle 2030 Strategy* provides land use planning direction for the City and its community, and presents challenges facing our City and offers direction in the provision of sustainable solutions for land use planning, urban design, and development.

The *City of Lake Macquarie Community Strategic Plan 2013-2023* outlines how Council will work with the community to address challenges and identify major priorities up until 2023. Further details on Council's programs are contained in the *City of Lake Macquarie Delivery Program 2013-2017*, incorporating the *Operational Plan 2014-2015*.

Council continues to review and implement the draft *Lake Macquarie Local Environmental Plan (LMLEP) 2014* and *Development Control Plan (DCP) 2013* to promote a sustainable pattern of land development and ensure improvements to both land use planning and the better integration of environmental, social and economic goals. It is anticipated, the draft LMLEP 2014 and DCP 2013 will be effective tools in addressing issues such as protection of biodiversity, climate change mitigation and adaptation, and resource consumption.



## 4.3 SCOPE AND PRIORITY AREAS

Previously, Council's approach to integrated environmental management for the City was through the implementation of the Lake Macquarie Environmental Action Plan 2004 (LMEAP 2004), which amalgamated three management plans:

- Lake Macquarie Environmental Management Plan (1996);
- Lake Macquarie Estuary Management Plan (1997); and
- Lake Macquarie Stormwater Management Plan (1999).

The Lake Macquarie Sustainability Action Plan 2011-2018 replaced LMEAP 2004 and incorporated environmental sustainability actions identified in Council's range of strategic planning documents, listed in the reference documents table at the end of this Plan.

Council acknowledges that actively pursuing a sustainable outcome will better integrate economic, environmental, social and governance considerations across all decision making processes. Adoption of this Plan and its priority areas enables Council to build on its commitment to a sustainable future and the integrated management process required to achieve long-term sustainable outcomes for Council and the City of Lake Macquarie.

The priority areas of environmental sustainability for action are:

- Energy
- Waste
- Water
- Transport
- Resource Consumption
- Natural Environment (terrestrial and aquatic)
- Climate Change Adaptation
- Natural Hazards
- Environmental Health

Identification of key issues within each area, and the associated management actions to address challenges and optimise opportunities, are essential for effective implementation of this Plan. Some sustainability actions are addressed in other Council documents. For example, environmental health actions relating to Council's workforce (Walk the Talk actions) are addressed in Council's *Human Resources Strategy, Workstyle 2020*, and economic sustainability actions are addressed in Council's *Resourcing Strategy*.

## 4.4 IMPLEMENTATION

Council, in consultation with the community, is responsible for initiating and facilitating the actions contained herein. However, many of these actions require input and support from other government bodies, non-government organisations and the Lake Macquarie community. The Plan embeds actions to engage and support local residents to deliver sustainability outcomes in their local communities.

Primary responsibility for actions are assigned to individual departments. This Plan establishes actions for the organisation and implementation is therefore generally aligned with responsibilities established through the *Community Strategic Plan 2013-2023* Focus Areas.

## 4.5 OUR TARGETS

The following targets were developed to report against the priorities of the *Community Strategic Plan 2013-2023*. Each action within the Plan is measured against one of the targets.

This Plan sets overarching targets for the *Community Strategic Plan 2013-2023* Key Priorities. Lower level targets have been set for specific priority areas. All targets are for the 15 year period 2008-2023 (and measured against a 2007/2008 baseline).

## 4.6 MONITORING, REPORTING AND REVIEW

This Plan contains actions to be achieved over the period 2014 to 2023, and is consistent with the *City of Lake Macquarie Community Strategic Plan 2013-2023*.

The Plan:

- Consolidates environmental sustainability actions across the organisation
- Facilitates more efficient annual planning and quantification of organisational performance
- Provides a tool for tracking progress against sustainability targets over the short to medium term
- Has been developed as a 'live' document to provide Council with a means of tracking delivery of priority actions and quantifying, in consistent units, the contribution made by actions towards associated targets
- Enables Council and City-wide performance to be monitored and reported separately as required
- Enables new actions to be inserted as required or during scheduled reviews
- Enables targets and Key Performance Indicators (KPIs) to be sorted for quarterly management reporting purposes
- Quantifies outcomes for documentation in State of Environment reporting

Performance against this Plan will be reported annually in Council's State of Environment report. The Plan's management actions will be reviewed annually and updated as required.



# OUR TARGETS

## SUSTAINABLE LIVING 2023

1.1	30% reduction in the per capita eco-footprint of the City
<b>Energy</b>	
1.1.1.1	45% per capita reduction in City-wide greenhouse gas emissions
1.1.1.2	600 kW of renewable energy generation capacity installed on Council facilities
<b>Waste</b>	
1.1.2.1	75% reduction in per capita waste to landfill from the City
1.1.2.2	600% increase in commercial premises engaged in recycling
<b>Water</b>	
1.1.3.1	12% reduction in potable water use from Council operations
1.1.3.2	5% per capita reduction in potable water use for the City
<b>Transport</b>	
1.1.4.1	Increase in public transport trips to 10% of total trips within the City
1.1.4.2	Increase in walking and cycling trips to 6% of total trips within the City
<b>Resource Consumption (covered by 1.1 above)</b>	

## ECOSYSTEM ENHANCEMENT 2023

1.2	25% reduction in annual rate of clearing
<b>Natural Environment - Terrestrial</b>	
1.2.1.1	Maintain or improve the condition of 30% of land with high conservation value under Council's care and control
1.2.1.2	20% increase in area of public and/or private land with conservation status (excluding the lake)
<b>Natural Environment - Aquatic</b>	
1.2.2	No net decline in waterways or estuary health

## ENVIRONMENTAL SECURITY 2023

1.3	No net per capita increase in exposure of the community to risks from the environment
<b>Climate Change Adaptation</b>	
1.3.1	No net per capita increase in exposure of the community to risks from climate change
<b>Natural Hazards</b>	
1.3.2	7% reduction in exposure of the community to risks from natural hazards
<b>Environmental Health</b>	
1.3.3.1	No net increase in per capita air pollution emissions within the City
1.3.3.2	50% of known contaminated land in Council's care and control assessed for risk to human health and prioritised for risk mitigation measures
1.3.3.3	All public and private contaminated sites, reported to Council, are recorded in Council's Contaminated Land Database and publicly available

Note: Targets are for the 15 year period 2008-2023 with a 2007/2008 baseline



# 5. The Action Plan

## 5.1 THE ACTION PLAN AS A REPORTING TOOL

To enable effective monitoring and reporting, the Plan is maintained as a live document that can provide the following:

- An analysis of return on Council investment
- An analysis of footprint reduction
- Progress towards targets
- Review of projected footprint reduction versus actual footprint reduction
- Data for reporting purposes

A description of the content headings used in the Plan:

- **Issue** - each section e.g. energy, is divided into more specific sectoral headings such as energy conservation, advocacy, planning.
- **Action Ref** - each action has a unique identifier
- **Priority** - actions within each section are arranged in order of priority (high, medium, low), priority levels being assigned according to due date
- **Management Action** - transferred from organisational strategies, programs and action plans
- **Relevant Policy, Plan, Strategy, Program** - lists where applicable the background document from which the action is taken
- **Primary Responsible Department** - lead department for coordinating and/or implementing the action
- **Due Date** - set as short (2015), medium (2018) or longer term (2023)



- **Target** - where a specific target can be identified, this is assigned. Otherwise, one of the three higher level targets is selected (1.1, 1.2 or 1.3 see Section 4.5)
- **KPI** - key performance indicators for each of the priority areas (waste, transport, natural environment etc.)
- **Monitoring/Evaluation Method** - identified source of monitoring data or output

## 5.1.1 LINKAGE WITH COUNCIL'S INTEGRATED PROJECT MANAGEMENT TOOL

Individual projects or a group of actions comprising a project are managed in Council's integrated planning and reporting software. Online management of projects enables:

- Key performance indicators to be tracked and aligned with reporting frequencies
- Savings to be quantified as dollar value, emissions or other currency/unit
- Tracking of projected versus actual savings
- Budget line items to be linked to outputs
- Responsibilities to be delegated and due dates tracked
- Project outputs to be evaluated and verified

## 5.2 THE ACTION PLAN 2014-2023

Each priority area of environmental sustainability (e.g. climate change adaptation, water, and energy) documented in the Plan is defined under four headings: Direction; Priority Strategies; Targets; and Key Performance Indicators.

### Direction

Refers to the Key Priorities in the *City of Lake Macquarie Community Strategic Plan 2013-2023*. For example: Key Priorities within Caring for the Environment 4.1.2 – A community that works in partnership with Council to create a sustainable city is referenced in this document as CSP 4.1.2 (Community Strategic Plan Key Priorities 4.1.2).

### Strategic Priorities

Strategic Priorities are listed for different implementation timeframes in the *Community Strategic Plan 2013-2023*, 4 Year Delivery Programs and the annual Operational Plans. The Strategic Priorities in this Plan are based on review and revision of the priorities listed in applicable sections of the aforementioned documents.

### Targets

As listed under Section 4.5 of this document:

- Targets are for a 15 year period 2008-2023 and measured against a 2007/2008 baseline
- There are three high level targets - Sustainable Living, Ecosystem Enhancement, and Environmental Security
- Lower level targets are set at the Priority Area level
- Individual actions are aligned with measurable KPIs

### Key Performance Indicators

These are the Progress Indicators originally listed in the *Community Strategic Plan 2013-2023*, 4 Year Delivery Programs and the Operational Plans. In some cases, the indicator has been revised to provide a more clearly defined or more applicable performance indicator. The italicised text beside each KPI lists reporting measures.

# 1. Energy



Direction	
CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that minimises impacts of resource consumption and waste generation
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community
Priority Strategies	
Ensure the community is able to organise and take part in environmental activities	
Minimise the resource consumption impacts from Council activities	
Minimise the impacts of resource consumption across the City	
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City	
Provide infrastructure in a timely manner as development occurs	
Develop and maintain a network of relationships with key agencies	
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community	
Advocate on behalf of the City and the community on matters of importance to the City	
Actively engage with the community on key issues and matters of significance in the City	
Ensure ongoing communication with residents, businesses, and community groups on matters of importance	
2023 Targets	
1.1	30% reduction in the per capita eco-footprint of the City
1.1.1.1	45% per capita reduction in City-wide greenhouse gas emissions
1.1.1.2	600 kW of renewable energy generation capacity installed on Council facilities

Key Performance Indicators		
KPI 1.1	Installation of renewable energy generation in the City	CO <sub>2</sub> -e saving
KPI 1.2	Installation of renewable energy systems on Council facilities	CO <sub>2</sub> -e saving
KPI 1.3	Community engagement activities around energy, energy efficiency and energy resilience	Specify activity; number of participants; projected or actual footprint reduction
KPI 1.4	Development Control Plan, Lake Macquarie Local Environmental Plan and other relevant plans reviewed and updated to include improved sustainability measures	Number of assessments incorporating new specifications; number of developers engaged
KPI 1.5	Improvement of energy efficiency, compliance, and operating cost of lighting and Council infrastructure	CO <sub>2</sub> -e saving; audit reports
KPI 1.6	Public, private and government partnerships to deliver energy efficiency in both City-wide programs and local infrastructure projects	Number of stakeholders engaged; programs supported Projected or actual CO <sub>2</sub> -e saving
KPI 1.7	Oil vulnerability ranking as measured by 1) Cars per capita; 2) Journey to Work; 3) Index of Economic Resources (SEIFA - Socio-Economic Indexes for Areas) using Australian Bureau of Statistics data for Lake Macquarie	Oil vulnerability ranking
KPI 1.8	Land use planning policy, strategies, instruments address sustainable energy use	Revised policies, strategies and instruments





## ENERGY - CITY

Issue	Action Ref	Priority	Management Action
Energy conservation	E4	High	Undertake an annual audit of the City's energy use for its facilities from a 2007/2008 baseline.
Planning	E7	High	Investigate and implement energy efficiency and emissions reduction measures, and renewable energy opportunities, across the City for public, commercial and residential developments.
Advocacy	E9	High	Advocate for skills and knowledge based education and training programs to enhance our City's capabilities to adapt to the demands of a carbon-constrained economy. (See also RC4).
Advocacy	E10	High	Lobby for Government policy and investment mechanisms to drive a reduction in greenhouse gas emissions and reduce community and business energy consumption, particularly in the transport sector. (See also E13).
Advocacy	E13	High	Lobby the NSW Government to implement further grants/subsidies programs to enable citizens to retrofit their properties with energy efficiency and renewable energy technologies. (See also E10).
Community engagement	E15	High	Support and roll out State and Federal energy demand management programs for local business.
Energy conservation	E16	High	Seek grant funding for energy efficiency and renewable energy generation and identify suitable sites in Lake Macquarie City.
Planning	E19	Medium	Identify and implement initiatives to improve business energy resilience.



Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1.1.1	1.1	<ul style="list-style-type: none"> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Audit report.</li> </ul>
Energy Resilience Plan 2012 Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1.1.1	1.3 1.4 1.6	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Installed renewable energy (kilowatt-peak).</li> <li>Electricity saved (megawatt hours per year).</li> <li>Annual savings (\$).</li> <li>Gas saved (gigajoules per year).</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1	1.6	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1.1.1	1.6	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.1.1	1.6	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1.1.1	1.6	<ul style="list-style-type: none"> <li>Programs supported.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.1.1	1.1	<ul style="list-style-type: none"> <li>Funding applied for.</li> <li>Sites identified as suitable.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Sustainable Business Strategy 2020	SUST	30/06/2018	1.1.1.1	1.1	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Installed renewable energy (kilowatt-peak).</li> <li>Electricity saved (megawatt hours per year).</li> <li>Annual savings (\$).</li> <li>Gas saved (gigajoules per year).</li> <li>Water saved (kilolitres per year).</li> <li>Waste avoided and recycled (tonnes per year).</li> <li>Reduced reliance on car transport.</li> </ul>





## ENERGY - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Energy conservation	E21	High	Undertake an annual audit of Council's energy use for its facilities from a 2007/2008 baseline.
Energy conservation	E22	High	Identify and implement renewable energy and efficiency improvements in stationary energy (solar, photovoltaics, LED) and fuel usage across Council's assets and operations.
Energy conservation	E26	High	Provide technical support, and relevant training, for Council staff to better implement energy efficiency and related initiatives.
Energy conservation	E28	High	Review Council infrastructure development and maintenance practices, identify and prioritise critical 'at risk' infrastructure to strengthen resilience to energy disruptions, future oil constraints, and control increases in maintenance costs.
Planning	E23	Medium	Educate and involve Council staff and elected officials about energy uncertainty and provide a report on potential risks and mitigation options so Council has a basis from which to evaluate its vulnerabilities and possible responses.
Energy conservation	E27	Medium	Identify and prioritise critical Council services, and develop policy frameworks to strengthen its resilience to energy disruptions, and control increases in maintenance costs.





Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1.1.1	1.5	<ul style="list-style-type: none"> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Audit Report.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.1.1	1.1 1.2 1.5	<ul style="list-style-type: none"> <li>Sites identified as suitable.</li> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Installed renewable energy (kilowatt-peak).</li> <li>Electricity saved (megawatt hours per year).</li> <li>Annual savings (\$).</li> <li>Gas saved (gigajoules per year).</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.1.1	1.5	<ul style="list-style-type: none"> <li>Numbers of projects, training events, and/or staff supported.</li> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Installed renewable energy (kilowatt-peak).</li> <li>Electricity saved (megawatt hours per year).</li> <li>Annual savings (\$).</li> <li>Gas saved (gigajoules per year).</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	AM	30/06/2015	1.1.1.1	1.5	<ul style="list-style-type: none"> <li>Critical infrastructure to be identified in asset management plans.</li> </ul>
Environmental Sustainability Policy 2010 (version 3)	SUST	30/06/2018	1.1	1.6 1.7	<ul style="list-style-type: none"> <li>Number of stakeholders engaged.</li> <li>Oil vulnerability ranking.</li> </ul>
Energy Resilience Plan 2012	SUST	30/06/2018	1.1.1.1	1.8	<ul style="list-style-type: none"> <li>Internal policies developed and in place.</li> </ul>



## 2. Waste



Direction	
CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that minimises impacts of resource consumption and waste generation
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community
Priority Strategies	
Ensure the community is able to organise and take part in environmental activities	
Minimise the resource consumption impacts from Council activities	
Minimise the impacts of resource consumption across the City	
Minimise waste generation	
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City	
Provide infrastructure in a timely manner as development occurs	
Develop and maintain a network of relationships with key agencies	
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community	
Advocate on behalf of the City and the community on matters of importance to the City	
Actively engage with the community on key issues and matters of significance in the City	
Ensure ongoing communication with residents, businesses, and community groups on matters of importance	
2023 Targets	
1.1	30% reduction in the per capita eco-footprint of the City
1.1.1.1	45% per capita reduction in City-wide greenhouse gas emissions
1.1.2.1	75% reduction in per capita waste to landfill from the City
1.1.2.2	600% increase in commercial premises engaged in recycling



Key Performance Indicators		
KPI 2.1	Reduction in per capita volume of waste to landfill to meet target from 2007/2008 baseline	% waste reduction
KPI 2.2	Increase in commercial premises engaged in recycling to meet target from 2007/2008 baseline	Number of commercial premises engaged % commercial recycling
KPI 2.3	Implementation of Lake Macquarie City Council's Waste Strategy	% waste reduction
KPI 2.4	Community engagement activities around waste	Specify activity; number of participants
KPI 2.5	Implement and report on waste and resource recovery audits	Number of audits completed
KPI 2.6	Implement priority waste minimisation projects each year	% waste reduction
KPI 2.7	At least 60,000 tonnes of spoil and/or concrete from CivILake jobs is recycled or reused at other appropriate sites	Quantity recycled
KPI 2.8	Identify illegal dumping and report annually on the number and type of service requests received for ranger activities and develop trend monitoring	Service request report; identification of illegal dumping sites
KPI 2.9	Stakeholder liaison including community, industry and government	Specify program; number of participants; compliance with Development Control Plans





## WASTE - CITY

Issue	Action Ref	Priority	Management Action
Community engagement	WM1	High	Promote waste services through a City-wide awareness campaign, including domestic and commercial green waste, recycling and garbage services.
Community engagement	WM3	High	Maintain specialist services for waste not collected in kerbside waste (garbage, recycling, and green waste) pickup (including Chemical Clean Out, domestic sharps, mobile muster, oil, battery, and light globe recycling).
Illegal dumping	WM4	High	Adopt a pro-active approach to litter control and continue to issue warnings and penalties to offenders. Participate in regional, and state funded litter reduction programs, as appropriate.
Planning	WM5	High	Develop an integrated plan and program addressing prevention, infrastructure, education and enforcement for littering and illegal dumping.
Planning	WM6	High	Implement waste management component of Development Control Plan.
Advocacy	WM10	High	Support product stewardship programs as they become available, and promote awareness and use.
Illegal dumping	WM13	High	Identify locations affected by illegal dumping and develop strategies (works, surveillance and community education programs) to deter dumping in bushland areas.
Waste diversion	WM14	High	Expand kerbside organic waste collection and processing service to include kitchen waste.
Waste recycling	WM16	High	Collect data on recycling occurring within industrial premises. Encourage businesses to investigate markets for recycling. Establish a register of waste produced within the business sector.
Waste recycling	WM17	High	Continue to evaluate the number and locations of litter bins and public place recycling bins and label bins in public places either 'recycling' or 'landfill'.
Waste diversion	WM27	High	Manage kerbside recycling and green waste contracts to maximise resource recovery and minimise waste to landfill.



Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
WARR 2007	SUST	30/06/2015	1.1.2.1	2.4 2.6 2.9	<ul style="list-style-type: none"> <li>Develop plan.</li> <li>Stakeholder program and number of participants.</li> <li>Number of commercial premises engaged; % commercial recycling.</li> <li>% per capita reduction in waste to landfill.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.1 2.4 2.5	<ul style="list-style-type: none"> <li>% per capita reduction in waste to landfill.</li> <li>Specify activity; number of participants.</li> <li>Report annual collection data.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.8	<ul style="list-style-type: none"> <li>Service request report; identification of illegal dumping sites.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.8	<ul style="list-style-type: none"> <li>Plan developed.</li> <li>Planning Group initiated.</li> <li>Service request report; identification of illegal dumping sites.</li> </ul>
	DAC	30/06/2015	1.1.2.1	2.9	<ul style="list-style-type: none"> <li>Number of new developments meeting Development Control Plan provisions.</li> </ul>
WARR 2007 Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.2.1	2.1 2.9	<ul style="list-style-type: none"> <li>Number of programs supported.</li> <li>Number of participants.</li> <li>% per capita reduction in waste to landfill.</li> </ul>
	SUST	30/06/2015	1.1.2.1	2.8 6.8	<ul style="list-style-type: none"> <li>Service request report; identification of illegal dumping sites.</li> <li>Compliance reports.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.1 2.5	<ul style="list-style-type: none"> <li>% per capita reduction in waste to landfill.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.2	2.2	<ul style="list-style-type: none"> <li>Number of commercial premises engaged.</li> <li>% commercial recycling.</li> </ul>
Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>% per capita reduction in waste to landfill.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>% per capita reduction in waste to landfill.</li> </ul>





## WASTE - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Monitoring	WM19	High	Undertake a triennial audit of Council's waste from a 2007/2008 baseline, and report on the landfill savings from the introduction of recycling, composting, and replacement of personal desk bins with a tri-bin system within Council buildings.
Waste diversion	WM20	High	Increase resource recovery and reuse of Council waste streams - roll out recycling service to Council facilities.
Waste recycling	WM22	High	Focus on opportunities for the maximum recycling and re-use of bulk construction materials. Development of the proposed Sustainable Resource Centre at Teralba; implement strategies to improve existing recycling practices; address long-term recycling needs to reduce disposal of construction materials and green waste.
Waste recycling	WM23	High	Encourage the use of second hand or recycled materials in the construction of Council buildings, recreational facilities etc.
Waste recycling	WM25	Medium	Develop a process for recycling office products used by Council during day-to-day services (office supplies and materials including boxes).
Waste diversion	WM28	Medium	Increase resource recovery and reuse of Council waste streams - roll out organics service to Council facilities.





Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Staff Sustainability Strategy 2012 (version 3) WARR 2007	SUST	30/06/2015	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>• Audit completed.</li> <li>• % waste reduction.</li> </ul>
WARR 2007	SUST	30/06/2015	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>• % waste reduction.</li> </ul>
WARR 2007	CIV	30/06/2015	1.1.2.1	2.1 2.6 2.7	<ul style="list-style-type: none"> <li>• % waste reduction.</li> <li>• Conformance to standards; actions completed; annual report submitted.</li> </ul>
WARR 2007 Procurement Procedure 2014 (version 12)	SUST	30/06/2015	1.1.2.1	2.4 2.6 2.7	<ul style="list-style-type: none"> <li>• Green Building Strategy adopted.</li> <li>• Green Building Strategy evaluation method implemented.</li> <li>• Number of projects incorporating secondhand recycled materials.</li> <li>• % secondhand recycled materials used.</li> </ul>
Staff Sustainability Strategy 2012 (version 3) WARR 2007	SUST	30/06/2018	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>• % waste reduction.</li> </ul>
WARR 2007	SUST	30/06/2018	1.1.2.1	2.1	<ul style="list-style-type: none"> <li>• % waste reduction.</li> </ul>



## 3. Water



Direction	
CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that minimises impacts of resource consumption and waste generation
CSP 4.4.2	Effective management of stormwater
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community
Priority Strategies	
Ensure the community is able to organise and take part in environmental activities	
Minimise the resource consumption impacts from Council activities	
Minimise the impacts of resource consumption across the City	
Collect and dispose of stormwater safely and effectively	
Minimise the impact of the stormwater network on natural systems	
Plan to meet the community's future stormwater needs	
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City	
Provide infrastructure in a timely manner as development occurs	
Develop and maintain a network of relationships with key agencies	
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community	
Advocate on behalf of the City and the community on matters of importance to the City	
Actively engage with the community on key issues and matters of significance in the City	
Ensure ongoing communication with residents, businesses, and community groups on matters of importance	
2023 Targets	
1.1	30% reduction in the per capita eco-footprint of the City
1.1.3.1	12% reduction in potable water use from Council operations
1.1.3.2	5% per capita reduction in potable water use for the City



Key Performance Indicators		
KPI 3.1	Water audits completed for Council and community	<i>Number of audits completed</i>
KPI 3.2	Technical water saving programs implemented	<i>Projected or actual water savings</i>
KPI 3.3	Report on water savings	<i>Report submitted</i>
KPI 3.4	Development Control Plan and Local Environmental Plan and other relevant plans reviewed and updated with sustainability measures	<i>Number of assessments incorporating new specifications; number of developers engaged</i>
KPI 3.5	Implementation of the Stormwater Asset Management Plan	<i>Evaluation report</i>
KPI 3.6	Commence audit of existing infrastructure and prioritise capital and rehabilitation works program	<i>Infrastructure audits completed</i>
KPI 3.7	Implement best practice stormwater management	<i>Number of infrastructure projects incorporating best practice stormwater management</i>
KPI 3.8	Community engagement activities around water use	<i>Specify activity; number of participants; projected or actual footprint reduction</i>





## WATER - CITY

Issue	Action Ref	Priority	Management Action
Stormwater management	W2	High	Investigate the effectiveness of litter traps in kerb inlets and install/maintain at priority locations.
Water supply management	W3	High	Measure and report annually on City water consumption from 2007/2008 baseline.
Water supply management	W4	High	Investigate and support initiatives to minimise mains water use, including use of alternative sources water fit for purpose.
Stormwater management	W8	High	Provide appropriate training and information to Council officers to facilitate the assessment and compliance of new development with conditions of approval relating to stormwater management and treatment.
Stormwater management	W18	High	Audit compliance with stormwater management consent conditions
Stormwater management	W6	Medium	Incorporate revised rainfall/run off projection (Australian Rainfall and Run off) into a review of all studies/plans. Current standards for infrastructure construction may be inadequate and a review to define infrastructure strategies (including capacity of roads, culverts, stormwater systems etc.) is required.

## WATER - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Water supply management	W10	High	Report annually water use, and associated efficiency measures, at Council's facilities from a 2007/2008 baseline.
Stormwater management	W12	High	Establish a leading practice maintenance program for Council's existing and new stormwater devices/assets which identifies maintenance needs based on the type of device and its location (loading) (Service Agreement).
Stormwater management	W13	High	Construct new Council facilities and buildings to incorporate source control options for stormwater management as a demonstration of best practice environmental/stormwater management.
Stormwater management	W14	High	Seek funding to implement new and retrofitted stormwater harvesting and reuse systems.
Stormwater management	W15	High	Identify Council's stormwater assets and record details on a Geographic Information System (GIS). Develop a database of new stormwater management structures/water quality facilities.
Stormwater management	W16	High	Implement a Stormwater Quality Improvement Devices (SQID) monitoring and maintenance improvement program, assess current maintenance methods, and develop best practice guidelines of Council's stormwater system and devices (including wetlands, litter baskets, Gross Pollutant Traps, vegetated drains and street cleaning operations). (See also NE60).
Water supply management	W11	Medium	Implement actions at Council owned buildings and/or public facilities to improve water use efficiency and effectiveness.

Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Stormwater Management Plan 1999	AM	30/06/2015	1.1	3.7	<ul style="list-style-type: none"> <li>Number of infrastructure projects incorporating best practice stormwater management.</li> </ul>
	SUST	30/06/2015	1.1.3.2	3.1	<ul style="list-style-type: none"> <li>Reported annually.</li> </ul>
	SUST	30/06/2015	1.1.3.2	3.2	<ul style="list-style-type: none"> <li>Hunter Water - metered mains water use (kilolitres).</li> <li>Climate corrected mains water use (kilolitres).</li> <li>Potable water savings - City (kilolitres).</li> <li>Reported annually.</li> </ul>
Stormwater Management Plan 1999	SUST	30/06/2015	1.1.3.2	3.4	<ul style="list-style-type: none"> <li>Number of staff attending training per year.</li> </ul>
Stormwater Management Plan 1999	DAC	30/06/2015	1.1.3.2	3.4	<ul style="list-style-type: none"> <li>Number of audits conducted.</li> <li>% compliant.</li> </ul>
Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3) Improvements and Maintenance of Watercourses and Drainage Channels Policy 2004 (version 3) Protection of Watercourses and Drainage Channels Policy 2010 (version 4)	AM	30/06/2018	1.1.3.2	3.4 3.6	<ul style="list-style-type: none"> <li>Number of assessments incorporating new specifications; number of developers engaged.</li> <li>Infrastructure audits completed.</li> </ul>

Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1.3.1	3.1 3.3	<ul style="list-style-type: none"> <li>Hunter Water - metered mains water use (kilolitres).</li> <li>Climate corrected mains water use (kilolitres).</li> <li>Reported annually.</li> </ul>
Stormwater Management Plan 1999 Stormwater Asset Management Plan 2013 (version 4)	AM	30/06/2015	1.1.3.1	3.7	<ul style="list-style-type: none"> <li>Number of infrastructure projects incorporating best practice stormwater management.</li> </ul>
Stormwater Management Plan 1999	SUST	30/06/2015	1.1.3.1	3.7	<ul style="list-style-type: none"> <li>Number of infrastructure projects incorporating best practice stormwater management.</li> </ul>
Stormwater Management Plan 1999	SUST	30/06/2015	1.1.3.1	3.7	<ul style="list-style-type: none"> <li>Funding acquired.</li> </ul>
Stormwater Management Plan 1999 Environmental Security Assessment 2010 Stormwater Asset Management Plan 2013 (version 4)	AM	30/06/2015	1.1.3.1	3.6 3.7	<ul style="list-style-type: none"> <li>Infrastructure audits completed.</li> <li>Stormwater Quality Improvement Devices (SQID) Guidelines reviewed.</li> <li>Maintenance Service Specifications reviewed.</li> </ul>
Stormwater Management Plan 1999 Stormwater Asset Management Plan 2013 (version 4)	SUST	30/06/2015	1.1.3.1	3.7	<ul style="list-style-type: none"> <li>Evaluation report.</li> </ul>
	AM	30/06/2018	1.1.3.1	3.2 3.3	<ul style="list-style-type: none"> <li>Projected or actual water savings.</li> <li>Projected or actual reductions in water demand recorded.</li> </ul>

# 4. Transport



Direction	
CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that minimises impacts of resource consumption and waste generation
CSP 4.4.2	Effective transport networks that meet the needs of the community
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community
CSP 5.5	Reduce the costs and environmental impacts associated with operating Council's fleet of vehicles and plant
Priority Strategies	
Ensure the community is able to organise and take part in environmental activities	
Minimise the resource consumption impacts from Council activities	
Minimise the impacts of resource consumption across the City	
Provide safe and well-maintained roads and transportation infrastructure	
Support a range of sustainable accessible transport alternatives including cycleways	
Plan to meet the community's future transport needs	
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City	
Provide infrastructure in a timely manner as development occurs	
Develop and maintain a network of relationships with key agencies	
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community	
Advocate on behalf of the City and the community on matters of importance to the City	
Actively engage with the community on key issues and matters of significance in the City	
Ensure ongoing communication with residents, businesses, and community groups on matters of importance	
Investigate strategies to contain rising fleet running costs and to minimise the environmental impact of fleet ownership	
2023 Targets	
1.1	30% reduction in the per capita eco-footprint of the City
1.1.1.1	45% per capita reduction in City-wide greenhouse gas emissions
1.1.4.1	Increase in public transport trips to 10% of total trips within the City
1.1.4.2	Increase in walking and cycling trips to 6% of total trips within the City



Key Performance Indicators		
KPI 4.1	Technical sustainable transport actions	<i>Projected or actual CO<sub>2</sub>-e saving</i>
KPI 4.2	Sustainable transport advocacy, awareness and consultation in the community, and liaison with industry and government	<i>Number of participants</i>
KPI 4.3	Complete five minor and one major traffic facilities projects per annum to improve cycling, walking and access to public transport	<i>Traffic facilities projects implemented</i>
KPI 4.4	Upgrade and develop cycling and pedestrian facilities	<i>Length of footpath; Length of cycleways and bike lanes, connectedness of cycling network (total length of cycling network divided by number of disconnected segments)</i>
KPI 4.5	Improved connections for cycling between existing walkways, cycleways, schools, sporting facilities, public transport, parks, residential, commercial and business areas	<i>Bike rack occupancy at a range of selected schools, sporting facilities, workplaces and commercial centres across the City</i>
KPI 4.6	Fleet management strategy report submitted to executive committee annually	<i>Annual report submitted; new actions added to the Plan; Projected or actual CO<sub>2</sub>-e saving</i>
KPI 4.7	Community engagement activities around sustainable transport	<i>Specify activity; number of participants</i>



## TRANSPORT - CITY

Issue	Action Ref	Priority	Management Action
Transport	T3	High	Investigate and prioritise the creation of a sustainable transport strategy developing criteria for 'walkability', and reviewing the use and capacity of road and rail infrastructure within, and close to, urban centres.
Transport	T14	High	Implement priority recommendations of the Lake Macquarie Cycling Strategy.
Transport	T15	High	Implement priority recommendations of City-wide footpath strategy.
Community engagement	T10	Medium	Promote low emission cars (smaller, electric and alternative fuels) to residents and businesses and encourage the community to engage in active means of transport over car use, participate in sustainable transport initiatives and preference for low emissions vehicles.

## TRANSPORT - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Fleet management	T11	High	Review fleet and Mechanical Depot and Supply policies, to ensure alignment with Council adopted Vehicle Fleet and Greenhouse Gas Emissions Reduction Guideline, and identify and/or implement methods to transition to higher efficiencies, alternative fuels, and continue to: assess fuel usage; identify high users; and investigate reduction options to reduce fossil fuel reliance.
Fleet management	T13	High	Trial the viability of electric vehicles in Council's fleet.



Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	IP	30/06/2015	1.1	4.1 4.2 4.3	<ul style="list-style-type: none"> <li>• Strategy in place.</li> <li>• Construction of footpaths and shared pathways.</li> <li>• Standards of criteria agreed, with mapping layer completed and accessible.</li> </ul>
Lake Macquarie Cycling Strategy 2021	AM	30/06/2015	1.1.4.2	4.4	<ul style="list-style-type: none"> <li>• Document local cycle friendly routes, barriers and matters to be addressed.</li> <li>• Implement road marking for all major (2 lane) roundabouts.</li> </ul>
Lake Macquarie Footpath Strategy 2013-2023	AM	30/06/2015	1.1.4.2	4.4	<ul style="list-style-type: none"> <li>• Length of new footpath constructed.</li> <li>• Reported annually.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2018	1.1	4.2 4.7	<ul style="list-style-type: none"> <li>• Plan developed and implemented.</li> </ul>

Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Vehicle Fleet Greenhouse Gas Emissions Reduction Guideline 2009-2018 (version 3) Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	MDS	30/06/2015	1.1	4.6	<ul style="list-style-type: none"> <li>• Annual report submitted.</li> <li>• Projected or actual carbon emission saving (t CO<sub>2</sub>-e).</li> </ul>
Vehicle Fleet Greenhouse Gas Emissions Reduction Guideline 2009-2018 (version 3) Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1	4.1 4.6	<ul style="list-style-type: none"> <li>• Annual report submitted.</li> <li>• Projected or actual carbon emission saving (t CO<sub>2</sub>-e).</li> </ul>





# 5. Resource Consumption



## Direction

CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that minimises impacts of resource consumption and waste generation
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community A Council that is responsible with its resources
CSP 6.1	Bulk construction materials procurement, construction waste management and recycling

## Priority Strategies

Ensure the community is able to organise and take part in environmental activities
Minimise the resource consumption impacts from Council activities
Minimise the impacts of resource consumption across the City
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City
Provide infrastructure in a timely manner as development occurs
Develop and maintain a network of relationships with key agencies
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community
Advocate on behalf of the City and the community on matters of importance to the City
Actively engage with the community on key issues and matters of significance in the City
Ensure ongoing communication with residents, businesses, and community groups on matters of importance
Ensure resources are adequately planned for and allocated to enable the delivery of the Community Strategic Plan
Ensure appropriate and adequate governance systems are operational across the organisation
Bulk construction material is available in a timely and cost effective manner to all internal and external works, and in a manner that maximises the recycling of available construction material

## 2023 Targets

1.1	30% reduction in the per capita eco-footprint of the City
1.1.1.1	45% per capita reduction in City-wide greenhouse gas emissions

## Key Performance Indicators

KPI 5.1	Development and implementation of strategies to reduce resource consumption City-wide	<i>Reduction in per capita eco-footprint of the City</i>
KPI 5.2	Reduction in Council's consumption footprint	<i>CO<sub>2</sub>-e reduction</i>
KPI 5.3	Council policies and procedures include the requirement to consider sustainable options associated with the purchase of goods and services	<i>Procurement of sustainable alternatives; revised policies and procedures; CO<sub>2</sub>-e reduction</i>
KPI 5.4	Community engagement activities around consumption	<i>Specify activity; number of participants; projected or actual footprint reduction</i>





## RESOURCE CONSUMPTION - CITY

Issue	Action Ref	Priority	Management Action
Community engagement	RC1	High	Engage local businesses on sustainable living issues and continue to identify, encourage and provide initiatives, and support for resource conservation in the private sector.
Community engagement	RC2	High	Implement City-wide programs (including education and engagement activities) to achieve City-wide energy, carbon emissions, and waste targets.
Advocacy	RC4	High	Encourage the development of in-house training programs for the building industry on sustainable urban design. (See also E9)
Planning	RC9	High	Facilitate higher green building standards for new and retrofitted buildings to reduce City-wide energy, water and waste.
Community engagement	RC12	High	Implement community engagement programs to minimise resource consumption impacts.

## RESOURCE CONSUMPTION - COUNCIL Walk the Talk

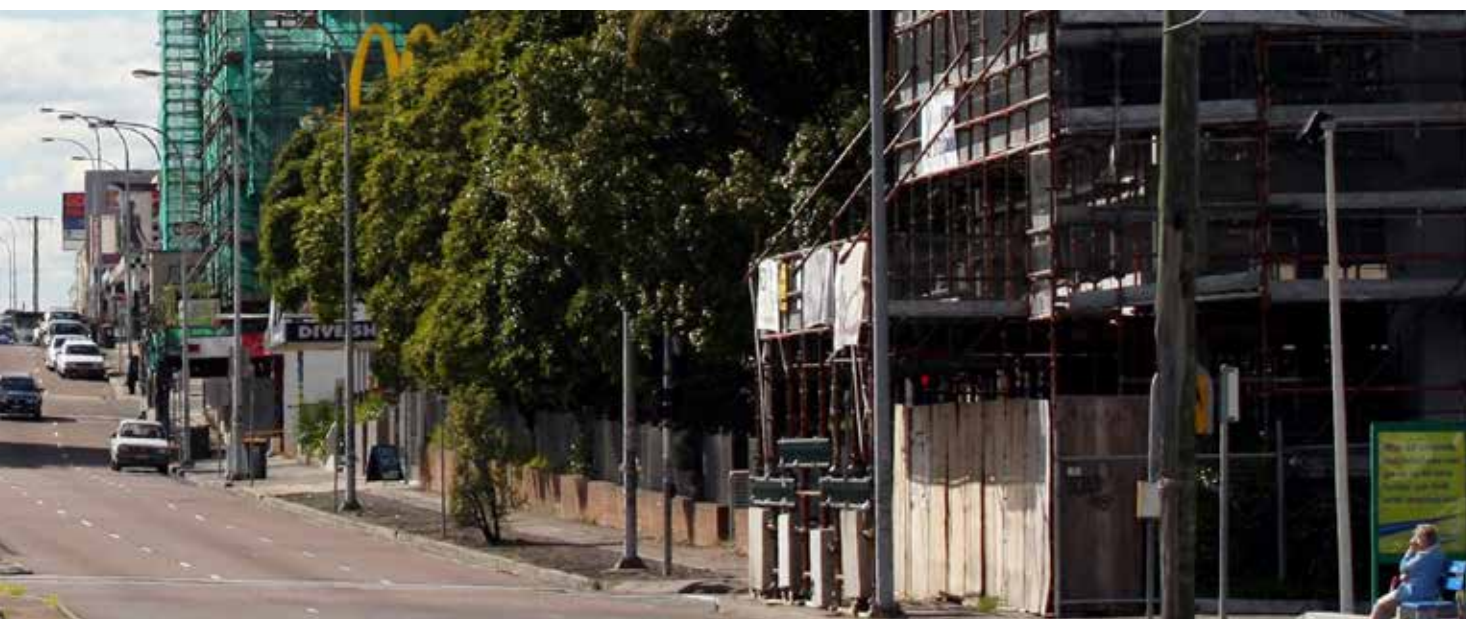
Issue	Action Ref	Priority	Management Action
Planning	RC6	High	Develop and implement a green building strategy for community facilities that ensures whole of life costs to Council from new or refurbished assets are minimised.
Procurement	RC7	High	Ensure Council sustainability targets and objectives are embeded in the procurement process (for example, updating procedures, the inclusion of Ecologically Sustainable Development (ESD) schedules in quotation/tender documentation and strategic and technical input for product and design specifications).





Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Energy Resilience Plan 2012	SUST	30/06/2015	1.1	5.1 5.4	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Energy Resilience Plan 2012 WARR 2007	SUST	30/06/2015	1.1	5.1 5.4	<ul style="list-style-type: none"> <li>Engagement activity; number of participants.</li> <li>Reported annually.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1	5.1	<ul style="list-style-type: none"> <li>Reduction in per capita eco-footprint of the City.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1	5.1	<ul style="list-style-type: none"> <li>Reduction in per capita eco-footprint of the City.</li> <li>Documentation of green building strategy.</li> </ul>
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	SUST	30/06/2015	1.1 1.1.1.1	5.1 5.4	<ul style="list-style-type: none"> <li>Plan developed.</li> <li>Number of stakeholders engaged.</li> </ul>

Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Energy Resilience Plan 2012 Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2) Staff Sustainability Strategy 2012 (version 3)	SUST	30/06/2015	1.1	5.2	<ul style="list-style-type: none"> <li>Numbers of facilities involved.</li> <li>Carbon emission reduction (t CO<sub>2</sub>-e).</li> <li>Installed renewable energy (kilowatt-peak).</li> <li>Electricity saved (kilowatt hours per year).</li> <li>Gas saved (gigajoules per year).</li> <li>Water saved (kilolitres per year).</li> <li>Waste avoided and recycled (percentage and tonnes).</li> <li>Green Building Strategy adopted.</li> </ul>
Procurement Policy 2009 (version 4) Staff Sustainability Strategy 2012 (version 3)	MDS	30/06/2015	1.1	5.3 5.4	<ul style="list-style-type: none"> <li>Revised policies and procedures.</li> <li>Specify activity; and projected or actual outcomes.</li> </ul>



# 6. Natural Environment



## Direction

CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that protects and enhances its natural environment
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community

## Priority Strategies

Ensure the community is able to organise and take part in environmental activities
Maintain and enhance the health of the lake and waterways ecosystems
Protect and enhance the health of terrestrial ecosystems
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City
Provide infrastructure in a timely manner as development occurs
Develop and maintain a network of relationships with key agencies
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community
Advocate on behalf of the City and the community on matters of importance to the City
Actively engage with the community on key issues and matters of significance in the City
Ensure ongoing communication with residents, businesses, and community groups on matters of importance

## 2023 Targets

1.2	25% reduction in the annual rate of clearing
1.2.1.1	Maintain or improve the condition of 30% of land with high conservation value under Council's care and control
1.2.1.2	20% increase in area of public and/or private land with conservation status (excluding the lake)
1.2.2	No net decline in waterways or estuary health

Key Performance Indicators		
KPI 6.1	Strategies, policies and plans developed and implemented to maintain and enhance the health of the City's ecosystems	<i>Documented guidance for objective, consistent decision making; rezoning applications and development applications result provide proportional achievement of clearing target 1.2, and area of land with improved conservation status target 1.2.1.2 Council land management contributes proportionally to targets</i>
KPI 6.2	Technical ecosystem enhancement risk reduction strategies implemented	<i>Reduced frequency or impact of degrading processes; proportional contribution to targets</i>
KPI 6.3	Degradation of terrestrial and aquatic environments	<i>Rate of clearing; area (ha) of EEC; monitoring reports, community participants</i>
KPI 6.4	Terrestrial and aquatic rehabilitation and improvement works program	<i>Type of works; length of foreshore improvements, catchment area improved; projected or actual footprint reduction</i>
KPI 6.5	City-wide measure of ecological connectivity and patch size	<i>Documented guidance for objective, consistent decision making; Area of land revegetated</i>
KPI 6.6	Number of species in each threatened species category	<i>Number of species</i>
KPI 6.7	On-site sewage management system inspections	<i>Compliance reports</i>
KPI 6.8	Monitor, investigate, and report on pollution incidents, including illegal dumping	<i>Compliance reports</i>
KPI 6.9	Meet compliance with Rural Fire Service obligations	<i>Compliance reports</i>
KPI 6.10	Community engagement activities around land use and the natural environment	<i>Specify activity; number of participants; projected or actual footprint reduction</i>
KPI 6.11	Water sensitive urban devices installed at Council owned sites	<i>Number of facilities incorporating sustainable urban water measures; improved water quality</i>
KPI 6.12	Conduct 100 audits per month of compliance with erosion and sediment requirements	<i>Pathways reports of number of audits per month conducted</i>
KPI 6.13	Erosion and sediment compliance audits show at least 70% compliance	<i>Number of audits conducted; Pathways reports of compliance</i>





## NATURAL ENVIRONMENT (Terrestrial) - CITY

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Biodiversity	NE1	High	Maintain up to date vegetation and corridor maps, and implement preventative planning measures, remedial works (such as fauna crossings), and vegetation corridor rehabilitation in priority locations.	
Community engagement	NE2	High	Develop and deliver City-wide campaign to improve urban habitat (incorporates managing Backyard and Beyond City-wide campaign).	
Community engagement	NE3	High	Continue and expand Landcare bush regeneration work.	
Feral animals	NE4	High	Contribute to regional feral animal control programs.	Vertebrate Pest Policy 2012 (version 3) Vertebrate Pest Management Strategy 2012-2018
Habitat conservation	NE6	High	Improve the quality of landscape design in parks, coastal and foreshore areas.	Plan of Management for Community Land 2011 (version 3)
Habitat conservation	NE7	High	Encourage sensitive environmental management on private land to complement existing habitats/corridors, and care and protect ecologically significant areas and landscapes.	
Monitoring	NE11	High	Enhance our natural heritage through community involvement in ecosystem condition monitoring.	
Planning	NE14	High	Implement Council's Biodiversity Planning Policy and Guidelines (including development of Biodiversity Strategy for the City) to minimise habitat loss through land clearing for residential, commercial, industrial and rural development.	Biodiversity Planning Policy and Guidelines 2009 (version 2)
Planning	NE15	High	Consider the protection of wildlife habitats and corridors in bush fire risk mitigation works programs.	
Weeds	NE20	High	Implement programs for the control and eradication of noxious and invasive plants.	Hunter and Central Coast Regional Weed Strategy 2010-2015
Weeds	NE21	High	Seek cooperation from nurseries to avoid the sale of environmental weeds.	Hunter and Central Coast Regional Weed Strategy 2010-2015
Habitat conservation	NE25	High	Protect private foreshore ecological values.	
Habitat conservation	NE27	High	Implement education, enforcement initiatives and structural works (vehicle barriers) to minimise the illegal use of public lands by recreational vehicles (i.e. trailbikes, four wheel drives).	Lake Macquarie Coastline Management Plan 1999 Lake Macquarie Estuary Management Plan 1997 Draft Coastal Zone Management Plan - Part A (2012)
Natural assets	NE28	High	Develop response strategies for actual and potential pests and diseases.	Vertebrate Pest Policy 2012 (version 3) Vertebrate Pest Management Strategy 2012-2018
Planning	NE30	High	Investigate the feasibility of developing community programs that encourage partnerships to clean beaches and foreshores.	Staff Sustainability Strategy 2012 (version 3)
Planning	NE31	High	Review and implement a strategic City-wide natural areas assessment.	Draft Natural Areas Asset Management Plan 2012 (version 2)
Planning	NE32	High	Review and implement policies, strategies and guidelines to protect and rehabilitate remnant bushland, aquatic ecosystems and conserve biodiversity.	Biodiversity Planning Policy and Guidelines 2009 (version 2) Biodiversity Offsets Policy 2011
Planning	NE36	High	Investigate opportunities for bringing coastal foreshore areas into public management/use, through zoning, acquisition, rights of way and other mechanisms.	Lake Macquarie Coastline Management Plan 1999

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.2	6.1 6.5	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Area of land revegetated.</li> </ul>
SUST	30/06/2015	1.2	6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> <li>Reported annually.</li> </ul>
AM	30/06/2015	1.2.1.1	6.4 6.10	<ul style="list-style-type: none"> <li>Type of works; number of projects completed.</li> <li>Number of active Landcare sites; approximate number of participants.</li> </ul>
WER	30/06/2015	1.2.1.1	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
CP	30/06/2015	1.2.1.1 1.2.2	6.4	<ul style="list-style-type: none"> <li>Type of works; length of foreshore improvements, catchment area improved.</li> <li>Design in line with relevant legislation and Council's policies and procedures.</li> </ul>
SUST	30/06/2015	1.2 1.2.1.2	6.2 6.4 6.5 6.10	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> <li>Type of works.</li> <li>Documented guidance for objective, consistent decision making.</li> <li>Revised policies, strategies and instruments.</li> <li>Area of land acquired.</li> <li>Flora and Fauna referrals.</li> <li>Specify activity; number of participants.</li> </ul>
SUST	30/06/2015	1.2	6.3	<ul style="list-style-type: none"> <li>Reported annually.</li> </ul>
SUST	30/06/2015	1.2	6.1	<ul style="list-style-type: none"> <li>Reported annually.</li> </ul>
AM	30/06/2015	1.2	6.5	<ul style="list-style-type: none"> <li>Number/area hazard reduction burns prepared/completed.</li> <li>Environmental training for staff involved in hazard reduction programs.</li> </ul>
WER	30/06/2015	1.2.1.1	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2.1.1	6.10	<ul style="list-style-type: none"> <li>Reported annually.</li> <li>Specify activity; number of participants.</li> </ul>
SUST	30/06/2015	1.2	6.1 6.10	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.1.1	6.2 6.10	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.1.1	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2	6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.1.1	6.1 6.2	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.1 6.2 6.4	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.1	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Adopt plan and implement planning controls.</li> </ul>

## NATURAL ENVIRONMENT (Terrestrial) - CITY

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Planning	NE39	High	Identify and prioritise key drivers of ecosystem condition and ability to maintain ecological services.	
Weeds	NE41	High	Support the implementation of the Regional Weeds Management Strategy and make recommendations for sustainable methods of weed control in major parks and foreshores.	Staff Sustainability Strategy 2012 (version 3) Hunter and Central Coast Regional Weed Strategy 2010-2015
Sewage	NE62	High	Implement priority recommendations from on-site sewage development assessment framework.	
Community engagement	NE65	High	Foster responsible pet ownership.	
Habitat conservation	NE8	Medium	Undertake an audit of the City's ecosystem degradation footprint every three years from 2007/2008 baseline.	
Advocacy	NE43	Medium	Encourage and support private organisations and industry to undertake greening programs and provide vegetation buffer areas.	
Biodiversity	NE44	Medium	Liaise with Aboriginal Land Councils to promote indigenous stewardship principles and employment in natural resource management, with particular reference to gaining active participation in biodiversity programs.	Lake Macquarie Aboriginal Heritage Management Strategy 2011
Biodiversity	NE45	Medium	Improve the effectiveness of fire management for asset protection and ecological outcomes, e.g. ecological burns, and minimising the ecological impacts of bush fire protection in Asset Protection Zones and Habitat Protection Zones.	Lake Macquarie Bush Fire Risk Management Plan 2011
Habitat conservation	NE64	Medium	Following completion of a green infrastructure strategy, investigate opportunities for implementing urban forest principles.	
Biodiversity	NE46	Low	As required, investigate and support measures to minimise adverse impacts from all forms of mining, including coal seam gas, on surface and groundwater and on ecosystems.	

## NATURAL ENVIRONMENT (Terrestrial) - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Biodiversity	NE53	High	Develop and refine species-specific plans (including the development of a Conservation Management Plan for Squirrel Glider, Masked Owl and orchids, and updating the Management Plan for <i>Tetratheca juncea</i> ).	
Community engagement	NE54	High	Measure, monitor and report to staff on the health of the City's ecosystems.	Staff Sustainability Strategy 2012 (version 3)
Habitat conservation	NE55	High	Restore and increase habitat connectivity to return parkland to natural bushland, encourage sensitive environmental management, and rehabilitate parkland and reserves.	Staff Sustainability Strategy 2012 (version 3) Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Planning	NE56	High	Develop a Green Infrastructure Strategy to identify and protect sensitive operational and community land.	Staff Sustainability Strategy 2012 (version 3)
Habitat conservation	NE51	Medium	Undertake an audit of Council's ecosystem degradation footprint every three years from 2007/2008 baseline.	
Habitat conservation	NE58	Medium	Increase the use of native/indigenous species across Council operations (including the rehabilitation of disturbed areas, after construction works and weed removal, with native species).	
Planning	NE66	Medium	Identify and map the locations of sensitive areas and develop environmentally sustainable Plans of Management, that adopt an integrated, holistic management approach including bush regeneration works.	



Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.2 1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2.1.1 1.2.2	6.2	<ul style="list-style-type: none"> <li>Eradication works undertaken.</li> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
WER	30/06/2015	1.2	6.1	<ul style="list-style-type: none"> <li>Priority recommendations from on-site sewage development assessment framework implemented.</li> <li>Number of identified systems found annually operating without approval.</li> </ul>
WER	30/06/2015	1.2	6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> </ul>
SUST	30/06/2018	1.2	6.3	<ul style="list-style-type: none"> <li>Rate of clearing; area (hectares) of EEC; monitoring reports; community participants.</li> </ul>
SUST	30/06/2018	1.2	6.5 6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> <li>Documented guidance for objective, consistent decision making; Area of land vegetated.</li> </ul>
SUST	30/06/2018	1.2	6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> </ul>
SUST	30/06/2018	1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2018	1.2	6.1	<ul style="list-style-type: none"> <li>Options for implementing urban forest principles identified and documented.</li> </ul>
SUST	30/06/2023	1.2 1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.2.1.1	6.1 6.6	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Number of species.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.3 6.4 6.5	<ul style="list-style-type: none"> <li>Rate of clearing; area (ha) of EEC; monitoring reports, community participants.</li> <li>Type of works; length of foreshore improvements, catchment area improved; projected or actual footprint reduction.</li> <li>Documented guidance for objective, consistent decision making; Area of land vegetated.</li> </ul>
SUST	30/06/2015	1.2.1.1.	6.1 6.4	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Area of land vegetated.</li> <li>Type of works; length of foreshore improvements, catchment area improved.</li> </ul>
IP	30/06/2015	1.2	6.1	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making. Council land management contributes proportionally to targets.</li> <li>Completion of Green Infrastructure Strategy.</li> </ul>
SUST	30/06/2018	1.2	6.3	<ul style="list-style-type: none"> <li>Rate of clearing; area (ha) of EEC; monitoring reports, community participants.</li> <li>Area and rate of approved vegetation clearance.</li> </ul>
AM	30/06/2018	1.2.1.1	6.4	<ul style="list-style-type: none"> <li>Type of works; approximate proportion of new landscaping works using native species.</li> </ul>
AM	30/06/2018	1.2.1.1	6.1 6.5	<ul style="list-style-type: none"> <li>Future versions of natural areas asset management plans include heirarchy of reserves.</li> <li>Number of Landcare agreed action plans completed/reviewed.</li> </ul>

## NATURAL ENVIRONMENT (Aquatic) - CITY

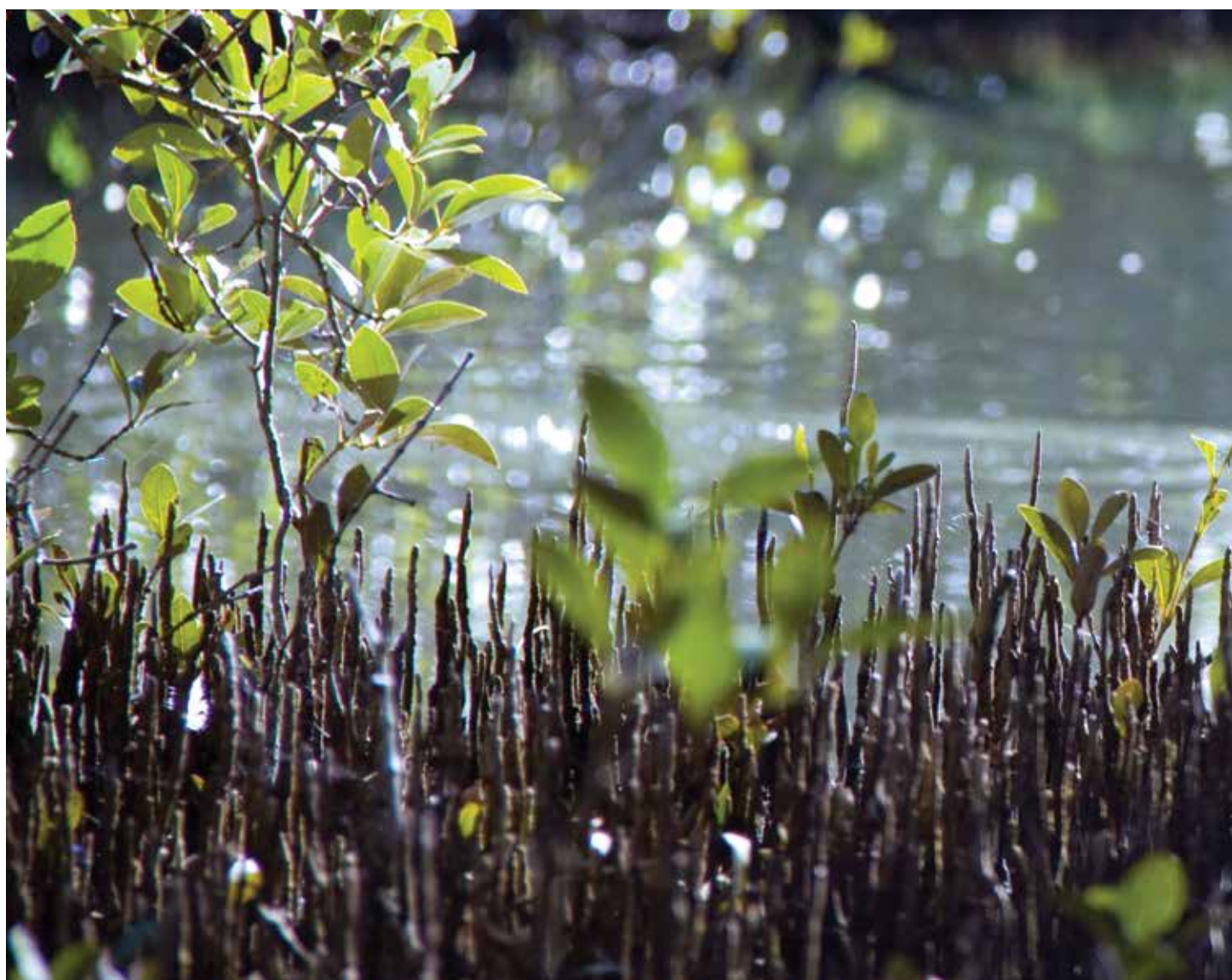
Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Habitat conservation	NE5	High	Revise the Lake Macquarie Coastal Zone Management Plan to increase resilience of intertidal biological communities.	Lake Macquarie Coastline Management Plan 1999 Draft Coastal Zone Management Plan - Part A (2012) - Part B (2013)
Monitoring	NE9	High	Monitor water quality and indicator species, including seagrasses, at representative sites within the lake and waterways.	Stormwater Management Plan 1999
Biodiversity	NE23	High	Protect endangered shorebird nesting sites through broader protection of sand islands and other habitats in Lake Macquarie.	Lake Macquarie Coastline Management Plan 1999 Lake Macquarie Estuary Management Plan 1997
Community engagement	NE24	High	Liaise with key landowners, government agencies and other stakeholders to minimise damage from recreation and other sectors on the aquatic environment.	Lake Macquarie Estuary Management Plan 1997
Habitat conservation	NE26	High	Support the development and implementation of a habitat friendly mooring program in Lake Macquarie (seagrass/rocky reefs/sponges/sand and mud flats) to protect aquatic fauna and water quality in the lake.	
Planning	NE33	High	Develop management strategies for Black Neds Bay and Salts Bay considering catchment changes, sedimentation, habitat value and aesthetics.	Lake Macquarie Estuary Management Plan 1997 Draft Coastal Zone Management Plan - Part C (October 2013)
Planning	NE35	High	Improve conservation status of ecologically important natural areas.	Lake Macquarie Coastline Management Plan 1999 Lake Macquarie Estuary Management Plan 1997
Water quality	NE40	High	Design and construct water quality and flow control devices at priority locations identified within existing stormwater and catchment management plans and at newly identified priority sites.	Stormwater Management Plan 1999 Flaggy Creek Stormwater Management Plan 2004 LT Creek Water Quality Management Plan 2009 Lake Macquarie Estuary Management Plan 1997 Jewells Wetland Catchment Management Strategy 1999
Water quality	NE61	High	Investigate funding opportunities for dredging of LT Creek (in accordance with LT Creek Dredging Plan 2013).	LT Creek Water Quality Management Plan 2009 LT Creek Dredging Plan 2013
Habitat conservation	NE63	High	Implement priority actions in the Lake Macquarie Coastal Zone Management Plan.	
Community engagement	NE67	High	Continue community education campaigns and programs, regarding the impacts of land degradation on the local environment particularly on stormwater.	Stormwater Management Plan 1999
Erosion and sediment control	NE68	High	Audit the erosion and sediment on-site controls during development against those required in the Development Control Plan - Erosion Prevention and Sediment Control.	
Advocacy	NE42	Medium	Improve understanding of hydrodynamic and ecological impacts of power station thermal pollution of the lake, and where necessary, lobby State Government to reduce such impacts.	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Habitat conservation	NE48	Medium	Support measures to improve fish passage by removing or modifying artificial barriers.	Lake Macquarie Estuary Management Plan 1997
Water quality	NE50	Medium	Review fertiliser and herbicide use on public land by Council and community groups and make recommendations aimed at reducing the potential for stormwater pollution.	

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.2.1.1 1.2.2	6.1	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> </ul>
SUST	30/06/2015	1.2.2	6.3	<ul style="list-style-type: none"> <li>Reported annually.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.2 6.6	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> <li>Area protected.</li> <li>Reported annually.</li> </ul>
SUST	30/06/2015	1.2.2	6.2 6.10	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2015	1.2.2	6.1 6.4	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Type of works; length of foreshore improvements, catchment area improved; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.1.2 1.2.2	6.1	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Review of planning guidelines completed.</li> <li>Completion of Estuary Management Guidelines.</li> </ul>
AM	30/06/2015	1.2.2	6.2 6.11	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> <li>Number of facilities incorporating sustainable urban water measures; improved water quality.</li> </ul>
SUST	30/06/2015	1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes.</li> <li>External funding sought.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes.</li> <li>Reported annually.</li> </ul>
SUST	30/06/2015	1.2 1.2.2	6.10	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> </ul>
DAC	30/06/2015	1.2.2	6.12 6.13	<ul style="list-style-type: none"> <li>Number of audits conducted.</li> <li>Number of developers engaged.</li> <li>At least 70% of inspections compliant.</li> <li>Pathways reports of compliance.</li> </ul>
SUST	30/06/2018	1.2.2	6.1 6.2	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making; Council land management contributes proportionally to targets.</li> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2018	1.2.2	6.2	<ul style="list-style-type: none"> <li>Reduced frequency or impact of degrading processes; proportional contribution to targets.</li> </ul>
SUST	30/06/2018	1.2 1.2.2	6.1 6.10	<ul style="list-style-type: none"> <li>Documented guidance for objective, consistent decision making;</li> <li>Specify activity; number of participants; projected or actual footprint reduction.</li> </ul>



## NATURAL ENVIRONMENT (Aquatic) - Council Walk the Talk

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Water quality	NE52	High	Implement works and programs to reduce catchment pollution and improve stream and foreshore stability and seek funding for rehabilitation projects and identify priority sites.	Stormwater Management Plan 1999 Flaggy Creek Stormwater Management Plan 2004 LT Creek Water Quality Management Plan 2009 Lake Macquarie Estuary Management Plan 1997 Lake Macquarie Coastline Management Plan 1999 Jewells Wetland Catchment Management Strategy 1999
Habitat conservation	NE60	High	Develop an in-house trial of different methods of managing constructed wetland maintenance and evaluate the results to develop an agreed, consistent and affordable approach to managing the maintenance of constructed wetlands.	Staff Sustainability Strategy 2012 (version 3)
Erosion and sediment control	NE69	High	Develop and deliver formal training to Council officers consistent with implementation and regulation of Council's environmental sustainability provisions of the Development Control Plan.	



Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.2 1.2.2	6.3 6.4	<ul style="list-style-type: none"> <li>• Rate of clearing; area (ha) of EEC; monitoring reports, community participants.</li> <li>• Type of works; length of foreshore improvements, catchment area improved; projected or actual footprint reduction.</li> </ul>
SUST	30/06/2015	1.2.1.1	6.4	<ul style="list-style-type: none"> <li>• Type of works; length of foreshore improvements, catchment area improved.</li> </ul>
DAC	30/06/2015	1.2.2	6.1	<ul style="list-style-type: none"> <li>• Evaluation of baseline knowledge of attendees to be taken prior to training, and reassessment 6 months after training.</li> <li>• Baseline assessment of on-ground erosion and sediment control measures at reference sites prior to training and then 6 months after training (to assess increase in knowledge and understanding).</li> </ul>





## 7. Climate Change Adaptation



### Direction

CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that is resilient and prepared for threats from the environment
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community

### Priority Strategies

Ensure the community is able to organise and take part in environmental activities
Increase capacity to adapt to climate change
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City
Provide infrastructure in a timely manner as development occurs
Develop and maintain a network of relationships with key agencies
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community
Advocate on behalf of the City and the community on matters of importance to the City
Actively engage with the community on key issues and matters of significance in the City
Ensure ongoing communication with residents, businesses, and community groups on matters of importance

### 2023 Targets

1.3	No net per capita increase in exposure of the community to risks from the environment
1.3.1	No net per capita increase in exposure of the community to risks from climate change



Key Performance Indicators		
KPI 7.1	Effects of predicted climate changes, including sea level rise, are considered and incorporated in all statutory planning instruments and Council plans	<p><i>Sea level rise planning and development provisions included in Council's Local Environmental Plan and Development Control Plan</i></p> <p><i>All Department-level risk management plans and operation plans contain actions to manage predicted climate changes to 2030</i></p> <p><i>Council and Departmental climate change risk and adaptation actions reviewed and updated annually</i></p> <p><i>Local Adaptation Plans developed for at least three communities vulnerable to the effects of sea level rise</i></p>
KPI 7.2	Sea level rise policies and risk management guidelines applied to all re-zonings and development applications	<p><i>All new development in areas vulnerable to sea level rise meet Development Control Plan provisions for sea level rise</i></p> <p><i>Measure of intensity of development in areas vulnerable to sea level rise (currently lakeside areas &lt;3 metres Australian Height Datum (AHD))</i></p>
KPI 7.3	Refuges and corridors established to allow ecosystem adaptation to climate changes and sea level rise	<p><i>Identify all Endangered Ecological Communities (EECs) vulnerable to climate change and prepare retreat or adaptation strategies</i></p> <p><i>Identify and protect from development at least 10% of the land area required for ecosystem retreat and adaptation</i></p>
KPI 7.4	Flood risk minimisation plans developed and up-dated for all major catchments to incorporate the effects of climate change, including sea level rise	<i>At least two new Flood Studies or Plans completed each year for priority catchments</i>
KPI 7.5	Council infrastructure designs incorporate new standards and guidelines to allow for the effects of climate change and sea level rise	<p><i>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure</i></p> <p><i>Adjust infrastructure design to meet new standards that include consideration of climate changes such as revised Rainfall and Runoff Tables, Wind Zone maps, and coastal hazard assessments</i></p> <p><i>Programs established with other infrastructure providers – i.e. Hunter Water Corporation, Roads and Maritime Services, Transgrid, Energy Australia, Hunter New England Area Health – to ensure that new developments approved by Council can guarantee infrastructure provision for the predicted life of the development</i></p>
KPI 7.6	Maintain community understanding and support for Council climate change risk reduction programs	<p><i>Community consultation included in the development of all significant new policies and programs to deal with the effects of climate change and sea level rise</i></p> <p><i>Number of residents indicating through community surveys that they recognise climate change is occurring and support action to reduce the risks from climate change</i></p>
KPI 7.7	Landuse planning policy, strategies and instruments address climate change	<i>Revised policies, strategies and instruments</i>

## CLIMATE CHANGE ADAPTATION - CITY

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Community engagement	CCA1	High	Educate residents about the risks associated with inundation and increased flooding from climate change and sea level rise.	Environmental Security Assessment 2010 Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Community engagement	CCA3	High	Ensure local communities are engaged and participate in the development and implementation of adaptation responses through developing, facilitating and resourcing local area community engagement pilot projects and action plans to address sea level rise adaptation.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Sea level rise	CCA4	High	Investigate management options, and review and update policies, strategies, guidelines and works, to mitigate economic and social impacts from, and reduce risk exposure to, climate change impacts including severe storms, floods, and bush fire.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Sea level rise	CCA5	High	Complete inventory of wetlands and study of predicted effects of sea level rise.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999
Sea level rise	CCA6	High	Integrate wetland retreat areas for sea level rise into strategic biodiversity and land use plans such as the Local Environmental Plan.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999
Sea level rise	CCA7	High	Understand and plan for the effects of sea level rise on coastal and estuarine shorelines and infrastructure. Complete and implement studies on the impacts of sea level rise on the coastline, lake foreshore, and on estuarine and coastal ecosystem resilience.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999 Environmental Security Assessment 2010
Sea level rise	CCA8	High	Integrate outcomes and knowledge gained by the studies used to develop the Lake Macquarie Coastal Zone Management Plan, including coastline and foreshore hazard zones and recommendations to assist with appropriate development considering coastal and foreshore inundation, coastal and foreshore recession, and extreme weather events.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999 Environmental Security Assessment 2010
Planning	CCA23	High	Contribute to review and upgrade of the Lake Macquarie City Local Emergency Plan.	State Emergency and Rescue Management Act 1989 DISPLAN 2011
Planning	CCA24	High	Investigate and develop new building and landscape designs, and encourage innovative building, infrastructure and landscape designs that are able to adapt more easily to sea level rise.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Sea level rise	CCA10	Medium	Review long term urban development and land use planning strategies to ensure town centres, new infrastructure, and residential densities, for example, are suited to future conditions (including up to the year 2100 and beyond).	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Sea level rise	CCA11	Medium	Ensure that the infrastructure of all significant utility providers affected by predicted sea level rise is taken into consideration when developing/considering and implementing future options for affected land, with specific liaison with Hunter Water Corporation, Telstra, and other infrastructure/utility providers.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Sea level rise	CCA13	Medium	Investigate impact on biodiversity of possible relocation of vulnerable foreshore and coastal settlements.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.3.1	7.6	<ul style="list-style-type: none"> <li>Number of residents indicating support to reduce risks from climate change.</li> </ul>
IP	30/06/2015	1.3.1	7.6	<ul style="list-style-type: none"> <li>Community consultation included in the development of all significant new policies and programs to deal with the effects of climate changes and sea level rise.</li> </ul>
SUST	30/06/2015	1.3.1	7.1 7.2 7.5	<ul style="list-style-type: none"> <li>Sea level rise planning and development provisions included in Local Environmental Plan and Development Control Plan.</li> <li>Department-level risk management plans and operation plans contain actions to manage predicted climate changes to 2030.</li> <li>Development in areas vulnerable to sea level rise meet Development Control Plan provisions.</li> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> </ul>
SUST	30/06/2015	1.3.1	7.3	<ul style="list-style-type: none"> <li>Identify EECs vulnerable to climate change and prepare adaptation strategies.</li> <li>Protect from development at least 10% of the land area required for ecosystem retreat and adaptation.</li> </ul>
SUST	30/06/2015	1.3.1	7.1	<ul style="list-style-type: none"> <li>Sea level rise planning and development provisions included in Local Environmental Plan and Development Control Plan.</li> </ul>
SUST	30/06/2015	1.3.1	7.1 7.5	<ul style="list-style-type: none"> <li>Sea level rise planning and development provisions included in Local Environmental Plan and Development Control Plan.</li> <li>Council and Departmental climate change risk and adaptation actions reviewed and updated annually.</li> <li>Department-level risk management plans and operation plans contain actions to manage predicted climate changes to 2030.</li> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> </ul>
SUST	30/06/2015	1.3.1	7.2 7.4 7.5	<ul style="list-style-type: none"> <li>All new development in areas vulnerable to sea level rise meet Development Control Plan provisions for sea level rise.</li> <li>At least two new Flood Studies or Plans completed each year.</li> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> </ul>
WER	30/06/2015	1.3.1 1.3	7.1	<ul style="list-style-type: none"> <li>Currency of Lake Macquarie Local Disaster Plan (DISPLAN) reflects current risks.</li> <li>DISPLAN reviewed (2014/2015) and renamed Lake Macquarie City Local Emergency Plan (EMPLAN).</li> <li>Incorporation of new disaster studies and plans.</li> </ul>
CP	30/06/2015	1.3.1	7.5	<ul style="list-style-type: none"> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> <li>Adjust infrastructure design to meet new standards that include consideration of climate change.</li> </ul>
IP	30/06/2018	1.3.1	7.1 7.2 7.5	<ul style="list-style-type: none"> <li>Sea level rise planning and development provisions included in Local Environmental Plan and Development Control Plan.</li> <li>Development in areas vulnerable to sea level rise meet Development Control Plan provisions for sea level rise.</li> <li>Measure of intensity of development in areas vulnerable to sea level rise (currently lakeside areas &lt;3m AHD).</li> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning and designing new Council infrastructure.</li> <li>Adjusted infrastructure design to meet new standards that include consideration of climate change.</li> </ul>
IP	30/06/2018	1.3.1	7.5	<ul style="list-style-type: none"> <li>Programs established with other infrastructure providers to ensure new developments can guarantee infrastructure provision for the predicted life of the development.</li> </ul>
SUST	30/06/2018	1.3.1	7.3	<ul style="list-style-type: none"> <li>Identify EECs vulnerable to climate change and prepare adaptation strategies.</li> <li>Protect from development at least 10% of the land area required for ecosystem retreat and adaptation.</li> </ul>



## CLIMATE CHANGE ADAPTATION - CITY

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Sea level rise	CCA14	Medium	Prepare and implement sea level rise impact management plans for priority wetlands based on study recommendations.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999
Sea level rise	CCA15	Low	Carry out program of works to rehabilitate and protect vulnerable wetlands from sea level rise impacts.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Lake Macquarie Coastline Management Plan 1999

## CLIMATE CHANGE ADAPTATION - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action	Relevant Policy, Plan, Strategy, Program
Climate change	CCA16	High	Provide strategic management information to keep Councillors and Council staff up to date with significant developments in climate change science and policy.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Planning	CCA17	High	Regular review of insurance cover and policies, together with implementation of Climate Change Risk and Adaptation Plan.	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Planning	CCA18	High	Finalise and implement Business Continuity Plan for all Council sites.	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Flooding	CCA20	High	Upgrade existing infrastructure (and design infrastructure to a higher standard) to minimise damage due to altered flooding levels under climate change.	Environmental Security Assessment 2010 Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Planning	CCA21	High	Review and enhance relevant provisions and requirements of the Lake Macquarie Local Environmental Plan and Development Control Plan in terms of waterways and foreshores, building lines, building heights, stormwater drainage and flood detention areas.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2) Environmental Security Assessment 2010
Planning	CCA22	High	Undertake internal training and development programs to build capacity in assessment and compliance to ensure that all relevant staff, involved in assessment and compliance work, are aware of and take into account predicted sea level rise when assessing new development on affected land.	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)
Planning	CCA26	High	Implement Echelon Climate Change Adaptation Risk Management Plan.	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)
Planning	CCA25	Medium	Identify vulnerability of existing recreational facilities to sea level rise and maintain access to recreation facilities.	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3) Waterway Flooding and Tidal Inundation Policy 2012 (version 2)

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2018	1.2.1.1	7.3 6.4	<ul style="list-style-type: none"> <li>Identify EECs vulnerable to climate change and prepare adaptation strategies.</li> <li>Protect from development at least 10% of the land area required for ecosystem retreat and adaptation.</li> <li>Terrestrial and aquatic rehabilitation works.</li> </ul>
SUST	30/06/2023	1.2.1.1	7.3 6.4	<ul style="list-style-type: none"> <li>Identify EECs vulnerable to climate change and prepare adaptation strategies.</li> <li>Protect from development at least 10% of the land area required for ecosystem retreat and adaptation.</li> <li>Terrestrial and aquatic rehabilitation works.</li> </ul>

Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
SUST	30/06/2015	1.3	7.1 7.5	<ul style="list-style-type: none"> <li>Council and Departmental Climate Change Risk and Adaptation actions reviewed and updated annually.</li> <li>Policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> </ul>
OP	30/06/2015	1.3	7.1	<ul style="list-style-type: none"> <li>Risk management action plan prepared annually.</li> <li>Council and Departmental Climate Change Risk and Adaptation actions reviewed and updated annually.</li> </ul>
OP	30/06/2015	1.3	7.1	<ul style="list-style-type: none"> <li>Department-level risk management plans and operation plans contain actions to manage predicted climate changes to 2030.</li> <li>Business Continuity Plan completed.</li> <li>Business Continuity Plan implemented.</li> </ul>
AM	30/06/2015	1.3	7.5	<ul style="list-style-type: none"> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> <li>Adjust infrastructure design to meet new standards that include consideration of climate change as design standards are revised by authors.</li> </ul>
IP	30/06/2015	1.3	7.1	<ul style="list-style-type: none"> <li>Sea level rise planning and development provisions included in Local Environmental Plan and Development Control Plan.</li> <li>Implement relevant outcomes from the Flood Ready Housing Report.</li> </ul>
SUST	30/06/2015	1.3	7.2	<ul style="list-style-type: none"> <li>Development in areas vulnerable to sea level rise meet Development Control Plan provisions for sea level rise.</li> </ul>
SUST	30/06/2015	1.3	7.5	<ul style="list-style-type: none"> <li>Report provided.</li> </ul>
CP	30/06/2018	1.3	7.5	<ul style="list-style-type: none"> <li>Sea level rise policy, guidelines and new flood levels incorporated in planning for and designing all new Council infrastructure.</li> </ul>

## 8. Natural Hazards



### Direction

CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that is resilient and prepared for threats from the environment.
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City.
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community.

### Priority Strategies

Ensure the community is able to organise and take part in environmental activities
Increase preparedness for natural disasters
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City
Provide infrastructure in a timely manner as development occurs
Develop and maintain a network of relationships with key agencies
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community
Advocate on behalf of the City and the community on matters of importance to the City
Actively engage with the community on key issues and matters of significance in the City
Ensure ongoing communication with residents, businesses, and community groups on matters of importance

### 2023 Targets

1.3	No net per capita increase in exposure of the community to risks from the environment
1.3.2	7% reduction in exposure of the community to risks from natural hazards



Key Performance Indicators		
KPI 8.1	Natural hazard related risk reported to the community	<i>Report on natural hazard risk exposure, including from floods, storm events, bush fires, earthquakes, tsunamis and climate change related events, provided to Council</i>
KPI 8.2	Risks from predicted natural hazards, including from floods, storm events, bush fires, earthquakes, tsunamis and climate change related events, are considered and incorporated in all statutory planning instruments and Council plans	<i>Natural hazard risk reduction planning and development provisions included in the Local Environmental Plan and Development Control Plan</i> <i>All Department-level risk management plans and operation plans contain actions to manage potential natural hazard risks to 2030</i> <i>Council and Departmental natural hazard risk reduction actions reviewed and updated annually</i> <i>Local Adaptation Plans developed for at least three communities vulnerable to natural hazard risks</i>
KPI 8.3	Report on performance in meeting local emergency plan objectives and requirements	<i>Annual report to Council including natural hazard emergency preparedness, response and recovery performance</i> <i>Currency of local emergency plan reflects current risks</i> <i>Incorporation of new disaster studies and plans</i>
KPI 8.4	Stakeholder liaison and/or advocacy of community, industry and government	<i>Community consultation included in the development of all significant new policies and programs to deal with natural hazard risk</i>
KPI 8.5	Maintain community understanding and support for Council natural hazard risk reduction programs	<i>Number of residents indicate through community surveys that they recognise natural hazard risks exist in Lake Macquarie and support action to reduce the risks</i>



## NATURAL HAZARDS - CITY

Issue	Action Ref	Priority	Management Action
Flooding	NH1	High	Conduct flood studies and flood risk management studies/plans, that include climate change predictions, for endorsed priority catchments in the local government area.
Advocacy	NH3	High	Work with insurance agencies to develop insurance information and incentives (e.g. premium reductions) for flood, storm and bush fire mitigation design options on developments.
Advocacy	NH4	High	Promote City-wide and local natural disaster preparedness, early warning systems and emergency plans.
Flooding	NH9	High	Improve the quality, reliability and accessibility of flood risk and flood planning information for individual properties.
Flooding	NH7	Medium	Implement recommendations from approved flood risk studies and plans for all major catchments in the City.

## NATURAL HAZARDS - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Planning	NH8	Medium	Coordinate the review and ensure currency of departmental risk management plans and operation plans including: individual site emergency plans with respect to Council operations. Investigate vulnerability of the Works Depot, State Emergency Service base, and other infrastructure on flood prone land.





Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Environmental Security Assessment 2010 Waterway Flooding and Tidal Inundation Policy 2012 (version 2) NSW Floodplain Development Manual 2005	SUST	30/06/2015	1.3.2	7.4 8.2	<ul style="list-style-type: none"> <li>At least two new Flood Studies or Plans completed each year.</li> <li>Lake Macquarie Waterway, Dora Creek, and Cockle/Winding Creek plans reviewed to include sea level rise and climate change effects.</li> <li>Area Plans developed for at least three communities vulnerable to natural disaster risks.</li> </ul>
Environmental Security Assessment 2010	SUST	30/06/2015	1.3.2	8.4	<ul style="list-style-type: none"> <li>Community consultation included in the development of all significant new policies and programs to deal with natural hazard risk.</li> <li>Decrease in home insurance premiums compared to similar properties in other local government areas.</li> </ul>
Environmental Security Assessment 2010	SUST	30/06/2015	1.3.2	8.1 8.2 8.4 8.5	<ul style="list-style-type: none"> <li>Incremental improvement in Hunter Valley Research Foundation community survey measure.</li> <li>Increased participation in early warning networks.</li> <li>Annual report of natural hazard risk exposure provided to Council.</li> <li>Local Adaptation Plans developed for at least three communities vulnerable to natural hazard risks.</li> </ul>
Floodplain Management Program	SUST	30/06/2015	1.3.2	8.2	<ul style="list-style-type: none"> <li>Flood information available on-line.</li> </ul>
Floodplain Management Program Flood Risk Management Study and Plan 2012	SUST	30/06/2018	1.3.2	8.2	<ul style="list-style-type: none"> <li>Recommendations implemented.</li> <li>Local Adaptation Plans developed for at least three communities vulnerable to natural hazard risks.</li> </ul>

Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)	OP	30/06/2018	1.3.2	8.2	<ul style="list-style-type: none"> <li>Department-level risk management plans and operation plans contain actions to manage predicted climate changes to 2030.</li> </ul>





# 9. Environmental Health



## Direction

CSP 4.1.2	A community that works in partnership with Council to create a sustainable City A community that is resilient and prepared for threats from the environment
CSP 4.2.2	A safe and healthy community
CSP 4.5.2	A responsible, aesthetically pleasing and sustainable City
CSP 4.6.2	A City that fosters relationships with other levels of government and key service providers to benefit the Lake Macquarie community A City that has an engaged and well informed community

## Priority Strategies

Ensure the community is able to organise and take part in environmental activities
Reduce risks from environmental pollution and disease
Promote public health
Proactively respond to safety concerns throughout the community
Develop a range of tools to guide the sustainable, safe and attractive development and infrastructure in the City
Provide infrastructure in a timely manner as development occurs
Develop and maintain a network of relationships with key agencies
Maximise opportunities to provide input into planning, policy development, investigations, inquiries and legislative reviews that will affect the operations of Council and/or the Lake Macquarie community
Advocate on behalf of the City and the community on matters of importance to the City
Actively engage with the community on key issues and matters of significance in the City
Ensure ongoing communication with residents, businesses, and community groups on matters of importance

## 2023 Targets

1.3	No net per capita increase in exposure of the community to risks from the environment
1.3.3.1	No net increase in per capita air pollution emissions within the City
1.3.3.2	50% of known contaminated land in Council's care and control assessed for risk to human health and prioritised for risk mitigation measures
1.3.3.3	All public and private contaminated sites, reported to Council, are recorded in Council's Contaminated Land Database and publicly available

Key Performance Indicators		
KPI 9.1	Effects of environmental health risk exposure, including from air pollution, contaminated land and climate change-related environmental health risks (e.g. heat stress), are considered and incorporated in all statutory planning instruments and Council plans, and are updated as predictions change	<p><i>Environmental health risk reduction planning and development provisions included in Local Environmental Plan and Development Control Plan</i></p> <p><i>All Department-level risk management plans and operation plans contain actions to manage potential environmental health risks</i></p> <p><i>Council and Departmental environmental health risk reduction actions reviewed and up-dated annually</i></p> <p><i>Local Adaptation Plans developed for at least three communities vulnerable to environmental health risks</i></p>
KPI 9.2	Environmental health risk minimisation guidelines applied to all major developments including risks related to air pollution, contaminated land and climate change-related environmental health risks (e.g. heat stress)	<i>All new development in areas vulnerable to environmental health risks meet Development Control Plan provisions for environmental health risk reduction (e.g. contaminated land remediation and/or rehabilitation)</i>
KPI 9.3	Environmental health monitoring and reporting	<i>Annual report of environmental health risk exposure, including from air pollution, contaminated land and climate change related environmental health risks provided to Council</i>
KPI 9.4	Stakeholder liaison and/or advocacy of community, industry and government	<i>Stakeholder consultation about how to reduce environmental health risk, including risks related to air pollution, contaminated land and climate change, included in the development of all significant new policies and programs</i>
KPI 9.5	Numbers of environmental health risk reduction programs, awareness campaigns, workshops, activities, engagements and participants	<i>Number of residents indicating through community surveys that they recognise environmental health risks affecting Lake Macquarie, including risks related to air pollution, contaminated land and climate change, and support action to reduce the risks</i>
KPI 9.6	Report on Council's contaminated site management strategy	<i>Report delivered</i>



## ENVIRONMENTAL HEALTH - CITY

Issue	Action Ref	Priority	Management Action
Air pollution	EH2	High	Consider air pollution dispersion modelling in development assessment process.
Air pollution	EH4	High	Estimate impact of air pollution on health.
Air pollution	EH5	High	Liaise with major polluters (e.g. energy generators, mines and quarries) to promote air quality improvements and establish and support an Air Quality Reference Group for Industry in the City of Lake Macquarie.
Monitoring	EH9	High	Environmental health monitoring in conjunction with the gathering of specific environmental health risk data.
Contaminated land	EH13	High	Implement an environmental management plan to deal with black slag, asbestos and other contaminants on land in Council's care and control.
Contaminated land	EH14	High	Maintain a Contaminated Land Database and Section 149 Certificate notification process.
Contaminated land	EH16	High	Address pollution issues associated with soil contamination identified through development assessments and service requests.
Contaminated land	EH17	High	Apply regulatory controls where contamination poses significant risk of harm to public health and environment.
Air pollution	EH6	Medium	Identify locations and magnitude of wood smoke pollution and implement emissions reduction strategies, as required.
Community engagement	EH8	Medium	Plan and implement community engagement campaigns related to priority environmental health issue/s (including: air pollution; heat stress; and solar radiation).
Pollution	EH11	Medium	Develop and implement effluent management strategies and policies to reduce environmental health impacts of business waste and industrial pollutants.
Contaminated land	EH18	Medium	Implement a communications strategy for community awareness of contaminated land.
Contaminated land	EH19	Medium	Implement management actions to address pollution issues associated with Underground Petrol Storage Systems (UPSS).



Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Environmental Security Assessment 2010	SUST	30/06/2015	1.3.3.1	9.3	<ul style="list-style-type: none"> <li>Number of development assessments, in which air pollution modelling considered, with satisfactory air quality controls.</li> </ul>
Environmental Security Assessment 2010	SUST	30/06/2015	1.3	9.1 9.3	<ul style="list-style-type: none"> <li>Department-level risk management plans and operation plans contain actions to manage potential environmental health risks.</li> <li>Annual report of environmental health risk exposure provided to Council.</li> </ul>
	SUST	30/06/2015	1.3.3.1	9.4	<ul style="list-style-type: none"> <li>Group initiated.</li> <li>Terms of Reference delivered.</li> <li>Report minutes and meeting outcomes.</li> </ul>
	WER	30/06/2015	1.3	9.3	<ul style="list-style-type: none"> <li>Environmental health risk exposure reported.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3) Environmental Management Plan for Contaminated Land in Council's Care and Control 2013 (version 1)	SUST	30/06/2015	1.3.3.2	9.6	<ul style="list-style-type: none"> <li>Number of contaminated sites managed in accordance with the Environmental Management Plan.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	SUST	30/06/2015	1.3.3.2 1.3.3.3	9.6	<ul style="list-style-type: none"> <li>Total number of sites registered.</li> <li>Number of sites registered with notation 1,2,3 and 4.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	WER	30/06/2015	1.3.3.2 1.3.3.3	9.6	<ul style="list-style-type: none"> <li>100% technical response rate.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	WER	30/06/2015	1.3.3.2 1.3.3.3	9.6	<ul style="list-style-type: none"> <li>Number of contamination referrals generated annually.</li> <li>Number of clean-up notices issued annually.</li> </ul>
	SUST	30/06/2018	1.3.3.1	9.1 9.3	<ul style="list-style-type: none"> <li>Council and departmental environmental health risk reduction actions reviewed and up-dated annually.</li> <li>Annual report of environmental health risk exposure provided to Council.</li> <li>Survey delivered.</li> <li>Management Plan delivered.</li> <li>Educational material delivered.</li> </ul>
Environmental Security Assessment 2010	SUST	30/06/2018	1.3	9.5	<ul style="list-style-type: none"> <li>Number of residents indicating support to reduce risks from the environment.</li> <li>% of actions completed.</li> <li>Reported annually.</li> </ul>
	WER	30/06/2018	1.3	9.4	<ul style="list-style-type: none"> <li>Stakeholder consultation included in the development of all significant new policies and programs.</li> <li>Strategy developed, adopted and implemented.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3) Communications Strategy for Contaminated Land (2013)	SUST	30/06/2018	1.3.3.2	6.10 9.6	<ul style="list-style-type: none"> <li>Percentage of actions finalised.</li> <li>Report delivered.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	WER	30/06/2018	1.3.3.2	9.6	<ul style="list-style-type: none"> <li>Report delivered.</li> </ul>

## ENVIRONMENTAL HEALTH - COUNCIL Walk the Talk

Issue	Action Ref	Priority	Management Action
Monitoring	EH12	High	Identify and assess emergent environmental health risks as required.
Contaminated land	EH20	High	Ensure that any contaminated excavated material from Council project or maintenance work sites is managed according to Environment Protection Authority requirements.
Contaminated land	EH21	High	Record results of contamination testing of in-situ and stockpile material through the Contaminated Land Database.
Planning	EH22	High	Deliver formal training to Council officers consistent with implementation and regulation of Council's Contaminated Land policy.



Relevant Policy, Plan, Strategy, Program	Primary Responsible Department	Due Date	Target	KPI	Monitoring/Evaluation Method
Environmental Security Assessment 2010	SUST	30/06/2015	1.3	9.1	<ul style="list-style-type: none"> <li>Department-level risk management plans and operation plans contain actions to manage potential environmental health risks.</li> <li>Council and Departmental environmental health risk reduction actions reviewed and up-dated annually.</li> <li>Reported annually.</li> </ul>
	CIV	30/06/2015	1.3.3.2	9.6	<ul style="list-style-type: none"> <li>Appropriate licences current.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	SUST	30/06/2015	1.3.3.2	9.6	<ul style="list-style-type: none"> <li>Applicable sites entered into Contaminated Land Database.</li> </ul>
Policy for Managing Contaminated Land 2012 (version 3)	SUST	30/06/2015	1.3.3.2	9.6	<ul style="list-style-type: none"> <li>Specify activity; number of participants.</li> </ul>





# Reference Documents

Document Title	Abbreviation	TRIM Ref
<b>Planning Framework</b>		
City of Lake Macquarie Annual Report 2012/2013 (Parts 1 – 3)	Annual Report 2012/2013	D06816537 D06816539 D06816541
Lifestyle 2030 Strategy	Lifestyle 2030	D02905272
City of Lake Macquarie Community Strategic Plan 2013-2023	Community Strategic Plan 2013-2023	D02988703
City of Lake Macquarie Resourcing Strategy supporting the Community Strategy Plan 2013-2023	Resource Strategy 2013-2023	D02988696
City of Lake Macquarie Delivery Program 2013-2017 incorporating the Operational Plan 2014-2015	4 Year Delivery Program 2013-2017	F2012/00083/02
Draft Lake Macquarie Local Environmental Plan 2014	Local Environmental Plan	NSW Legislation website
<b>Policy</b>		
Biodiversity Offsets Policy 2011	Not abbreviated	D02273492
Environmental Sustainability Policy 2010 (version 3)	Not abbreviated	D06859120
Greenhouse Gas Emission Reduction Targets Policy 2008 (version 2)	Not abbreviated	D02591398
Improvements and Maintenance of Watercourses and Drainage Channels 2004 (version 3)	Not abbreviated	D02579008
Lake Macquarie Waterway Flooding and Tidal Inundation Policy 2012 (version 2)	Waterway Flooding and Tidal Inundation Policy 2012 (version 2)	D02378559
Policy for Managing Contaminated or Potentially Contaminated Land in Lake Macquarie 2012 (version 3)	Policy for Managing Contaminated Land 2012 (version 3)	D02127687
Procurement Policy 2009 (Version 4)	Not abbreviated	D02104110
Protection of Watercourses and Drainage Channels Policy 2010 (version 4)	Not abbreviated	D06994177
Vertebrate Pest Policy 2012 (version 3)	Not abbreviated	D02252069
<b>Strategies and Guidelines</b>		
Biodiversity Planning Policy and Guidelines for (LEP) Rezoning Proposals 2009 (version 2)	Biodiversity Planning Policy and Guidelines 2009 (version 2)	D02385814
Communications Strategy for Contaminated or Potentially Contaminated Land 2013	Communications Strategy for Contaminated Land 2013	D02754532
Draft Coastal Zone Management Plan - Part A: Lake Macquarie Coastline (July 2012), - Part B: Lake Macquarie Estuary (December 2013) - Part C: Swansea Channel risk Management Study and Plan (October 2013)	Draft Coastal Zone Management Plan - Part A (July 2012) - Part B (December 2013) - Part C (October 2013)	D03388841 D06836208 D05391410
Draft Natural Areas Asset Management Plan 2012 (version 2)	Not abbreviated	D03068113
Environmental Management Plan for Contaminated Land in Council's Care and Control – Procedure 2013 (version 1)	Environmental Management Plan for Contaminated Land 2013 (version 1)	D02851853
Flaggy Creek Stormwater Management Plan 2004	Not abbreviated	D00299669
Hunter and Central Coast Regional Weed Strategy 2010-2015 (HCCREMS - Hunter and Central Coast Regional Environmental Management Strategy)	Hunter and Central Coast Regional Weed Strategy 2010-2015	D06856081
Jewells Wetland: Catchment Management Strategy Proposed Plan of Management 1999	Jewells Wetland: Catchment Management Strategy 1999	D03045388
Lake Macquarie Bush Fire Management Committee: Bush Fire Risk Management Plan 2011	Lake Macquarie Bush Fire Risk Management Plan 2011	D06857581
Lake Macquarie City Council Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)	Climate Change Risk and Adaptation Plan to 2030 (November 2012 - version 3)	D02681711
Lake Macquarie City Council Dredging Plan LT Creek, Fennell Bay 2013	LT Creek Dredging Plan 2013	D06840227
Lake Macquarie City Council Energy Resilience Plan: Strategies for an energy resilient future (July 2012)	Energy Resilience Plan 2012	D02590052
Lake Macquarie City Council Energy Resilience Plan Implementation Plan		D02768263 D02716866
Lake Macquarie City Council Footpath Strategy 2013 to 2023	Lake Macquarie Footpath Strategy 2013-2023	D03209626

Document Title	Abbreviation	TRIM Ref
<b>Strategies and Guidelines (continued)</b>		
Lake Macquarie City Council Stormwater Asset Management Plan 2013 (version 4)	Stormwater Asset Management Plan 2013 (version 4)	D02877565
Lake Macquarie City Council Sustainable Lake Macquarie Waste Strategy Development Project Plan	Waste Strategy Report	D01650023
Lake Macquarie City Council Vertebrate Pest Management Strategy 2012-2018	Vertebrate Pest Management Strategy 2012-2018	D02772454
Lake Macquarie City Cycling Strategy 2021 (June 2012)	Lake Macquarie Cycling Strategy 2021	D02571361 D02571365
Lake Macquarie Coastline Management Plan 1999	Lake Macquarie Coastline Management Plan	D01672719
Lake Macquarie Environmental Security Assessment 2010	Environmental Security Assessment 2010	D01929361
Lake Macquarie Estuary Management Plan 1997	Not abbreviated	D02109642
Lake Macquarie Local Disaster Plan 2011	DISPLAN 2011	D02179220
Lake Macquarie Sustainable Business Strategy 2020	Sustainable Business Strategy 2020	D02093219
Lake Macquarie Waterway Flood Risk Management Study and Plan 2012	Flood Risk Management Study and Plan 2012	D02609729
LT Creek Catchment Water Quality Management Plan 2009	LT Creek Water Quality Management Plan 2009	D01596496
NSW Department of Planning – Floodplain Development Manual 2005	NSW Floodplain Development Manual 2005	D01008901
Plan of Management for Community Land 2011 (version 3)	Not abbreviated	D02275184
Procurement Procedure 2014 (version 12)	Not abbreviated	D02898107
Staff Sustainability Strategy 2012 (version 3)	Staff Sustainability Strategy 2012 (version 3)	D02692944
Stormwater Management Plan 1999	Stormwater Management Plan 1999	D02102461
Sustainable Management of Aboriginal Cultural Heritage in the Lake Macquarie Local Government Area: Lake Macquarie Aboriginal Heritage Management Strategy – August 2011 (Parts 1 to 3)	Lake Macquarie Aboriginal Heritage Management Strategy 2011	D02237909 D02237911 D02237913
Vehicle Fleet Greenhouse Gas Emissions Reduction Guideline 2009-2018 (version 3)	Not abbreviated	D02933323
Waste Avoidance and Resource Recovery Strategy 2007	WARR 2007	NSW Environment Protection Authority website

## References

Australian Bureau of Statistics (ABS) (2014) 3218.0 – Regional Population Growth, Australia, 2012-2013, Population Estimates by Local Government Area (ASGS 2013) 2003 to 2013, Table 1: Estimated Resident Population, Local Government Areas, New South Wales, released 3 April 2014, Australian Bureau of Statistics, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3218.02012-13?OpenDocument>

Lake Macquarie City Council (LMCC) (2013) *City of Lake Macquarie Community Strategic Plan 2013-2023 Our Shared Vision*, Lake Macquarie City Council, July 2013

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