



Hawkesbury City Council

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to
item 242

State of Environment Report

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Hawkesbury City Council

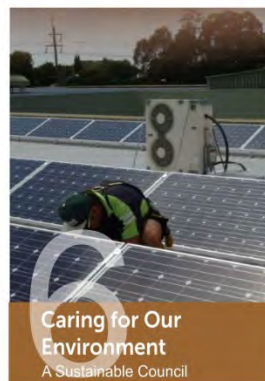
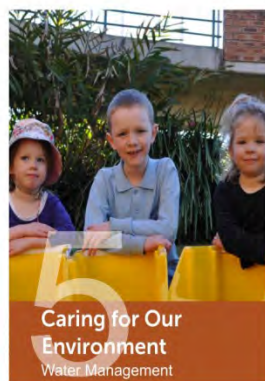
State of the Environment **REPORT**



2012-2016



SoE Chapters



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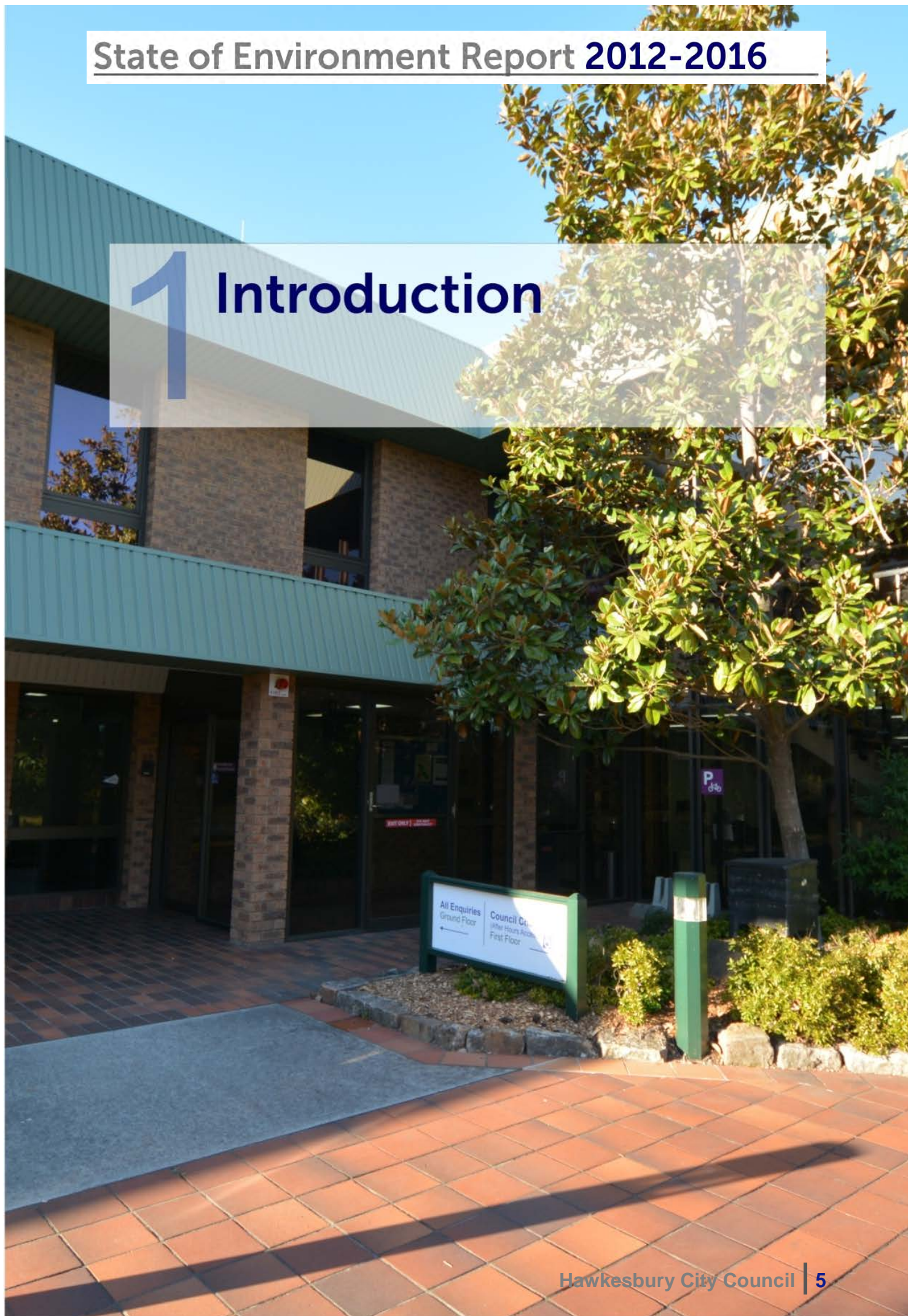
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1 Introduction



State of Environment Report 2012-2016

INTRODUCTION

About this Report

The Integrated Planning and Reporting Framework in NSW requires each local authority to produce a State of the Environment (SoE) Report every four years, to be included in the Annual Report of the year of the ordinary local government election. Since Hawkesbury has recently completed its local government elections and elected a new Council, this SoE report is both a legislative requirement, but also an opportune time in which to reflect on, and assess what has been achieved in an environmental sense during the previous term of Council.

This 2012-2016 Hawkesbury SoE is the first State of Environment report that has been prepared by Hawkesbury City Council (Council) under the Integrated Planning and Reporting Framework.

This framework provides flexibility in the way each local authority prepares their SoE reports in order to allow each local authority to focus on monitoring and reporting on environmental issues that are of concern to their respective communities, and where Council may influence the management of those environmental issues.

In response to engaging the community, Council has adopted the 20 year Hawkesbury Community Strategic Plan (CSP) which provides a range of aspirational directions and strategies for the Hawkesbury community, based on five key themes, including 'Caring for Our Environment'.

The information from previous SoE's has been used to inform the preparation of the CSP, and will continue to inform future reviews of the CSP. Over time, previous SoE's have been prepared in order to ensure appropriate environmental indicators have been established and reported against to determine if Council is achieving the environmental Directions, Strategies and Measures in the CSP.

It is important for Council to critically review its current environmental reporting system to ensure it is both integrated and relevant to its long term environmental objectives, and in doing so enables informed planning for the future of the Hawkesbury.

Council has consulted with the community, particularly environmental groups in the Hawkesbury area in order to help inform the CSP. Council has prepared a survey for environmental groups during the preparation of this SoE and is regularly engaged with the community and local environmental groups, particularly through the Sustainability Advisory Committee. Both in the preparation of and in the delivery of this SoE Report, there are opportunities to educate the community and raise environmental awareness.

During the preparation of this SoE, reference has been made to a series of documents, including:

- the Hawkesbury Community Strategic Plan 2013-2032, with particular focus on the Theme 'Caring for Our Environment'
- the Hawkesbury Community Strategic Plan: Community Indicators End of Term Report – August 2016.

Whilst this SoE has been prepared with reference to the above documents, the Theme 'Caring for Our Environment' has driven the content of this SoE, and as a result there is a particular focus on the key areas of:

- water resources
- waste management
- a sustainable Council.

For each of these key areas the following information has been included:

- Council's strategic objectives
- background context
- CSP measure
- explanation
- outcome
- strategic activities

This SoE has been prepared to report against the objectives of the current CSP Theme 'Caring for Our Environment', but has also identified a number of areas which will need to be considered as part of the review of the CSP by the new Council. These areas include:

- biodiversity
- water quality
- noise
- air
- waste
- landuse changes
- greenhouse gas emissions
- climate change
- sustainability

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State of Environment Reporting

SoE reporting is a tool used by local authorities to collate and analyse information to assess environmental trends. A comprehensive SoE Report is required to be prepared every four years as part of the Annual Report in the year of the ordinary election.

The information in the SoE is then used to inform planning and policies to help improve the state of the environment for the Hawkesbury. Reporting on the SoE has recently seen a shift from the traditional model of pressure-state response to reporting on the objectives for the environment established in the CSP.

The purpose of the SoE is therefore twofold:

- report on the environmental indicators that have been established to see whether they have achieved the environmental objectives in the CSP
- to review the existing CSP and inform Council's preparation of a new CSP.

Hawkesbury Community Strategic Plan 2013-2032

The Hawkesbury Community Strategic Plan 2013-2032 was adopted by Council on 9 April 2013, and documents the community's aspirations for the future of the Hawkesbury over the next 20 years. The Plan incorporates a series of Directions, Strategies and Measures which outline how these aspirations are to be achieved, and the targets that will need to be met if they are to be achieved. The Plan also identifies measures in order to track progress in moving towards these targets.

The CSP is divided into five Themes to incorporate the quadruple bottom line approach of social, economic, environmental and governance strategic principles.

The Themes that the CSP addresses are:

- Looking after People and Place
- Caring for Our Environment
- Linking the Hawkesbury
- Supporting Business and Local Jobs
- Shaping our Future Together.

As required by the Integrated Planning and Reporting Framework, an End of Term Report was presented to the last meeting of the outgoing Council on 30 August 2016, detailing the progress in implementing the CSP. As previously indicated, this SoE makes a number of references to Council's End of Term Report, and both the SoE and End of Term Reports provide significant input into the review of the CSP by the new Council.

The Community Indicators

On the 29 July 2014, Council adopted a list of 78 community indicators to measure progress in the implementation of the Strategies within the CSP. The inaugural Community Indicators Report – The Mid Term Report – was prepared and reported to Council in August 2015, whilst the End of Term Report – was adopted by Council in August 2016. The terms used in the Community Indicators Reports have been used as part of this SoE, and have been defined below:

Source The indicators were derived from the established indicators which have been identified in conjunction with the development of community indicator frameworks by other local governments, universities, state, federal and local government peak bodies.

Scope Each community indicator is directly linked to the measures in the 'Caring for Our Environment' Theme in the CSP. They include a headline indicator – which directly relates to the CSP measure or which is as close as possible to the measure (given the availability of data).

Secondary indicators supplement the headline indicator.

A mix of Indicators A combination of quantitative and qualitative indicators has been used. The quantitative indicators provide hard numerical data, while the qualitative indicators are primarily derived from Council's biennial community survey tool.

Measurable and based on existing sources Only indicators which could be readily obtained from an existing, reliable source have been used (so that they can be replicated over time).

Achievable within existing resources Indicators were identified on the basis that they could be accessed and collated without the need for significant additional staffing or financial resources.

Referenced to biennial Community Survey The list of nine indicators which are sourced directly from the biennial Community Survey conducted by Micromex Research.

Assessing the Indicators Each indicator was assessed on the basis of a simple three part rating scale:

On track where the trend is heading in the right direction.

Stable where there was a neutral result

Heading the wrong way where the outcome showed a negative trend.

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There were ten indicators where no data was currently available to measure performance.

The nine Community Indicators which address the CSP Theme – 'Caring for Our Environment' form the basis of the SoE.

The State of the Environment - Caring for Our Environment

It is the information from the Community Indicators report which addresses the CSP Theme – 'Caring for Our Environment' and forms the basis for this SoE.

As a consequence, the environmental issue which have been addressed as part of the SoE include:

- water resources
- waste management
- climate and sustainability.

SoE Snapshot

Engaging the Community in Improved Access to the Hawkesbury River

The Hawkesbury River flows through the region providing some excellent aquatic habitat, a water source for agriculturalists, a resource for fishermen and a recreational playground for locals and visitors.

With the aid of the NSW Roads and Maritime Better Boating Program, Council have invested in improving access to the river for recreational pursuits with a range of projects including:

- Governor Phillip Park jetty construction
- Holmes Drive Reserve boat ramp upgrade
- Hanna Park jetty refurbishment
- Colo Park canoe launch facility
- Macquarie Park canoe launch.

When considering the limited riverfront land available which is managed by Council, these projects are important in providing safe and accessible opportunities for river recreation.

Holmes Drive boat ramp before and after the upgrade works.



SoE Snapshot

Engaging the Community in 'Recycling Right' at the 2016 Hawkesbury Show

Council in conjunction with the Hawkesbury District Agriculture Association and EnviroCom Australia, conducted a public place recycling program during the running of the 2016 annual Hawkesbury Show.

In an effort to make this year's event a more sustainable one, a number of measures were put in place to recover as much recyclable material as possible from the waste generated during the three day event.

These measures included having numerous waste and recycling stations set up throughout the showgrounds which were clearly labelled with instructions on what materials to put in each bin and having "Recycling Rangers" mingling with the crowds who randomly rewarded patrons with gift vouchers when they were observed disposing of their waste material correctly. The Recycling Rangers were also handing out flyers and answering numerous questions from the public on how to "recycle right".

The wonderful Oakville Rural Fire Service volunteers managed the emptying and maintenance of the waste and recycling bins over the three days, which involved placement of the bins in strategic locations where the most waste was being generated, and emptying of the bins when they became full so that the contents could be either recycled or taken to a waste depot for disposal.

There were family activities conducted at Council's exhibition tent by trained waste educators that involved running "Recycling Trivia" and "Spot the mistake" competitions with prizes awarded to winners. Information for patrons was also available on how to "recycle right", and there were many opportunities for people to ask all sorts of questions regarding recycling and waste disposal.

Throughout the event, visual bin inspections were conducted by the Recycling Rangers who recorded details of whether correct materials were being placed in the correct bins. The results from these inspections were very pleasing with low levels of material being placed in the wrong bin, resulting in minimal amounts of recyclable material ending up in a landfill, and maximum amounts of materials being recycled.

Not only was this year's Hawkesbury Show a great and successful event for the Hawkesbury District Agricultural Association and the public, but it was a huge success in terms of running a sustainable public place recycling program in the Hawkesbury area.

There were a number of things learnt from running this year's program, and this knowledge will be utilised at next year's show and other similar events in the future.



2 Summary Report Cards

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SUMMARY REPORT CARDS

Summary Report Cards for each of the CSP Measures

A summary report card for each of the CSP Measures identified has been provided. The following report cards for each Measure are based on the following framework.

CSP Strategy	One of the four Strategies identified in the CSP
CSP Measure	One of nine Measures identified in the CSP
Desired Trend	Ideally what the Indicator should be doing
Indicator	Nine Community Indicators which address the CSP Theme 'Caring for Our Environment' form the basis of this SoE
Snapshot of the Indicator Status	Summary of the Indicator
Method of Measurement	Data source
Outcome	On track where the trend is heading in the right direction Stable where there was a neutral result Heading the Wrong Way where the outcome showed a negative trend
Ongoing Strategic Actions	A summary of actions being undertaken by Council which may be incorporated in future plans

SoE Snapshot

Engaging the Community in Waste Workshops

During 2014 residents have been encouraged to reduce, reuse, recycle. Council sponsored a roving program of compost and worm farm workshops and gave compost bins or worm farms as prizes to participants and groups. Eleven sessions were held and approximately 170 people participated.

Council offered community groups in rural areas free composting or worm farm workshops, following a successful program of workshops held at Hawkesbury EarthCare Centre, Richmond, in conjunction with the Henry Doubleday Research Association.



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Caring for Our Environment Report Cards

Reporting on the state of the environment in relation to the environmental strategies and measures in the CSP.

CSP Strategy	Effective management of our rivers, waterways, riparian land, surface and ground waters and natural ecosystems through local action and regional partnerships					
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 1 Swimability of the River	Reduction in median enterococci level at monitoring sites along the Hawkesbury River.	COE 1.1 Water Quality Guidelines for Primary Contact Recreation.	Water quality varies significantly between sites and over the years of measurement. There is an improvement in water quality in the lower reaches on the River. Median enterococci levels are higher along the entire length of the River in some years as it passes through the Hawkesbury LGA. The monthly median enterococci levels remained relatively stable at the five monitoring sites when all the readings are combined (and averaged over the five sites) between 15 and 35 cfu/100ml.	Sydney Catchment Authority data.	→ stable	<ul style="list-style-type: none"> Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as described in the Actions in the Upper Hawkesbury River Coastal Zone Management Plan. Council has submitted a request to the NSW Minister for Planning to formally certify the Coastal Zone Management Plan potentially allowing it to attract further grant funding to aid its implementation. Continue to update the community through Your Hawkesbury Your Say, community newsletters and media about projects the Council are undertaking along the River.
	Increase in the mean satisfaction rating of the health of the Hawkesbury River and waterways.	COE 1.2 Satisfaction with the health of the Hawkesbury River and waterways.	There was a moderately low level of community satisfaction with the health and sustainable use of the Hawkesbury River and waterways. There was a very slight increase in satisfaction between 2009 and 2015.	Community Survey.	→ stable	<ul style="list-style-type: none"> Continue to apply for grants to prepare an Environmental Health Card for the River which would identify clearly the health status of the River as described in the Actions in the Upper Hawkesbury River Coastal Zone Management Plan. Communicate the results and management practices with the community online and through the community newsletters and local media.

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CSP Strategy						
Effective management of our rivers, waterways, riparian land, surface and ground waters and natural ecosystems through local action and regional partnerships						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 2 Implementation of erosion and river health programs	Implementation of Actions under the Hawkesbury CZMP.	COE 2.1 Implementation of Actions under the Hawkesbury CZMP.	18 of the 39 CZMP actions (46%) have commenced while planning is underway for a further five actions.	Actions underway under CZMP.	↗ on track	<ul style="list-style-type: none"> Continue to implement the Actions in the CZMP. Continue to apply for grants to assist with funding so that the Actions in the CZMP can be implemented.
CSP Strategy						
Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 3 Volume and number of recycled water connections	An increase in the number of recycled water connections and recycled water volumes.	COE 3.1 Recycled water connections and volumes.	The indicator measures the sites connected to the South Windsor Recycled Water Scheme and the volume of water recycled by the Scheme. There has been an increase in the number of connections and volume of water distributed by the Scheme between 2012-2013 and 2015-2016.	The number of connections and volumes of water (in megalitres) for 2012-2013 to 2015-2016 (scheme established in 2012).	↗ on track	<ul style="list-style-type: none"> Continue to implement the Strategic Business Plan for Sewerage Service April 2013, including the Plan's environmental objectives. Review the Strategic Business Plan for Sewerage Service April 2013, review expected to be complete by 2016-2017. Council to continue to work with the Oasis Fitness and Aquatic Centre to ensure efficient and effective use of recycled water.

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CSP Strategy						
Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 4 Waste to Landfill volumes	A reduction in the amount of waste (per capita) going to landfill.	COE 4.1 Waste to landfill volumes.	The kilograms of waste per-resident, had found to have declined by 36% between 2007 and 2016.	This Indicator measures the annual volume of solid waste collected from households within the Hawkesbury which is going to landfill at Council's Waste Management Facility at South Windsor.	↗ on track	<ul style="list-style-type: none"> Continued commitment to implementation of the Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017. Preparation and implementation of Hawkesbury Council Waste Strategy. Continued implementation of waste education programs e.g. Chemical Clean Out, E-Waste events, composting and worm farming workshops. Continued implementation of at-home organic management programs e.g. Compost Revolution. Establish a purpose built community recycling centre at the Waste Management Facility.
CSP Strategy						
Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 5 Recycling volumes per capita	An increase in the tonnage and rates of solid waste which is recovered and recycled.	COE 5.1 Household Resource and Recovery Rates.	The volume of kerbside waste that is recycled (on a kilogram per resident basis) increased by 78% between 2007 and 2016 (from 93 kilograms per resident to 165 kilograms per resident).	Volume and proportion of solid waste collected from households which is recycled.	↗ on track	<ul style="list-style-type: none"> Continued commitment to implementation of the Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017. Preparation and implementation of Hawkesbury Council Waste Strategy. Continued implementation of waste education programs e.g. Chemical Clean Out, E-Waste Events, composting and work farming workshops.

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CSP Strategy						
Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 6 Council Energy and Water Use	A decrease in (per capita) energy and water consumption within Council facilities.	COE 6.1 Council energy and water use.	Council energy consumption, expressed in gigajoules per resident, has decreased by 6% from 0.71 gigajoules per resident in 2007, to 0.67 gigajoules per resident in 2016. Council's water consumption, expressed in litres per resident has decreased by 40% from 2,474 litres per resident to 1,474 litres per resident in 2016.	Energy and water consumption generated by Council's operations as a percentage to take into account the impact of population growth.	📈 on track	<ul style="list-style-type: none"> Ongoing implementation of Stage 2 of the Energy Efficient and Street Lighting Replacement Program in partnership with eight other WSROC Councils. Continued LED retrofits of all lights in all Council properties. Installation of recycled water and waterless urinals at Council properties. Refurbishment of bathrooms at Oasis Aquatic and Fitness Centre with water saving fixtures. Installation of a Building Management System at five locations Oasis Aquatic and Fitness Centre, South Windsor Family Centre, Deerubbin, Fire Control Centre Wilberforce, Kurrajong Community Centre.
CSP Strategy						
Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 7 Council Greenhouse Gas Emissions	A decrease in greenhouse gas emissions within Council operations.	COE 7.1 Council greenhouse gas emissions.	There has been a sharp increase in the recorded greenhouse gas emissions in 2010 as prior to 2010 emissions from the Waste Management Facility were not recorded or included in the greenhouse emission data. Council's greenhouse gas emissions, expressed in CO2 equivalent kilograms per resident have decreased by 7.8% since 2013.	Measurement of the total greenhouse gas emissions generated by Council's operations on a per resident basis to take into account the impact of population growth.	📈 on track	<ul style="list-style-type: none"> Operation of the Landfill Gas Capture and Flare System at the Waste Management Facility for the next seven years. Ongoing implementation of Stage 2 of the Energy Efficient and Street Lighting Replacement Program in partnership with eight other WSROC Councils. Installation of a Building Management System at five locations, Oasis Fitness and Aquatic Centre, South Windsor Family Centre, Deerubbin, Fire Control Centre Wilberforce, Kurrajong Community Centre which will include monitoring to identify carbon footprint and the savings in greenhouse gas that can be achieved.

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CSP Strategy Manage Growth Against Sustainability Indicators						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Ongoing Strategic Actions
COE 8 Adherence to sustainability indicators	Number of sustainability indicators that are on track.	COE 8.1 Performance against sustainability indicators.	The Community Indicators assessed in the End of Term Report were determined as being a suitable tool for measuring sustainability by Council's Sustainability Advisory Committee and were adopted as Sustainability Indicators. Of the 78 Indicators 62 (91%) are 'on track' or 'stable'. Data for 10 Sustainability Indicators were not available.	The performance of measures in the CSP based on Community Indicators which have been adopted to track their progress.	↗ on track	<ul style="list-style-type: none"> Explore with the Sustainability Advisory Committee whether there are additional Sustainability Indicators that would better measure Council's sustainable operation and growth.
	Increase satisfaction rating with selected sustainable living programs.	COE 8.2 Satisfaction with Sustainable Living Performance.	There was a moderate level of community satisfaction with the six sustainable living indicators within the community survey (tree preservation, stormwater management and reuse, recycling services, health of the Hawkesbury River and waterways) between 2009 and 2015.	Community Survey.	→ stable	<ul style="list-style-type: none"> Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River Coastal Zone Management Plan. Continue to explore partnerships with Western Sydney University and other tertiary institutions to develop a more comprehensive approach to watercycle management. Explore relationships between waste education and strategic waste management to minimise plateau effect of current programs.

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CSP Strategy	Reduce our environmental footprint through resource and waste management						
CSP Measure	Desired Trend	Indicator	Snapshot of Indicator Status	Method of Measurement	Outcome	Target	Ongoing Strategic Actions
COE 9 Council use of recycled materials	Increase in the proportion of sustainable products and services purchased.	COE 9.1 Performance against Sustainability Indicators.	Council's sustainable spend is largely concentrated on the purchase of roadbase made from recycled materials, Forest Stewardship Council accredited timber certified enviro-concrete, non toxic chemicals/ paints, environmental lighting, recycled paper, solar panels and recycled materials for parks and rainwater tanks. Council's performance has declined between 2013 and 2014 as a result of a major capital purchase.	Expenditure on sustainable products and services as a percentage of total expenditure on products and services. Data was not available from Local Government NSW for 2014-2015 financial year.	→ stable	Continued increase in spending on sustainable products and services.	<ul style="list-style-type: none"> Explore a proposal to use the recycled organic material from the Waste Management Facility on Council parks and gardens.

A large group of children, likely from a school or community group, are sitting on a paved street. They are wearing green hats with "WOPSE" written on them and holding small Australian flags. In the background, several adults are standing and watching. The scene is outdoors on a sunny day with trees and a "NO STOPPING" sign visible.

3 Community Engagement at a Glance

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COMMUNITY ENGAGEMENT AT A GLANCE

Council is committed to caring for our local environment and making a fair contribution to a sustainable future - not just for the local community, but also to reduce our footprint on a global scale.

Council facilitates programs to achieve behavioural change with regard to sustainable practices in the home. All programs, whether waste, bushcare, or generalised sustainability, have strong community engagement as a foundation to their success.

Individual activities and events from 2012-2016 range from composting and worm farming workshops, yearly National Tree Day events, a Bushcare volunteer program, 'Recycling Rovers' involvement at large events, as well as large scale events such as e-waste collection days, and Clean Up Australia Day. Council often ask for feedback and use the results to improve.

One project that focused solely on engagement and feedback from the community was completed in 2015, and gathered information from approximately 400 local residents. Residents were asked about their waste and recycling behaviours at home with a focus on composting. The outcomes were used to direct future education programs. For example, it was found that most people compost for their garden, not for sustainability reasons. Therefore, marketing and education material has been adapted to target residents who care about their garden.

Council has a holistic view towards sustainability programs, and supports groups of residents who develop their own vision and programs that often align with Council's. The Hawkesbury Environment Network (HEN) is one such environmental network of committed locals with whom Council has a solid working relationship. HEN recently hosted a Community Energy Workshop for the Office of Environment and Heritage through their Regional Clean Energy Program. Council were invited to attend and showcase their clean energy projects.

SoE Snapshot

Engaging the Community in Compost Revolution

Compost Revolution is an online resource to teach the Hawkesbury community the skills of composting and worm farming via a tutorial and quiz which then leads to an opportunity for community members to purchase a worm farm or compost bin at a reduced subsidised cost.

Between 1 July 2015 and 30 June 2016, 398 residents of the Hawkesbury have taken the opportunity to purchase either a compost bin or worm farm for use on their premises, whilst 807 residents accessed the Compost Revolution web site where a tutorial and quiz on composting and worm farming is available. As a result of these statistics it is estimated that approximately 28.5 tonnes of organic materials has been potentially diverted from possible landfilling which equates to approximately 70kg per household with a saving of approximately 45.6 tonnes of Co2 equivalent saved or approximately 114.5kg per household.

Advertising in the annual Household Waste Guide delivered to residential premises in the Local Government Area has seen a dramatic increase in the number of worm farms and compost bins being distributed in recent times.

Hawkesbury City Council was recognised as one of the top performers for worm farm and compost bin sales in the August 2016 Compost Revolution newsletter.

The program is funded by NSW EPA's Waste Less, Recycle More initiative funded from the NSW Waste Levy.



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Engaging with the Community

Council is committed to community engagement to ensure community members are part of Council's decision-making processes and so they can help shape decisions that affect them and their community.

Your Hawkesbury - Your Say

Council has an online community engagement hub, 'Your Hawkesbury – Your Say', which is used to consult with the community on important issues and projects in the Hawkesbury. For each project, Council staff can share information, invite feedback through any combination of nine feedback tools, and analyse and report on stakeholder needs with a suite of built in qualitative and quantitative tools.

Notification of items open for public comment are posted on the Community Consultation page and many also appear in Council's weekly notices in the Hawkesbury Courier.

Council also engages through the Hawkesbury Events Facebook page, which is managed by Council staff. This page has at present close to 3,300 followers and is growing steadily. The page has the potential to reach tens of thousands of people through targeted paid posts and shares.

While online engagement is an important and developing way to consult with the community, traditional consultation methods are still integral to engaging the local Hawkesbury community via a range of printed material and media avenues, such as Community Newsletters (quarterly), weekly Mayoral columns, and media releases to an extensive list of local media contacts.

Community Surveys

Council have been conducting Community Surveys every two years for the past nine years. The survey years 2011, 2013 and 2015 have been reviewed for this SoE. The Hawkesbury Community Survey is a random representative sample of 400 Hawkesbury residents by age, gender and locality.

The 'Caring for Our Environment' section of the biennial community surveys is based on priority areas identified by Council, and the community in the CSP. The CSP was developed in consultation with the community and key stakeholders and is reviewed at the start of every new Council's four year term.

Consulting for the SoE

Council regularly engages with the community and local environmental groups, particularly through the Sustainability Advisory Committee, using online opportunities and community consultation programs where environmental issues can be addressed.

Council's Sustainability Advisory Committee (SAC) held their first meeting held in November 2013 and has been meeting twice a year since its formation. The SAC is an advisory committee which would work with Council to promote sustainable practices and reduce the ecological footprint of the Hawkesbury LGA.

The aim is to assist Council to integrate environmental sustainability into Council policies, plans and operations and promote sustainable practices in the community and particularly to fulfill the intent contained within strategic documents (e.g. CSP 'Caring for our Environment').

A Constitution has been developed for the SAC with the following objectives:

- a) to assist in the achievement of the key environmental goals contained in Council's CSP
- b) to facilitate information-sharing, education and support necessary for informed action on sustainability throughout the community
- c) to maximise resource reduction, reuse and recycling
- d) to establish and maintain Natural Resource Management (NRM) Networks
- e) to support and progress an active volunteer network for NRM and other sustainable activities
- f) to engage the community in the development and implementation of sustainability initiatives and activities.

The membership of the SAC consists of two Councillors and five community members who have links back into the local community including the HEN, the University of Western Sydney (UWS), WIRES and Office of Environment and Heritage (OEH).

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Over the past three years some of the issues which have been addressed by the SAC include:

- development of Sustainability Indicators as suitable indicators against the measures of the CSP;
- information sharing to the community, particularly through HEN and UWS about issues including coal seam gas, clean energy solar schemes and Council's sustainability projects; and
- debate over a diverse range of sustainability issues including koala management, agricultural food production, Council's vehicle fleet and the dissemination of information into the wider Hawkesbury community.

During the development of the Sustainability Indicators there was some debate about the suitability of the Community Indicators for that dual purpose. They were adopted by the SAC on the 30 March 2015, however some suggestions were made about the Committee developing additional indicators which relate to:

- biodiversity
- tree preservation
- algal blooms in the river
- the suitability of the current water quality indicator.

The suitability of additional indicators that address these issues can be explored as part of this SoE and the review of the CSP.

Survey of Environmental Groups

Council has prepared an Environmental Survey as part of the consultation for the SoE. The survey has a series of questions which asked participants to:

1. Identify whether the three areas of water resources, waste management and a sustainable council reflect their priorities for the Hawkesbury area?
2. Prioritise from the environmental themes listed what Council should focus on:
 - biodiversity
 - air
 - noise
 - land use
 - a sustainable Hawkesbury
 - water resources
 - waste management
 - a sustainable council
 - other (please list)
3. List their top two priorities and an Indicator Council can use to measure progress.
4. Identify what they would like to see addressed in the SoE or CSP and whether they would like to be involved in Council's community engagement for the CSP.

The survey link was sent to HEN, SAC, OEH, Hawkesbury Environmental Educators Network, Greater Sydney Local Land Services, Landcare and Hawkesbury Bushcare Groups.

Outcomes from the community consultation will also be used in the review of the CSP and will help to ensure that Council is aligned with and working together with the community to build a successful future for the Hawkesbury.

State of Environment Report 2012-2016

Engaging with the Community through Waste Education

One of Council's areas of focus over the last four years has been on waste management. This has been possible through a range of government programs, including:

Waste and Sustainability Improvement Program (WaSIP)

WaSIP commenced during the 2011/12 financial year and ended during the 2013/14 financial year, and was replaced by the Better Waste and Recycling Fund under the *Waste Less Recycle More Initiative*.

The approved budget for the WaSIP program was \$731,534 which was funded by NSW EPA from the waste levy funds collected from licenced waste collection facilities in NSW regulated areas.

The aim of the program was for Councils to invest in actions and on programs that would improve waste avoidance, resource recovery, the use of secondary resources and waste management outcomes, as well as deliver improvements in environmental sustainability across the local government area.

Council's WaSIP program included such things as, employment of a waste education officer, a climate change risk assessment, solar hot water supply to Council's facilities, a sustainable fleet program assessment, an alternative waste treatment facility feasibility study, a water conservation program for Council's buildings, primary and high school waste education and sustainability programs, solar panels to Council administration building and low energy consumption lighting for a number of Council buildings.

Better Waste and Recycling Fund under Waste Less, Recycle More Initiative

Better Waste and recycling commenced on 1 July 2013 with funding covering Year 1 – 2013/2014 (\$191,867)

Year 2 – 2014/2015 (\$171,113) and Year 3 2015/2016 (\$171,100) financial years.

The focus of this new funding program was directly linked to waste avoidance and resource recovery and was expected to align with the regional initiatives in the Regional Waste and Resource Recovery Strategies developed by participating Western Sydney Regional Organisation of Council's (WSROC) funded by NSW EPA.

Hawkesbury Council's Better Waste and Recycling Fund program includes e-waste collection initiatives, provision of low cost compost bins and worm farms to the community, litter prevention programs, running of the annual garage sale trail, development of a waste service guide and delivery to all the households that are using Council's waste services, employment of a business waste officer to assist businesses with their waste disposal issues, public consultation programs to investigate community waste education needs and wants, feasibility studies and development of a business case for the most feasible waste infrastructure options and improvements to Hawkesbury's Waste Management Facility to improve resource recovery and dealing with difficult waste products.

The funding that these Government programs have provided has allowed Council to provide a range of waste education programs across the Hawkesbury. The diversity and extent of waste education programs between 2012 and 2016 is shown in the tables below. These programs have directly contributed to the 'on track' status of Community Indicator COE 4 Waste to Landfill Volumes and COE 5 Recycling Volumes per capita.

A Showcase of Council's Waste Education Programs

The extent and diversity of the waste education programs undertaken by Council over the last four years 2012-2016 are showcased below.

Council's Waste Education Program in 2012

Caring For Redbank Creek

An information session and field trip. Organised by HEN and the Bass Fishing Club, sponsored by range of organisations including Council. Included waste education material.

Animal Facility Open Day

An open day including waste education.



Clean Up Australia Day



National Tree Day

Held at Charles Kemp Reserve including waste education.



Bowen Mountain Sustainability Fair

A fair including waste education.

World Environment Day Alive! Event

Organised by HEN and The University of Western Sydney to engage young people in the Hawkesbury by empowering them to identify and address a local environmental issue. Waste education was provided by Council.

Waste and Recycling in the Hawkesbury; what's in your bin?

Presentation to HEN sponsored by Environmental Trust and NSW Government



Mobile Muster

A program for recycling of mobile phones, batteries. 37kg collected across the Hawkesbury in 2011-2012

Recycle your old mobiles and help regenerate our coastline.



mobilemuster



Hawkesbury Show

The show had a general focus on Council activities including waste education, recycling game and displays "Recycle Right in the Hawkesbury" and "Waste in the Hawkesbury" and 'Avoid, Reduce, Reuse, Recycle'



Household Chemical CleanOut

Office of Environment and Heritage event where 387 residents surrendered 24 tonnes of unwanted chemicals from their homes. Paints made up over 50% of materials collected, with oils and batteries remaining in the top 3 materials surrendered.



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Recycling Collection Calenders



Recycling Station

Set up in Council's Administration building and at the Waste Management Facility where residents can drop off their unwanted CDs and DVDs, household batteries, and corks for recycling. A service for printer cartridges and mobile phone recycling had been established for many years.



A-Z Reuse and Recycling Guide

Developed for Council's website which is continually updated to provide residents with a list of alternatives for the disposal of common household items in order to keep valuable materials from going to landfill. Items in the guide range from aluminium to x-rays, cooking oil to reading glasses, fire extinguishers to plastic garden pots.



Composting

To improve Council's corporate waste, a compost heap has been set up at the Hawkesbury Regional Museum to reduce the amount of organic materials being sent to landfill by Council staff.



Schools

Council received initial funding to introduce to three of the Hawkesbury High Schools, a School Environmental Management Plan that develops and delivers a six staged waste program to educate and encourage high schools to undertake waste minimisation initiatives. Further funding was also approved to increase the waste education programs to primary schools in the Hawkesbury.



National Recycling Week

Resident's recycling workshop were held during National Recycling Week.

Cooking oil recycling collection vessel

Setup at WMF ongoing use by food premises disposing of cooking oil.

Are you Recycling Right?

An audit of 220 households.

Newspaper advertisements

Encouraging residents to take additional recycling from Christmas to the WMF for free during January.



Banners

Banners on Council's banner poles with waste education messages throughout the year.



Waste and recycling educational talks

Presented at the Captain Bligh Park Childcare Centre (both the pre-schoolers and a separate talk to the parents) and the parents/staff at the Family Day Care Centre in Bligh Park.

Event Bin

Purchase of event bin caps for use at Council events.



State of Environment Report 2012-2016

Council's Waste Education Program in 2013

National Recycling Week

Residential composting and recycling workshops and Council staff workshops.

Local Government Week

Seed raising and composting workshops.

Hawkesbury Show

Waste and recycling education.



Clean Up Australia Day



Put yourself in the picture



Household Chemical CleanOut

416 residents dropped off 24.5 tonnes of unwanted chemicals from their homes.

Animal Facility Open Day

An Open Day including waste education.



Cloth Nappy Revolution Workshop

To assist parents in making an informed decision about whether to use disposable nappies.

Recycling Collection Calendars



World Environment Day Alive! Event

Organised by HEN and University of Western Sydney to engage young people in the Hawkesbury by empowering them to identify and address a local environmental issue. Waste education was provided by Council.

Computer and TV Recycling Event

82 tonnes were collected for recycling.



Which bin does it go in?

A Hawkesbury resident Christmas quiz.

National Tree Day

At Hawkesbury Community Nursery including waste education.



Pre School and Childcare Centre Bin

Provided to all childcare centres.



State of Environment Report 2012-2016

Council Waste Collection Truck Educational Design

Redesign of the signage on the truck with an educational message about reducing the waste Council and its residents send to landfill.



Residential Composting and Worm Farming Workshops

Roll out of organics service across urban areas

Education material with the green organics bin includes 'Hot stamp' on the lid, a new 'Waste Management Booklet' with a focus on garden organics, 'Put out your bin flyer', 'What goes in my garden organics bin?' flyer, pull-up banners at Administration Building and Libraries.



Childcare Education Program

Program of waste minimisation presentations to childcare centres. Program funded under WaSIP and JJ Richards & Sons recycling contract.

Primary School Education Program

Four primary schools were visited and 43 education sessions held. In total over 2013/14 17 primary schools were engaged. Program funded under WaSIP and JJ Richards & Sons recycling contract.



School Environmental Management Plan

For high school to assist them in the investigation, development, planning and implementation of sustainable waste minimisation strategies. Program funded under WaSIP and JJ Richards & Sons recycling contract.

Shopping centre displays

Educating the local community about the organics service.

Bokashi Buckets

Set up on Council premises 2013 to educate staff about food waste.



Garage Sale Trail

More than 40 Hawkesbury residents and organisations participated by holding a garage sale on Saturday, 26 October 2013.



Household Chemical CleanOut

Office of Environment and Heritage event where 416 residents surrendered 24.5 tonnes of unwanted chemicals from their homes.

Illegal Dumping Program 2013-2014

22,000 illegal dumping magnets were sent out to all households in the LGA, seven 'Cover Your Load' signs and six 'Are You Being Watched?' signs installed across the LGA, Three Cover Your Load Education Days were held at the Waste Management Facility, seven camera locations, some with multiple cameras, were used to catch illegal dumping. From the cameras, four infringement notices and four warning notices were issued, three 'Follow That Truck' Operations conducted where 67 vehicles were followed resulting in 20 investigations of illegal dumping and unlawful landfilling.



Council's Waste Education Program in 2014

Richmond Jubilee

A community event including waste education.



Clean Up Australia Day

Participation from 19 community groups, 1 youth group, and 10 schools.



National Recycling Week

Three public place displays focusing on composting and worm farming took place at Bligh Park Shopping Centre, Richmond car park and Kurrajong Memorial Park Upgrade event. Exhibition of Waste 2 Art Competition.



Local Government Week

Worm farming and composting workshops and Waste 2 Art Competition.



Waste 2 Art Competition

Officially launched during Local Government Week and was exhibited during National Recycling Week. More than 53 students entered the competition from six different schools held during Local Government Week. An exhibition/competition exhibiting creative works by primary school students in the Hawkesbury.



Composting and Worm Farming Workshops in 2013/14

Council held six free community workshops on composting and worm farming over six months, in conjunction with Hawkesbury EarthCare Centre and Henry Doubleday Research Association.



Multi-Unit Dwellings Recycling Audit Program

During National Recycling Week between November and January.

Calico bags for plastic bags recycling promotion

If residents bring in their spare plastic bags to Council



Garbage Bin Audit program

Over a six week period recycling bin inspections were completed on three occasions with the aim to increase recycling rates and lower contamination at two different multi-unit dwellings. Stickers were placed on bins 'Well Done' or 'Oh No' stickers.



State of Environment Report 2012-2016

Recycling Stations

At Waste Management Facility and Council Admin building for recycling corks, CDs, DVDs.

HAWKESBURY RECYCLING STATION

The following can be dropped off for FREE at the Council Administration Building, 366 George Street, Windsor.

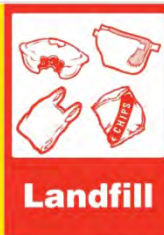


School Environmental Management Plan

Created for high school to assist them in the investigation, development, planning and implementation of sustainable waste minimisation strategies. Four high schools took part in the SEMP program.

Public place recycling bins

New recycling bins installed at two locations Richmond Park and Windsor Mall. Additional recycling bins were installed at Smith Park, Ham Common, and McQuade Park.



Waste Audit

Garbage, recycling and garden organics bin audit at 220 households.



Household Waste Guide 2014/15

A Guide was developed for households with a garden organics bin, and also one for those without.



Childcare Education Program

Offered through its Waste Services Contract with JJ Richards & Sons, to deliver waste minimisation presentations to 33 centres, approximately 738 children.

Primary School Education Program

Four primary schools were visited and 43 education sessions held. In total, 17 primary schools were engaged in 2013/14. Program funded under WaSIP and JJ Richards & Sons recycling contract.

Household Chemical CleanOut

Office of Environment and Heritage event where a record breaking attendance of approximately 550 residents dropped off almost 32 tonnes of unwanted chemicals from their homes.



E-waste recycling weekend event

566 cars dropped off almost 35 tonnes of unwanted e-waste from their homes.

Mobile Muster 2014 - 2015

Recycled 33kg on mobile phones and batteries.

Extra Christmas Recycling Collections

Free weekly recycling services offered to Hawkesbury residents for the first time, to help them dispose of extra recycling over the Christmas period (29 December 2014 – 23 January 2015).



Garage Sale Trail

To reduce waste and reuse pre-loved items in a fun and creative way. There were a total of 50 garage sales.



State of Environment Report 2012-2016

Shopping Centres displays

Held at main shopping centres to educate and promote the benefits of home composting and worm farming. Compost bin giveaway.



Bowen Mountain Sustainability Fair

Fair including waste education.



Bokashi Buckets

Set up at Council premises in 2014 to continue to educate staff about food waste.



Christmas 2014 competition

A recycling quiz for a chance to win one of ten worm farms.

Hawkesbury Show

Encouraging waste education/resource recovery through games, giveaways and competitions for recycling collection boxes, calico bags, stickers and work farms.



New Waste Truck



Illegal Dumping Program 2013-2014

22,000 illegal dumping magnets were sent out to all households in the LGA, seven 'Cover Your Load' signs and six 'Are You Being Watched?' signs installed across the LGA. Three Cover Your Load Education Days were held at the Waste Management Facility, seven camera locations, some with multiple cameras, were used to catch illegal dumping. From the cameras, four infringement notices and four warning notices were issued, three 'Follow That Truck' Operations conducted where 67 vehicles were followed resulting in 20 investigations of illegal dumping and unlawful landfilling.



Council's Waste Education Program in 2015

Clean Up Australia Day

Clean Up Australia Day, was held on Sunday 1 March, with a special schools Clean Up on Friday 27 February and a business Clean Up on 24 February. Participation was from 11 community sites participated on the day with an estimated total of 264 volunteers. There was also 1 business, 1 youth group and 14 schools, totalling 27 sites.



Hey Tosser' litter prevention program 2014/15

Targeting three locations with three focus areas education and community engagement, infrastructure and enforcement.



E-waste recycling weekend event

510 cars came to drop off over 25 tonnes of unwanted e-waste from their homes.



Household Chemical CleanOut

Office of Environment and Heritage event where 578 residents dropped off almost 35 tonnes of unwanted chemicals from their homes.

Household Waste Guide 2015/16

Prepared for all households in the LGA. A guide was developed for households with a garden organics bin, and also one for those without.



Community Consultation on Waste Education

Including a random and representative telephone survey to 305 households, an online survey via Engagement HQ, which engaged 58 people and focus groups. More than 385 residents in total participated in the activities, representing both rural and urban groups fairly evenly.



Mobile Muster 2015-2016

Recycled almost 40kg mobile phones and batteries.



National Recycling Week 2015

Including exhibition of Waste 2 Art Competition, promotion of Compost Revolution including an educational display at Bligh Park shopping centre.



State of Environment Report 2012-2016

Garage Sale Trail

To reduce waste and reuse pre-loved items in a fun and creative way. There were a total of 49 garage sales.



Waste 2 Art

An exhibition/competition exhibiting creative works by primary school students in the Hawkesbury. 226 students entered the competition (however, closer to 200 ended up participating) from 16 different schools. Compared to the previous year, this was more than four times the number of registrations.



Household Chemical CleanOut

Office of Environment and Heritage event where a record breaking attendance of approximately 578 residents dropped off 34.7 tonnes of unwanted chemicals from their homes.



Hawkesbury Show Waste Education

Through compost revolution, cigarette butt pouches, litter reduction program Hey Tosser.



Extra Christmas Recycling Collections

28 December 2015 – 22 January 2016.



Local Government Week

Waste education addressing myths on recycling.

Extra Christmas Recycling Collections

Free weekly recycling services offered to Hawkesbury residents for the first time, to help them dispose of extra recycling over the Christmas period (29 December 2014 – 23 January 2015).

Business Waste Management Program

For small to medium sized enterprises businesses in the Hawkesbury local government area December 2015-December 2016.



Compost Revolution

To date 404 residents have purchased either a compost bin or worm farm, whilst 807 residents accessed the Compost Revolution web site where a tutorial and quiz on composting and worm farming is available.



Council's Waste Education Program to June 2016

Clean Up Australia Day

Held on Sunday 6 March, with a special schools Clean Up on Friday 4 February and a business Clean Up on 24 February. 13 community sites participated on the day. There were 15 schools/youth groups, totalling 28 sites.



E-waste recycling weekend event

596 cars came to drop off over almost 34.7 tonnes of unwanted e-waste from their homes.

Household Chemical CleanOut

Office of Environment and Heritage event where 630 vehicles dropped off almost 40.5 tonnes of unwanted chemicals from their homes.



Household Waste Guide 2015/16

A Guide was developed for households with a garden organics bin, and also one for those without.



Extra Christmas Recycling Collections

Free weekly recycling services offered to Hawkesbury residents to help them dispose of extra recycling over the Christmas period (28 December 2015 – 22 January 2016).



Hawkesbury Show Waste Education

With particular focus on public place recycling program including the Recycling Rovers.



Compost Revolution

To date 404 residents have purchased either a compost bin or worm farm, whilst 807 residents accessed the Compost Revolution web site where a tutorial and quiz on composting and worm farming is available.



E-Waste at WMF

Now free of charge if in a dedicated load and complying with the specification for what was being collected at the annual events.

State of Environment Report 2012-2016

Engaging with the Community through Bushcare

Another significant focus for Council over the last four years has been to engage the community in caring for bushland in the Hawkesbury. Council has an extensive program of events, many bushcare groups and volunteers who support this work across the community.

Bushcare is the sustainable management of the natural bushland areas within the Hawkesbury. This is achieved through a community-based program in which volunteers help regenerate and preserve Hawkesbury's bushland, with the assistance and support of Council.

The number of bushcare groups in the Hawkesbury has remained steady over the past four years. Fourteen active groups have been active in the community between 2012 and 2016.

It is through Government grants and funding that these programs are able to be delivered. The existing CSP does not have a measure for biodiversity and there is not a Community Indicator which measures Council's progress over the past four years.

Developing a Community Indicator which takes into account all of the bushcare events and the involvement of volunteers may be considered during the preparation of the new CSP.

Landcare

Other land managers in the Hawkesbury include Landcare groups. These Groups are organised, supported and funded by the Greater Sydney Local Land Services, NSW Landcare and the Hawkesbury River County Council.

The Hawkesbury Landcare Network is a newly formed network which aims to grow and empower community action in caring for the land in the region, building connections between landholders in a way that encourages shared learning and enjoyment.

A part-time Local Landcare Facilitator has recently been employed to serve landcare activities across the Hawkesbury region. The position is hosted by the Hawkesbury River County Council who are a single purpose authority responsible for controlling and removing declared noxious weeds for The Hills Shire, Blacktown, Penrith and Hawkesbury Councils.

A Showcase of Council's Bushcare Programs

The bushcare programs undertaken by Council over the last four years 2012-2016 are showcased on the following pages.

Council's Bushcare Programs in 2012

Preparing Your Property for Fire Season

Seed Raising and Native Plant Growing

Weed Identification and Plant Giveaway

Redbank Creek Bushcare Discovery Day

Native Bees Workshop

Hawkesbury River Source to Sea

Bushcare Major Day Out

Indian Myna Trap Building ND Trapping Workshop

Native Fauna Workshop

Bowen Mountain Market Day and Sustainability Fair

Community Nursery Open day



Clean Up Australia Day

Hawkesbury Show Plant Giveaway



Bushcare Landcare Awards Celebration



Hawkesbury Indian Myna Action Group Meetings



National Tree Day

Planting at Charles Kemp Recreational Reserve.



NADIOC Week

Bushcare education

Council's Bushcare Programs in 2013

World Environment Day Alive! Event organised by HEN and University of Western Sydney

To engage young people in the Hawkesbury by empowering them to identify and address a local environmental issue. Information provided by Council was around creating bird habitat and water conservation.



World Wetlands Day

Breakfast with the Birds.



Floating Landcare

Workers on water bush regeneration, litter removal and tree planting.

National Tree Day

At Hawkesbury Community Nursery including native plant giveaway.



Hawkesbury Indian Myna Action Group Meetings

Indian Myna Trap Building ND Trapping Workshop

Cats Claw Training Days



Earthcare Autumn Harvest bushcare education



Retirees Expo

Bushcare education.

NAIDOC Week

Bushcare education.

Pioneer Village Open Day

Bushcare education.

Richmond TAFE Open Day

Bushcare education.

McDonald Valley Association

Bushcare education.



Hawkesbury Show Plant Giveaway



Community Nursery Training Day

At Hornby Council.



Biodiversity on Crown Reserves Pilot Training

At Chain of Ponds Reserve.

Council's Bushcare Programs in 2014

World Wetlands Day

Breakfast with the Birds.



Floating Landcare

Workers on water bush regeneration, litter removal and tree planting.

National Tree Day

At Hawkesbury Community Nursery including native plant givaway.



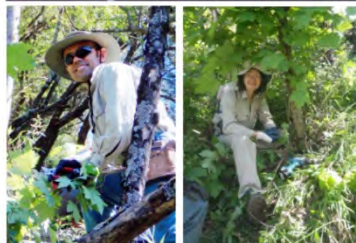
Hawkesbury Indian Myna Action Group Meetings

National Bird Week

Two bird watching tours.

Bush Regenerators Training Weekend

Jenolan Caves



Microbats Workshop

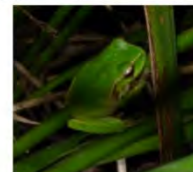


Birds at Swallow Rock Talk

Cats Claw Training Days



Frogs Along Redbank Creek Talk



Clean Up Australia Day



Bushcare Landcare Awards Celebration



State of Environment Report 2012-2016

Council's Bushcare Programs in 2015

World Wetlands Day

Piit Town Lagoon.

Floating Landcare

Workers on Water bush regeneration, litter removal and tree planting.

National Tree Day

At Hawkesbury Community Nursery including native plant givaway.



Hawkesbury Indian Myna Action Group Meetings

Green Army Bush Regeneration Projects at Kurrajong

Clean Up Australia Day



Bushcare Landcare Awards Celebration



Council's Bushcare Programs in 2016

World Wetlands Day

Piit Town Lagoon

Floating Landcare

Workers on Water bush regeneration, litter removal and tree planting.

National Tree Day

At Hawkesbury Community Nursery including native plant givaway.



Hawkesbury Indian Myna Action Group Meetings

Green Army Bush Regeneration Projects at Kurrajong

Clean Up Australia Day

Bushcare Landcare Awards Celebration

State of Environment Report 2012-2016

Summary Government Environmental Grants to Hawkesbury Council

Government environmental grants of \$2,253,727 were awarded to Council over the last four years.

Table 3.3.1 Summary of government environmental grants to Council 2012-2016

Year	Funding Body	Grant Description	
2012/2013	Australian Government Department of Sustainability, Environment, Water Population and Communities	Hawkesbury River Restoration Grant	\$96,000.00
2012/2013	Department of Primary Industries	Hawkesbury River Dredging Investigation	\$32,500.00
2012/2013	Hawkesbury Nepean Catchment Management Authority	Improve Aquatic Ecosystems at Half Moon Farm Lagoon, Bushells Lagoon and Glossodia riparian zones	\$28,181.82
2012/2013	Local Government and Shires Association	Roadside Vegetation Implementation Project - Threatened species recovery	\$43,470.00
2012/2013	Attorney Generals Department	Bligh Park Revitalisation Project	\$120,000.00
2012/2013	Hawkesbury Nepean Catchment Management Authority	Instream Revegetation - Charles Kemp Reserve, Governor Phillip Park & Skeleton Rock Reserve	\$30,477.00
			\$350,628.82
2013/2014	Office of Environment and Heritage	Bank Stabilisation at Governor Phillip Reserve	\$65,000.00
2013/2014	Australian Government Department of Sustainability, Environment, Water Population and Communities	Hawkesbury River Restoration Grant	\$96, 000.00
2013/2014	NSW Rural Fire Service	Hazard Reduction at Colo Heights School and Community Centre	\$13,000.00
2013/2014	Department Resources, Energy and Tourism	Install 10 x Solar Heat Pump Hot Water Systems - Various Locations	\$30,000.00
2013/2014	Department Resources, Energy and Tourism	Greenspace - Great River Walk at Howe Park, Windsor	\$100,000.00
2013/2014	Department Resources, Energy and Tourism	Crown Land Weed Control	\$30,000.00
2013/2014	Roads and Maritime Services	Holmes Drive Reserve Boat Ramp Upgrade	\$50,000.00
2013/2014	Roads and Maritime Services	Governor Phillip Reserve Boat Ramp Upgrade	\$178,000.00
2013/2014	Roads and Maritime Services	Hanna Park Jetty Refurbishment	\$22,500.00
2013/2014	Department Resources, Energy and Tourism	Regeneration works - MacDonald River Reserve	\$8,775.00
2013/2014	Greater Sydney Local Land Services	Bush regeneration - Giant Reed Control	\$82,400.00
2013/2014	Environment Protection Authority	Litter Prevention Education Program	\$90,630.00
2013/2014	Greater Sydney Local Land Services	Revegetation in the Hawkesbury LGA	\$48,900.00
			\$815,205.00
2014/2015	Office of Environment and Heritage	Local Heritage Places	\$9,000.00
2014/2015	Australian Government Department of Sustainability, Environment, Water Population and Communities	Hawkesbury River Restoration Grant	\$96, 000.00
2014/2015	NSW Rural Fire Service	Bush Fire Mitigation at Bowen Mountain	\$167,018.00
2014/2015	NSW Environmental Trust	Community Recycling Centre	\$216,000.00
2014/2015	NSW Rural Fire Service	Bush Fire Mitigation at Charles Kemp Reserve	\$5,000.00
2014/2015	NSW Environmental Trust	Hawkesbury Compost Revolution	\$58,875.00
			\$551,893.00

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Year	Funding Body	Grant Description	
2015/2016	Office of Environment and Heritage	Thompson Square Conservation Management Plan	\$10,000.00
2015/2016	Roads and Maritime Services	Macquarie Park Kayak Launch	\$300,000.00
2015/2016	Australian Government Department of Sustainability, Environment, Water Population and Communities	Hawkesbury River Restoration Grant	\$96, 000.00
2015/2016	Roads and Maritime Services	Colo Park Kayak Launch	\$80,000.00
2015/2016	Greater Sydney Local Land Services	Giant Reed Control - River Health Program	\$50,000.00
			\$536,000.00

SoE Snapshot

Engaging the Community in Saving Power

In 2012 'Save Power' kits were made available for loan from Hawkesbury Library and the kits were used to encourage the community to identify the appliances which are the biggest users of electricity in houses in a fun and educational way.



4

Caring for Our Environment Water Resources

State of Environment Report 2012-2016

CARING FOR OUR ENVIRONMENT – WATER RESOURCES

CSP Water Resources Summary

Council's Strategic Objectives:

The CSP's 'Caring for Our Environment' Theme has identified four broad Directions for future Council activities and decision making, four Strategies which identify how Council aims to deliver what the community has requested and ten Goals.

All of these Directions, Strategies and Goals are identified below, and those that are relevant to this section of the SoE, which address water resources, are highlighted.

Caring for Our Environment

2013 - 2032

Directions

1. Be a place where we value, protect, and enhance the cultural and environmental character of the Hawkesbury's towns, villages and rural landscapes.
2. To look after our cultural and environmental assets for future generations so that they too can enjoy, and benefit from, a clean river and natural eco-systems, rural and cultural landscape
3. Take active steps to encourage lifestyle choices that minimise the ecological footprint
4. Work with our communities and businesses to use our resources in a sustainable way and employ best practices and technologies that are in harmony with the natural environment.

Strategies

1. Effective management of our rivers, waterways, riparian land, surface and ground waters and natural ecosystems through local action and regional partnerships
2. Reduce of environmental footprint through resource and waste management
3. Manage growth with ecologically sustainable principles
4. Engage with the community and work together to care for our environment

Goals

1. Clean, healthy, useable rivers and waterways
2. Balance the needs of our ecology, recreational and commercial activities
3. Maximise the sustainable use of potable and recycled water
4. Reduced greenhouse gas emissions
5. Our community is living more sustainably
6. Waste management facility operating on a commercial basis
7. Reduced waste to landfill
8. Environmental impact of growth is minimised
9. Healthy functioning catchments and riparian corridors
10. Improved community awareness of the importance and value of healthy catchments, natural waterways, vegetated riparian corridors, surface water and ground water resources.

State of Environment Report 2012-2016

Measures and Indicators

The Measures from the CSP outline the key performance guidelines that will identify if Council is on track and the Indicators measure the progress in the implementation of the Strategies within the CSP.

Measure		Indicator	
COE 1	Swim-ability of river	COE 1.1	Water Quality Guidelines for Primary Contact Recreation
		COE 1.2	Satisfaction with the Health of the Hawkesbury River and waterways
COE 2	Implementation of erosion and river health programs	COE 2.1	Implementation of Actions in Upper Hawkesbury CZMP
COE 3	Volume and number of recycled water connections	COE 3.1	Recycled water connections and volumes

Part A – River Health

Background Context

The Hawkesbury River Background

The Hawkesbury-Nepean River is one of the most important river systems in NSW. The River and its tributaries drain a catchment of 22,500km², being one of the largest of all coastal rivers in NSW. The catchment includes an area from Goulburn in the south, Lithgow in the north-west, the Blue Mountains, the urbanised areas of Hornsby, Camden, Campbelltown, Penrith, Blacktown, Liverpool and the estuaries of Broken Bay, Pittwater and Brisbane Waters. The catchment comprises 26 local government areas, 12 which are entirely within the catchment and 14 of which straddle the catchment divide.

The Hawkesbury-Nepean River is the largest river/estuary system in the Sydney Region and its complex ecosystems provide habitat for a multitude of native plant and animal species. Since European settlement it has been increasingly relied upon to meet the requirements of a burgeoning population, and it now provides 97% of the fresh drinking water for more than 4.8 million people living in and around Sydney (Greening Australia 2007). It also supports the agricultural industries that provide much of Sydney's fresh food, as well as supporting numerous other extractive, manufacturing and processing industries. In addition, the Hawkesbury-Nepean River is an important recreation and tourism destination.

As a result of cumulative development and population growth over time, the Hawkesbury-Nepean River system has been placed under increasing pressure and the environmental health of the river system has suffered.

River regulation has resulted in large volumes of water being extracted for drinking water, irrigation and industrial uses. There are a number

of sewage treatment plants located in the catchment and stormwater runoff from agricultural and urban areas can also carry pollutants into the river system resulting in algal and introduced macrophyte blooms that have commonly occurred in the past.

Many parts of the Hawkesbury-Nepean River system are in good condition as a large proportion of the catchment includes the national parks of the Blue Mountains. There are however other areas which are urbanised including the towns of Goulburn, Lithgow and the outer Sydney suburbs of Camden and Penrith.

Just under half of the total Hawkesbury-Nepean catchment – about 9,000km² is upstream of the Warragamba Dam. The catchment area at Windsor is about 12,800km². South Creek joins the Hawkesbury at Windsor while at Lower Portland the Hawkesbury is joined by the Colo River and further upstream the McDonald River meets the Hawkesbury at Wisemans Ferry (Brewsher, 2012).

Sydney Catchment Authorities Hawkesbury Nepean Monitoring Program

In 2006 the NSW Government established an Environmental Monitoring Program for the Hawkesbury-Nepean which provides broad surveillance monitoring of the river system.

The Sydney Catchment Authority (SCA) are responsible for the program and sourced data from a range of long term monitoring sites in the Hawkesbury-Nepean River. Monitoring sites were identified in the Hawkesbury, five of which have long term records available at – Yarramundi, North Richmond, Windsor, Sackville and Wisemans Ferry.

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Adopt a Creek Program

Council have carried out various Stormwater Water Quality Monitoring Programs in the past. The most recent program Adopt-a-Creek, which was major creek and river monitoring program run by Council ceased in 2006 as Council sought to determine where best to direct funding and expertise.

The Adopt a Creek Program ran between 1996 and 2006 and was a program designed to improve water quality data across the city area and raise community awareness on valuable resources within selected creek catchments. The information was then used to assist in Council's development decisions and improve Council's Environmental Management Plans.

McKenzie Creek, Little Wheeny Creek, Redbank Creek, the Grose River and Yarramundi Lagoon were monitored on a weekly basis and the following analysis was undertaken:

- total nitrogen
- total phosphorus
- faecal coliforms
- suspended solids
- pH
- turbidity
- dissolved oxygen.

All the results were made available on Council's web page and the results were also announced each day on the local Hawkesbury community radio station. Council's Environmental Health Officer would present the results and answer any questions from the community on air each day. A different location was announced each day so that by the end of each week all monitoring sites had been reported on.

The objective of the program was to educate the community on the health of the creek and river system and the impacts that surrounding land use had on the water quality. The program was initially established in response to regular Blue Green Algae outbreaks and Salvinia weed infestations in the creeks and river system. The algae and weed infestations were attributed to high nutrients entering the water bodies.

The source of the nutrients came from septic tank run off and farming practices, in particular the turf farms, who were using high levels of fertilisers. Since turf farms have put in interception dams for run off waters and the major residential areas which were previously on septic tanks have been sewered there have not been these outbreaks.

River Health Card

Recently Council applied for a grant from the Environmental Trust for a Water Quality River Health Card where funding was sought to conduct water quality monitoring at five sites along the Hawkesbury. Council were unsuccessful in their application as the funding body did not see a river health card as a top priority for their 2015-2016 budget.

The Upper Hawkesbury Coastal Zone Management Plan

The Upper Hawkesbury River Estuary Coastal Zone Management Plan (CZMP) was prepared for the Upper Hawkesbury River between Yarramundi and Wisemans Ferry including the tributaries, immediate riparian area and broader catchments which takes in the catchments of the Colo, Nepean and Grose Rivers. The CZMP was adopted by Council in September 2014.

The purpose of the CZMP was to provide strategic direction and guidance on future environmental and strategic planning for the Upper Hawkesbury River and tributaries. The CZMP was developed under the NSW Government's Estuary Management Program in accordance with the *Coastal Protection Act 1979*. It also complies with the requirements of the *NSW Coastal Policy 1997* and the Hawkesbury Nepean Catchment Action Plan 2013.

The CZMP is a document that identifies how Council plans to manage the Upper Hawkesbury River over the next five to ten years. A list of over 100 management options were identified, with 39 found to provide the greatest benefit to estuary health and environmental sustainability. Since its adoption, Council has been working towards achieving the various performance measures contained within the Action Plan.

Council is currently seeking the formal certification of the CZMP under Section 55G of the *NSW Coastal Protection Act 1979*. Council has sought this certification in order to ensure the plan is given weight for any related activities across the estuary catchment in accordance with Section 79C of the *Environmental Planning and Assessment Act 1979*.

As part of the preparation of the CZMP an extensive program of consultation was conducted:

- initial stakeholder letters were sent out to inform key organisations that the CZMP process was underway
- a community drop in information booth was set up at Richmond Market Place

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- an open community meeting was held at Windsor Library and was attended by individuals and representatives of community groups
- a project website was established with opportunities to complete online surveys
- a targeted stakeholder workshop was held. There were more than 40 participants from relevant government agencies, councils, and industry
- A meeting and telephone based discussions with representatives of the local aboriginal community.
- The draft CZMP was placed on public exhibition from 17 April to 30 May 2014. A public information display was set up at the Hawkesbury Library and an information session was held. There were only a small number of government submissions and no formal submissions from the public during the exhibition period which may be attributed to the various opportunities that the public had to be involved and input into the preparation of the document.

Measures and Indicators

CSP Indicator COE 1 Swimmability of the River

This set of Indicators are intended to provide a measure of the water quality of the Hawkesbury River.

CSP Measure	Indicator	Desired Trend	Outcome	
COE 1 Swimmability of River	COE 1.1 Water Quality Guidelines for Primary Contact Recreation	Reduction in median enterococci level at monitoring sites along Hawkesbury River	mid term	→ stable
			end term	→ stable
	COE 1.2 Satisfaction with health of Hawkesbury River and waterways	Increase in mean satisfaction rating of health of Hawkesbury River and waterways	mid term	→ stable
			end term	→ stable

Explanation of Community Indicator COE 1.1 Water Quality Guidelines for Primary Contact Recreation

The Indicator COE 1.1 assesses water quality for primary contact recreation (swimming and other contact with water) based on enterococci levels¹. Enterococci levels are an indicator of fecal contamination and are expressed as the number of colony forming units (cfu) per 100ml of sampled water.

A reading of less than 35 cfu/100ml is considered to be safe for recreational use while a reading of 200 cfu/100ml is considered by the World Health Organisation to be the threshold for illness transmission.

The Sydney Catchment Authority (SCA) undertakes monthly sampling of the Hawkesbury River at five monitoring sites within the Hawkesbury LGA – Yarramundi, North Richmond, Windsor, Sackville and Wisemans Ferry.

Unfortunately, this number of samples is insufficient to provide an accurate measure of water quality as sampling needs to be undertaken on a more regular basis to provide a reliable indicator of recreational water quality. In the absence of any other available indicator, the SCA data has been used to provide some indication of the water quality of the Hawkesbury River.

Outcome for Community Indicator COE 1.1 Water Quality for Primary Contact Recreation

Figure 4.1 plots the average of the median enterococci levels recorded at monitoring sites on the Hawkesbury River between 2006 and 2014 (based on monthly sampling).

¹ Advocated by World Health Organisation as the preferred indicator of the quality of water for recreational use.

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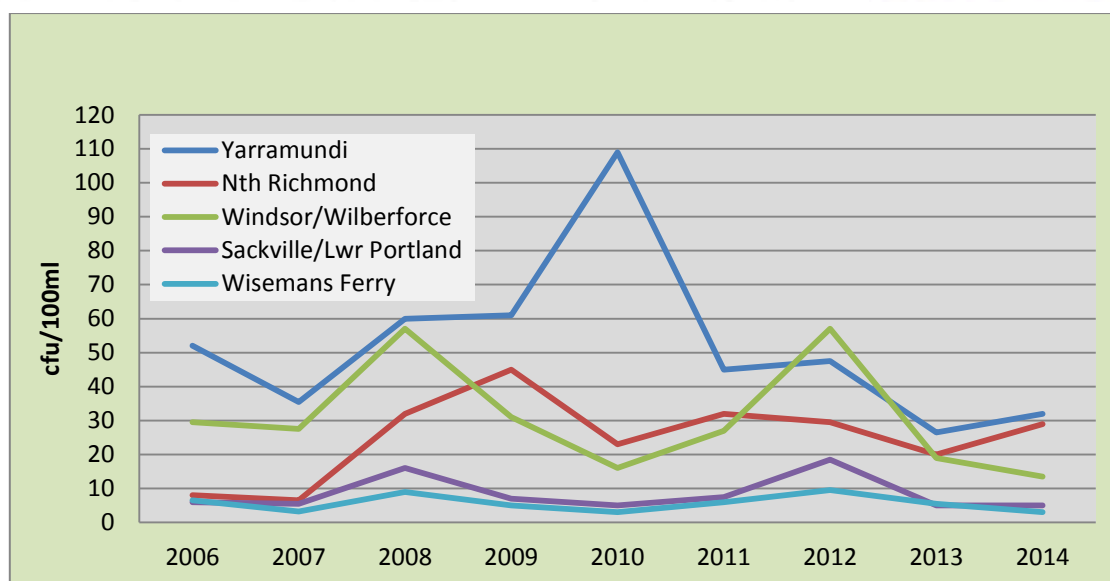


Figure 4.1: Median Enterococci Densities: Hawkesbury River

Source: Sydney Catchment Authority - Annual Water Quality Monitoring Reports

Figure 4.1 shows that indicative levels of water quality can vary significantly between monitoring sites and between different years. Figure 4.1 suggests that water quality improves as one travels down to the lower reaches of the Hawkesbury River (Sackville to Wisemans Ferry) while the readings in the upper reaches of the Hawkesbury at Yarramundi are consistently elevated.

Figure 4.1 also shows that in some years (2008 and 2012) median enterococci levels are relatively higher along the entire length of the River as it passes through the Hawkesbury LGA. In trend terms, the monthly median enterococci levels recorded at the five monitoring sites between 2006 and 2014 have remained relatively stable – when all the readings are combined (and averaged out over the five sites) the combined monthly median enterococci levels have ranged between 15 and 35 cfu/100ml.

While the readings for North Richmond and Yarramundi are slightly elevated from the 2013 figures, the combined average readings for 2014 are at the lower end of the 15 to 35 cfu/100ml range. On this basis the COE 1.1 Community Indicator has been assessed as remaining 'stable'.

Additional Comments

In view of the significant variations in indicative levels of water quality between monitoring sites and between different years, some caution is required in interpreting the data. The variations in median enterococci levels as recorded by the SCA at the five monitoring sites in any one monthly reading can be considerable (from a high of 4700 cfu/100ml to a low reading of 0 cfu/100ml). Enterococci levels can be significantly increased by rainfall, storm water and other discharges into waterways and a reading on any one day will not be a reliable indicator of overall water quality.

Strategic Actions to be Undertaken for Community Indicator COE 1.1 Satisfaction with Health of Hawkesbury River and Waterways

Strategic Actions to be Undertaken	Timeframe
Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River CZMP. Council has submitted a request to the NSW Minister for Planning to formally certify the CZMP potentially allowing it to attract further grant funding to aid its implementation.	Timeframe and scope of the monitoring program depends on the availability of NSW Government funding and certification of the CZMP.

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Explanation of Community Indicator COE 1.2 Satisfaction with Health of Hawkesbury River and Waterways

The Indicator COE 1.2 provides a subjective measure of water quality based on community satisfaction levels. To measure 'Satisfaction with Health of Hawkesbury River and Waterways' Council engaged Micromex Research to conduct the Hawkesbury Community Survey every two years. As part of the Community Survey the community was asked to rank by importance and satisfaction 'Healthy and sustainable Hawkesbury River and waterways'.

The Community Survey was a random representative sample survey of 400 Hawkesbury residents by age, gender and locality.

Outcome for Community Indicator COE 1.2: Satisfaction with Health of Hawkesbury River and Waterways

Figure 4.2 plots the level of community satisfaction with the health of the Hawkesbury River and waterways based on responses recorded in Council's community survey.

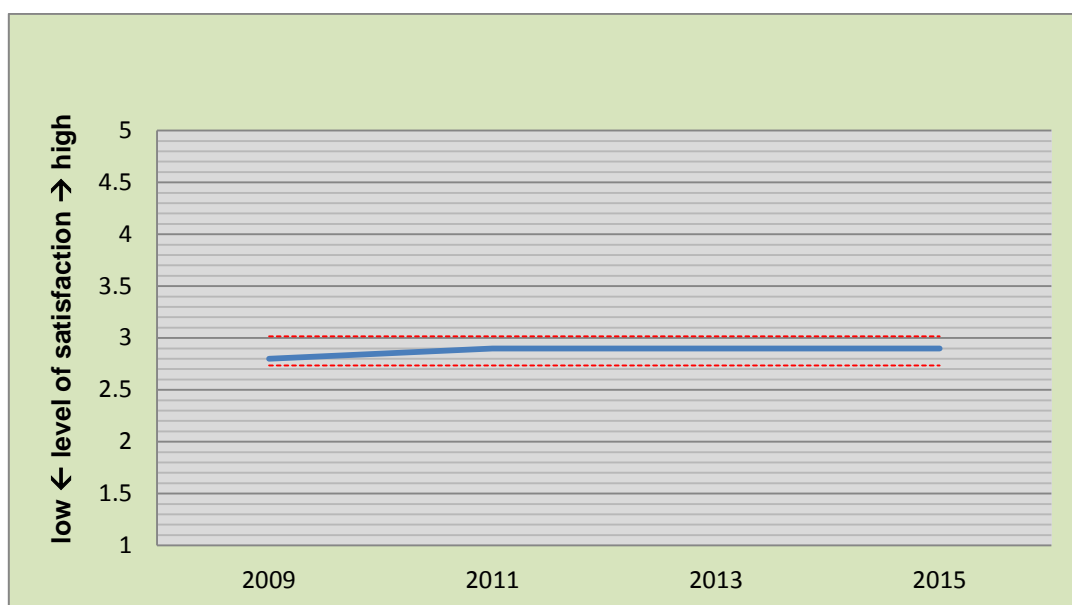


Figure 4.2 Community Satisfaction with health of Hawkesbury River and waterways

Source: Hawkesbury Community Survey - Micromex Survey

Figure 4.2 shows that the average level of community satisfaction with health and sustainable use of the Hawkesbury River and waterways was 2.88 over the survey period 2009 to 2015 – which equates to a moderately low level of community satisfaction.

In trend terms, Figure 4.2 suggests that there has been a very slight increase in the level of community satisfaction between 2009 and 2015, however, the change is not statistically significant².

On this basis the COE 2.2 Community Indicator has been assessed as remaining 'stable'

² This question is not included in the 2007 survey

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Strategic Actions to be Undertaken for Community Indicator COE 1.2 Satisfaction with Health of Hawkesbury River and Waterways

Strategic Actions to be Undertaken	Timeframe
Continue to apply for grants to prepare an Environmental Health Card for Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River CZMP. Communicate the results and management practices with the community online and through the community newsletters and local media.	Timeframe and scope of the monitoring program depends on the availability of NSW Government funding and certification of the CZMP
Continue to update the community through YHYS, community newsletters and media about projects the Council are undertaking on the river.	Ongoing

SoE Snapshot

Engaging the Community in Weed Management

Maintaining and improving biodiversity is important to Council. A program has been developed to restore and rehabilitate the Hawkesbury's bushland reserves and high-use parks, with a focus on tackling invasive weeds across the LGA.

In the McDonald Valley the Giant Reed (*Arundo donax*) is being progressively removed. This weed is highly invasive, spreads very easily and can take over large sections of the river bank very quickly, forming a monoculture. With the help of the Greater Sydney Local Land Services, the Macdonald Valley Weed Wackers and the local landholders, we hope that this weed will be contained to a manageable level in the years to come.



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CSP Indicator COE 2 Implementation of erosion and river health programs

This indicator is intended to provide a measure of implementing the erosion and river health programs for the Hawkesbury River.

CSP Measure	Indicator	Desired Trend	Outcome
COE 2 Implementation of erosion and river health programs	COE 2.1 Implementation of Actions in Upper Hawkesbury CZMP	Implementation of Actions in Upper Hawkesbury CZMP	mid term ↗ on track
			end term ↗ on track

Explanation of Community Indicator COE 2.1 Implementation of erosion and river health programs

This indicator is intended to measure progress in the implementation of programs to improve the health of the Hawkesbury River. In September 2014, Council adopted the Upper Hawkesbury CZMP.

The goal of the CZMP is to guide future actions aimed at maintaining and improving the community and environmental values of the Hawkesbury River and its catchment through the application of the principles of ecologically sustainable development.

The CSP places a strong emphasis on local action and regional partnerships to manage the Hawkesbury River, its tributaries and riparian landscapes in a way that balances ecological, recreational and commercial needs. The implementation of the CZMP is intended to direct action to work towards achieving this important community goal.

Outcome for Community Indicator COE 2.1: Implementation of erosion and river health programs

The CZMP identifies 39 Actions to address priority management issues affecting the Hawkesbury River over the next 5 to 10 years.

The primary purpose of the CZMP is to provide a strategic blueprint to enable Council to attract funding from government and other sources to implement the actions within the CZMP and to better co-ordinate and align its internal resources to this end. Table 4.1 Implementation of Upper Hawkesbury CZMP – Status as at August 2016 summarises the current status of the implementation of the CZMP.

Focus Area	CMZP action	Underway	Planned for 2016/2017 (subject to funding)	No action to date
Water Quality	WQ1			
	WQ2			
	WQ3			
	WQ4			
	WQ5			
	WQ6			
	WQ7			
	WQ8			
Aquatic and Riparian Habitat	ARH1			
	ARH2			
	ARH3			
	ARH4			
	ARH5			
	ARH6			
Recreation and Amenity	RA 1			
	RA 2			
	RA 3			
	RA 4			
Landuse Planning & Development	LPD1			
	LPD2			
Landuse Planning & Development (cont)	LPD3			
	LPD4			
	LPD5			
	LPD6			
Foreshore Protection	FP1			
	FP2			
	FP3			
	FP4			
	FP5			
	FP6			
	FP7			
Cultural Heritage	CH1			
	CH2			
Climate Change and Sea Level Rise	SLR1			
	SLR1			
Monitoring and Evaluation	ME1			
	ME2			
	ME3			
	ME4			
TOTAL		18	5	16

Table 4.1 Implementation of Upper Hawkesbury Coastal Zone Management Plan
- Status as at August 2016

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Table 4.1 shows that 18 of 39 CZMP actions (46%) have commenced while planning is underway for resourcing a further five actions in 2016/2017. On this basis the COE 2.2 has been assessed as 'on track'.

Strategic Actions to be Undertaken for Community Indicator COE 2.1 Implementation of the erosion and river health programs

Strategic Actions to be Undertaken	Timeframe
Continue to apply for grants to prepare an Environmental Health Card for Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River CZMP. Communicate the results and management practices with the community online and through the community newsletters and local media.	Timeframe and scope of the monitoring program depends on the availability of NSW Government funding and certification of the CZMP.

SoE Snapshot

Engaging the Community in Governor Phillip Reserve Bank Stabilisation Project

Governor Phillip Reserve at Windsor is located within the tidal zone of the Hawkesbury River. Sections of the river bank have been 'suffering mass failure' over the last few years, creating significant erosion and slumping. The erosion of the banks has caused more than three metres of land to be lost leading to siltation and turbidity of the river, affecting water quality, aquatic organisms and the river's entire ecosystem. The erosion of the banks has also meant that fringing aquatic vegetation has been destroyed, a problem which is exacerbated by the erosive forces from high boating activity in the area.



Governor Phillip Park - Before bank restabilisation

Council have recently stabilised the site by constructing sandstone rock revetments and planting native riparian vegetation. This has successfully halted the erosion and provided valuable new habitat for aquatic biota. Matching funding for the works was provided through the NSW Government's Estuary Management Program.



Governor Phillip Park - After bank restabilisation

A new jetty has also been installed at Governor Phillip Reserve. The new jetty is a multi-leveled facility that allows boat access during tidal fluctuations. A pathway between the boat ramp and the existing pontoon has made the area accessible for all community members, with ramps designed to accommodate wheelchairs and assist those with walking difficulties. Funding of \$478,000 towards the project was provided through the NSW Government's Better Boating and NSW Boating Now Programs.



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Part B – Recycled Water

Background Context

Council, Sydney Water and other private operators are responsible for the delivery of sewerage treatment and associated infrastructure in the Hawkesbury.

Council own and operate two interconnected sewerage reticulation systems within the Windsor Sewerage Scheme being the McGraths Hill and South Windsor Wastewater Treatment Plants.

The areas serviced by these two systems include McGraths Hill, Mulgrave, Pitt Town (excluding the proposed Johnson Property Group Development area), Windsor, South Windsor, Clarendon, Bligh Park and Windsor Downs. The remaining areas are serviced by either onsite sewerage management facilities, the Sydney Water Sewerage Treatment Plant or private facilities.

McGraths Hill Wastewater Treatment Plant

The McGraths Hill Wastewater Treatment Plant services the areas of Windsor, parts of South Windsor, McGraths Hills, Mulgrave, Vineyard, Clarendon and Pitt Town. It was constructed in 1938 and upgraded in 1969. The Wastewater Treatment Plant carries out tertiary treatment of effluent including disinfection and oxygenation in a series of five polishing ponds. In 1995, Council developed 76ha of the site, an area that was predominantly floodplain land as an integrated reuse and wetland system.

Features of the system include:

- six hectares of bays planted with wetland plant species which are used to reduce phosphorous and nitrogen in the effluent before it is reused for irrigation of woodlots and landscaping with excess allowed to discharge to South Creek
- 31 hectares used for growing lucerne and other fodder crops. The area is irrigated with effluent taken from the last of the disinfection ponds
- 17 hectares of woodlot area planted with high water use tree species which are irrigated with effluent taken from near the outlet to South Creek; this effluent has low nutrient levels which can be safely irrigated onto woodlots which, as they mature, have low nutrient requirements
- planting of 5.2 hectares of landscaping with predominately endemic species to enhance the visual, recreation and habitat values of the area; the landscape areas are irrigated with the same treated effluent as the woodlots, applied at a lower rate, consistent with their water and nutrient requirements
- construction of a network of paths, boardwalks, bridges and bird hides to allow public access to the area for walking and bird watching; explanatory signposting is provided, with facilities for educational activities and research.



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South Windsor Waste Water Treatment Plant

The South Windsor Wastewater Treatment Plant (WWTP) services the area of Bligh Park, Windsor Downs, parts of South Windsor and the John Moroney Correctional Centre. The WWTP was constructed in 1988 with several upgrades over time, the most recent being in 2012. Council received a grant from the Federal Government for the South Windsor Recycled Water Scheme. The Scheme utilises effluent from the South Windsor WWTP for toilet flushing and lawns at Council reserves, schools and sporting fields in the South Windsor and Bligh Park areas.

Advantages of the Scheme include the reduction in nitrogen and phosphorous being discharged into South Creek (and thus the Hawkesbury

River) and the potential to produce up to 100 megalitres per year of recycled water for irrigation, reducing potable water use and helping to increase Sydney's water supply security. The availability of a continuous source of water to irrigate playing fields will also improve playing surfaces and increase safety for players.

The Scheme was part of the Hawkesbury-Nepean River Recovery Program which consisted of seven projects, and improved river health below the major water supply dams by increasing the water available for environmental flows in the river and reducing nutrient loads. The Hawkesbury-Nepean River Recovery Program was funded by the Australian Government through the Water for the Future initiative.



Council has continued to progress the strengthening of its environmental management processes at these waste water treatment plants with the completion of an audit of its operations and achievement of ISO14001 accreditation for Environmental Management System – Municipal

Treatment Systems and DPI's Best Practice Management. These initiatives will provide stronger operational practices and reduce the risk of future incidents that may have the potential to cause environmental harm.

Measures and Indicators

CSP Indicator COE 3 Volume and number of recycled water connections

The indicators are intended to provide a measure of the number of water connections and volumes in the Hawkesbury.

CSP Measure	Indicator	Desired Trend	Outcome	
COE 3 Volume and number of recycled	COE 3.1 Recycled water connections and volumes	An increase in the number of recycled water connections and recycled water volumes	mid term	↗ on track
			end term	→ stable

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Explanation of Community Indicator COE

3.1 Recycled water connections and volumes

This Indicator is intended to measure the number of sites connected to the South Windsor Recycled Water Scheme and the volume of water recycled by the Scheme.

The CSP places a strong emphasis on reducing the environmental footprint of the community through promoting more sustainable lifestyles.

To this end, Council has established the Recycled Water Scheme to treat and recycle water from the South Windsor WWTP.

The recycled water is piped to a number of external sites for use in irrigation and industry. The Scheme aims to reduce the impact of urban development on water resources and protect local waterways by reducing the nitrogen and phosphorous being discharged into South Creek and ultimately into the Hawkesbury River.

Outcome for Community Indicator COE 3.1: Recycled water connections and volumes

Figure 4.3 plots the number of connections and volumes of water (in megalitres) recycled by the South Windsor Recycled Water Scheme for the period 2012/2013 to 2015/2016 (Scheme established in 2012).

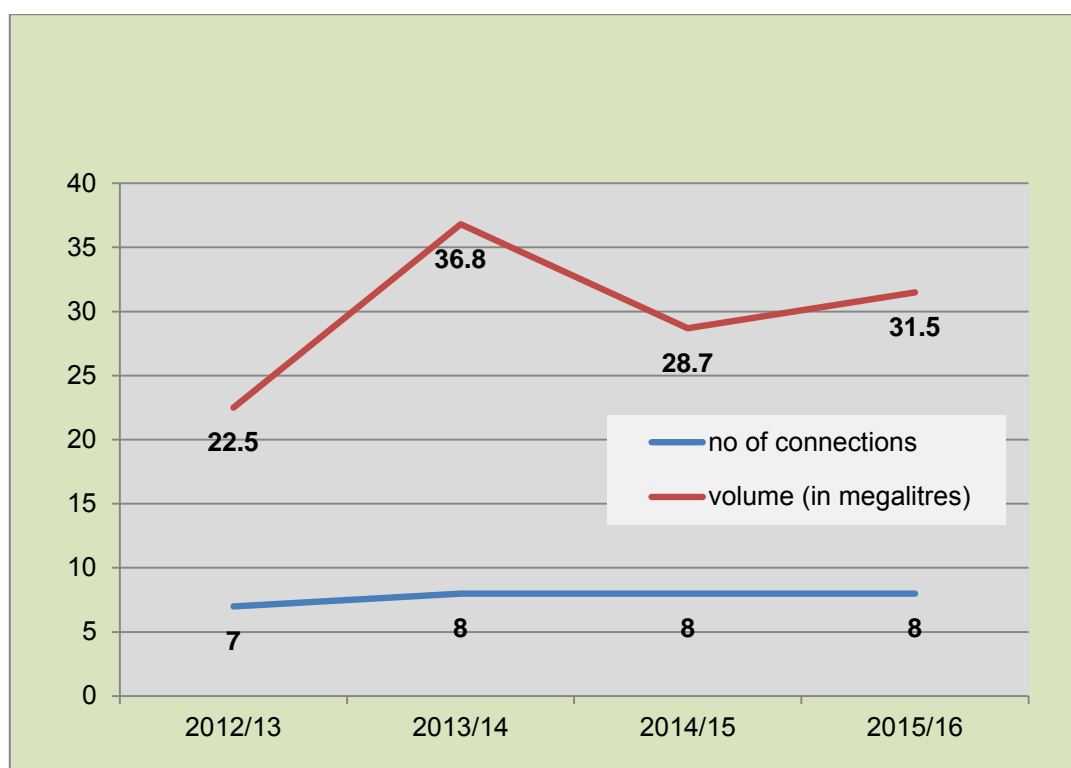


Figure 4.3 Recycled water - number of connections and volumes in megalitres

Source: Hawkesbury City Council - South Windsor Recycled Water Scheme

Figure 4.3 shows an increase in the number of connections and volumes of recycled water distributed by the South Windsor Recycled Water Scheme between 2012/2013 and 2013/2014 but a subsequent levelling off beyond 2014. On this basis the COE 3.1 Community Indicator has been assessed as moving from 'on track' (as recorded in the mid-term community indicators report) to 'stable'.

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Strategic Actions to be Undertaken for Community Indicator COE 3.1 Recycled water connections and volumes

Strategic Actions to be Undertaken	Timeframe
Continue to implement the Strategic Business Plan for Sewerage Service April 2013 including the Plan's environmental objectives	Ongoing
Review the Strategic Business Plan for Sewerage Service, April 2013. Review expected to be complete by 2016-2017	Ongoing
Hawkesbury Oasis Aquatic and Fitness Centre has recently committed to using recycled water for lawns and toilet flushing. HCC to continue to work with Oasis to ensure efficient and effective use of recycled water	Ongoing

SoE Snapshot

Effluent Reuse Scheme at South Windsor Now Open

The South Windsor Effluent Reuse Scheme began operating in 2012, providing recycled water and dramatically reducing the nitrogen and phosphorous levels being discharged into the Hawkesbury River.

The scheme, which was funded by the Australian Government, involved building a recycled water facility at the South Windsor Sewage Treatment Plant and laying 10 kilometres of pipe to distribute the water to parks and school fields in the Hawkesbury.

The Mayor of Hawkesbury, Councillor Kim Ford said "The continuous source of recycled water to irrigate playing fields will improve playing surfaces and increase safety as well as reducing the amount of potable water required for irrigation purposes."

"There will be multiple beneficiaries of the project and it will assist greatly in helping to maintain and improve our environment. The next step in the process is encouraging the community to use the recycled water and make the most of this great new resource," he added.



Community Newsletter 2012 – Summer

The Australian Government has contributed \$9,138,500 to the construction of the \$9.8 million recycled water scheme through the Water for the Future initiative. The project is one of seven that form the Australian Government funded Hawkesbury-Nepean River Recovery Program which is improving river health by increasing the water available for environmental flows and reducing nutrient loads.

5

Caring for Our Environment Waste Management



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CARING FOR OUR ENVIRONMENT – WASTE MANAGEMENT

CSP Waste Management Summary

Council's Strategic Objectives

The CSP's 'Caring for Our Environment' Theme has identified four broad Directions for future Council activities and decision making, four Strategies which identify how Council aims to deliver what the community has requested and ten Goals.

All of these Directions, Strategies and Goals are identified below, and those that are relevant to this section of the SoE, which address waste management, are highlighted.

Caring for Our Environment

2013 - 2032

Directions

1. Be a place where we value, protect, and enhance the cultural and environmental character of the Hawkesbury's towns, villages and rural landscapes.
2. To look after our cultural and environmental assets for future generations so that they too can enjoy, and benefit from, a clean river and natural eco-systems, rural and cultural landscape
3. Take active steps to encourage lifestyle choices that minimise the ecological footprint
4. Work with our communities and businesses to use our resources in a sustainable way and employ best practices and technologies that are in harmony with the natural environment.

Strategies

1. Effective management of our rivers, waterways, riparian land, surface and ground waters and natural ecosystems through local action and regional partnerships
2. **Reduce of environmental footprint through resource and waste management**
3. **Manage growth with ecologically sustainable principles**
4. **Engage with the community and work together to care for our environment**

Goals

1. Clean, healthy, useable rivers and waterways
2. **Balance the needs of our ecology, recreational and commercial activities**
3. Maximise the sustainable use of potable and recycled water
4. **Reduced greenhouse gas emissions**
5. **Our community is living more sustainably**
6. **Waste management facility operating on a commercial basis**
7. **Reduced waste to landfill**
8. Environmental impact of growth is minimised
9. Healthy functioning catchments and riparian corridors
10. Improved community awareness of the importance and value of healthy catchments, natural waterways, vegetated riparian corridors, surface water and ground water resources.

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Measures and Indicators

The Measures from the CSP outline the key performance guidelines that will identify if Council is on track and the Indicators measure the progress in the implementation of the Strategies within the CSP.

Measure	Indicator
COE 4 Waste to landfill	COE 4.1 Waste to landfill volumes
COE 5 Recycling volumes per capita	COE 5.1 Household resource and recovery rates
COE 9 Council use of recycled materials	COE 9.1 Council spend on sustainable products and services

Background Context

Council provides waste and recycling services to the residents of the Hawkesbury LGA. Services include domestic waste and recycling collections, area based kerbside bulk waste collections and the operation of the Hawkesbury City Waste Management Facility (WMF) which incorporates recycling and land filling operations.



The domestic kerbside waste bin collection service is undertaken by Council's day labour whilst the commingled dry recycling bin and

the garden organics service is undertaken by contractors. One on-call bulk kerbside waste collection service is provided under contract to all residents with a domestic waste service.



The WMF is located on two parcels of land with a combined area of approximately 31.5 hectares. The facility is located on the corner of Blacktown Road and The Driftway, South Windsor, and is operated under EPA licence.



The site consists of a gatehouse with entry and exit weighbridges, a putrescible waste landfill and drop-off areas for recycling. A permanent e-waste drop-off zone for TV's and computers has been established onsite as well as a revamped garden organics processing centre which now produces quality tested and market grade soil conditioner at highly competitive rates to the community.



In 2014, the site also established a landfill gas extraction and flaring system to prevent around 6,700 tonnes of greenhouse gases entering the atmosphere each year. This system is subject to further expansion plans over time.

A chemical waste drop-off centre is also in the planning stage, which will provide a permanent drop-off outlet for low toxicity chemicals such as paint to be dropped off year round, instead of only at the once each year at Household Chemical Cleanout events. Paints make up the single largest chemical by volume for disposal by the community.

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Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017

In 2014, Council committed to the Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017. This strategy sets out regional goals for increasing recycling from households along with a range of other goals including:

- avoid and reduce waste generation
- increase recycling
- divert more waste from landfill
- manage problem wastes better
- reduce litter and illegal dumping
- improve regional governance.

Council has contributed to these regional goals in a number of ways, including the increase in

recycling from households, the establishment of a Council wide at-home composting program, the management of problem wastes through the establishment of a permanent TV and computer drop-off area, as well as the current planning of a low toxicity chemical drop-off area.

Council has also increased its compliance workforce with a dedicated illegal dumping officer. Council continues to provide waste and recycling services in line with community needs and works with our regional neighbours to review, update, and investigate new recycling services to the community.

Hawkesbury Waste Audit 2013

In 2014 Council undertook a kerbside waste audit to measure and assess the effectiveness of its services and identify areas for further education and marketing on recycling, composting, and waste disposal. The results of the waste audit showed that around 30% of the garbage stream was composed of compostable food waste and another 18% of recyclable products (newspapers, glass jars, tin cans, etc.).

The new garden organics collection service was identified as working very well with less than 1% inorganic contamination (plastic pots, etc.) and the reduction in garden organic waste being disposed to landfill.

The kerbside recycling service overall also showed a fairly low level of non-recyclable contamination from households, with the average bin containing 4.6% non-recyclable materials. However, a small number of highly contaminated bins from households using their recycling bin as secondary garbage bins almost doubled the Council wide recycling contamination rate to 9%.

Council undertakes a kerbside waste audit every two to three years to assess the effectiveness of the waste services provided to the community. Another waste audit is due to be undertaken in the 2016-2017 financial year.

Measures and Indicators

CSP Indicator COE 4 Waste to landfill

This Indicator is intended to provide a measure of the volume of waste going to the WMF in the Hawkesbury.

CSP Measure		Indicator	Desired Trend	Outcome	
COE 4	Waste to landfill volumes	COE 4.1 Waste to landfill volumes	A reduction in the amount of waste (per-capita) going to landfill	mid term	↗ on track
				end term	↗ on track

Explanation of CSP Indicator COE 4.1 Waste to landfill volumes

This Indicator is intended to measure the volume of solid waste collected from households within the Hawkesbury that end up in landfill at Council's WMF. The figure is expressed in kilograms per-resident to take into account the impact of population growth and to enable a relative comparison to be made over time.

The CSP places a strong emphasis on reducing the environmental footprint of the community through promoting more sustainable lifestyles. To this end, Council continues to implement programs aimed at increasing the volume of waste that is recycled in order to reduce the amount of waste that ends up in Council's landfill operations.

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Outcome for Community Indicator COE 4.1: Waste to landfill volumes

Figure 5.1 shows the solid waste that ends up in Council's landfill at the WMF measured in annual kilograms per resident. As shown the amount of waste that ends up in Council's landfill operations (on a kilogram per resident basis) has declined between 2008 and 2016. On this basis the COE 4.1 Community Indicator has been assessed as 'on track'.

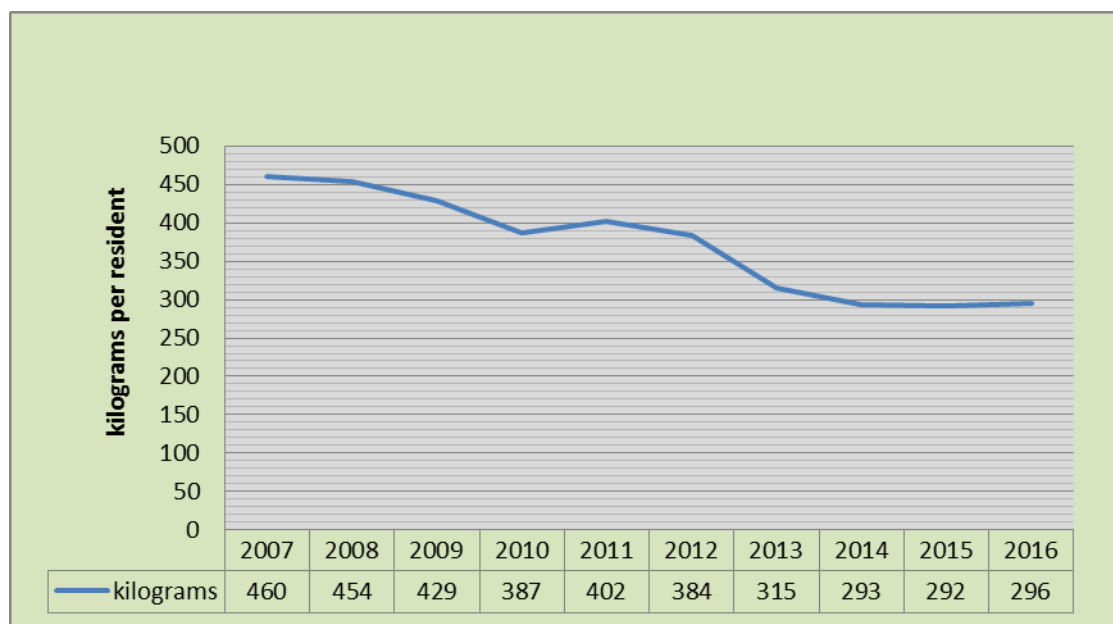


Figure 5.1: Waste transferred to Council landfill (kilograms per resident)

Source: Hawkesbury City Council data

Additional Comments

Waste to landfill from the Hawkesbury LGA has decreased quite significantly over the past eight years from a high of 460kg per person in 2007 to a low of 296kg per person in 2016.

This reduction in the quantity of waste to landfill has been driven by a range of factors, including an increase in the activeness of the community in recycling and most recently the implementation

of a garden organics bin collection service which drove overall waste generation rates per capita down by around 20kg per person.

The cumulative effect of all these factors has meant that the per capita waste to landfill rate for the Hawkesbury has dropped by 36% in eight years.

Strategic Actions to be Undertaken for Community Indicator COE 4.1 Waste to Landfill

Strategic Actions to be Undertaken	Timeframe
Continued commitment to implementation of Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017	Ongoing up until 2017
Preparation and implementation of Hawkesbury Council Waste Strategy	Ongoing from October 2016
Continued implementation of waste education programs e.g. Chemical Clean Out, E-Waste Events, composting and work farming workshops	Ongoing
Continued implementation of at-home organic management programs e.g. Compost Revolution	Ongoing
Establish a purpose built community recycling centre at the WMF	2017-2018

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Community Indicator COE 5 Recycling Volumes per capita

This Indicator is intended to provide a measure of the volume of waste going to the WMF in the Hawkesbury.

CSP Measure	Indicator	Desired Trend	Outcome	
COE 5 Recycling Volumes per capita	COE 5.1 Household Resource and Recovery Rates	An increase in the tonnage and rates of solid waste which is recovered and recycled	mid term	↗ on track
			end term	↗ on track

Explanation of Community Indicator COE 5.1 Household Resources and Recovery Rates

This Indicator is intended to measure the volume and proportion of solid waste collected from households which is recycled. The figure is expressed in kilograms per-resident to take into account the impact of population growth. The CSP places a strong emphasis on reducing the environmental footprint of the community. To this end, Council continues to implement programs aimed at increasing the volume and proportion of waste that is recycled.

Outcome for Community Indicator COE 5.1: Household Resources and Recovery Rates

Figure 5.2 plots the amount of domestic recycling that is collected from households by Council's recycling contractor, measured in annual kilograms per resident.

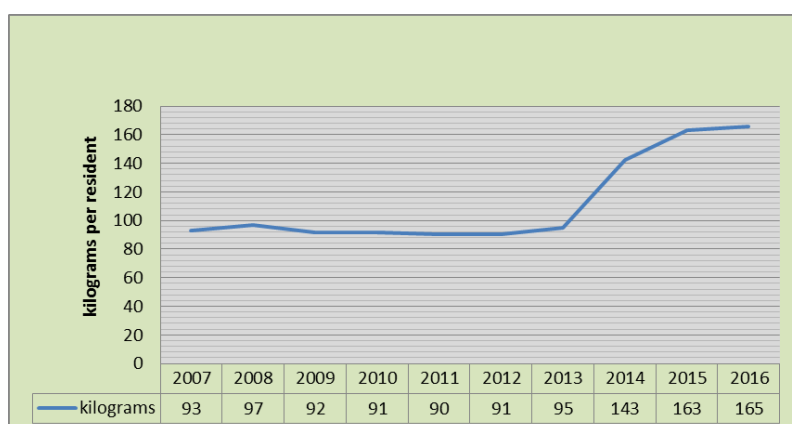


Figure 5.2 Domestic recycling collections (kilograms per resident)

Source: Hawkesbury City Council data

Figure 5.2 shows that the volume of kerbside waste that is recycled (on a kilogram per resident basis) increased by 78% between 2007 and 2016 (from 93 kilograms per resident to 165 kilograms per resident). The introduction of a domestic garden organics recycling service in September 2013 has contributed to the significant increase in recycling volumes from 2013 onwards. On this basis the COE 5.1 Community Indicator has been assessed as remaining 'on track'.

Additional Comments

Reductions in the volume and use of print media, the light weighting of food and product packaging and policy decisions such as container deposit schemes will all act to reduce the weight and

volume of the materials recycled by the community via kerbside recycling services.

A proportional model of kerbside recycling should also be established in the short term and updated every two years via a comprehensive kerbside waste audit to assess the overall availability of the recycled proportions of waste materials moving forwards. This data not only compliments the existing measures, but also draws attention to priority focus areas for waste education in the kerbside recycling scheme.

In the 2011-2012 financial year, 28% of domestic waste generated by residents of the Hawkesbury was recovered and recycled. In 2014-2015 this recycling rate had increased to 35% due largely to the implementation of a kerbside garden organics collection service.

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Strategic Actions to be Undertaken for Community Indicator COE 5.1: Household Resources and Recovery Rates

Strategic Actions to be Undertaken	Timeframe
Continued commitment to implementation of Western Sydney Regional Waste Avoidance and Resource Recovery Strategy 2014-2017	Ongoing up until 2017
Preparation and implementation of Hawkesbury Council Waste Strategy	Ongoing from October 2016
Continued implementation of waste education programs e.g. Chemical Clean Out, E-Waste Events, composting and work farming workshops	Ongoing

Community Indicator COE 9 Council use of recycled materials

CSP Measure	Indicator	Desired Trend	Outcome	
COE 9 Council use of recycled materials	COE 9.1 Council spend on sustainable products and services	An increase in proportion of sustainable products and services purchased	mid term	→ stable
			end term	→ stable

Explanation for Community Indicator COE 9.1 Council spend on sustainable products and services

This Indicator measures Council's performance in relation to sustainable procurement which is Council's expenditure on sustainable products as a proportion of its total expenditure on products and services.

The assessment of this Community Indicator is based on Council's performance as measured by

the Sustainable Choice Scorecard produced by Local Government NSW.

The Sustainable Choice Scorecard measures the annual level of sustainable procurement across the 86 local councils who participate in the Sustainable Choice Scheme (Hawkesbury Council joined the Sustainable Choice Program in 2012).

Outcome for Community Indicator COE 9.1 Council spend on sustainable products and services

Figure 5.3 plots the level of Council's proportional expenditure on sustainable products and services as a percentage of total expenditure on products and services.

It shows that Council's total spend on sustainable products and services is above the average of other councils participating in the *Sustainable Choice Program*³

³ Unfortunately, from the 2014-2015 financial year, Local Government NSW has excluded information on each council's financial spend on sustainable products and services from the Sustainable Choice Scorecard Survey. This has meant that comparative data for the 2014-2015 financial year is not available and for this reason the outcome achieved in the mid-term report is unable to be updated for this end of term report. Council will need to review the indicator for this measure to identify an alternate indicator for future use.

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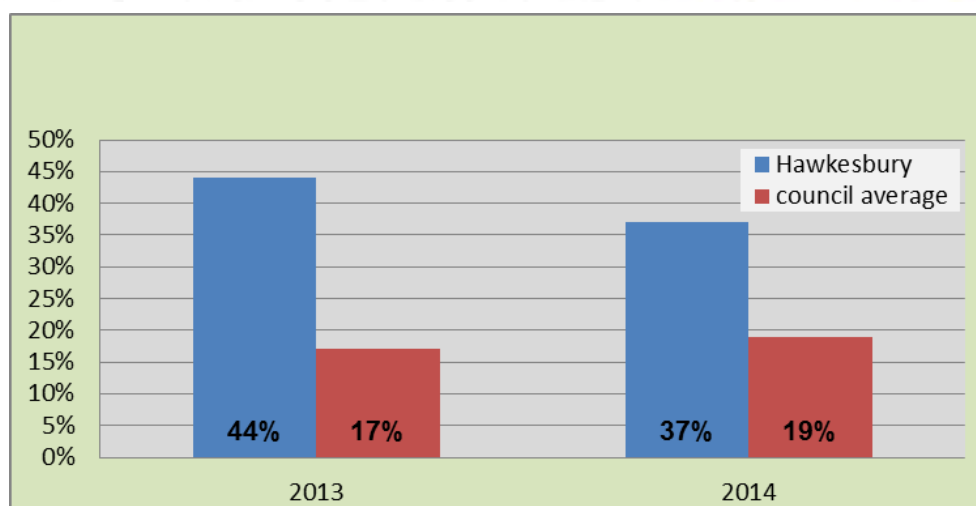


Figure 5.3 Percentage of total spend on sustainable products and services

Source: Sustainable Choice Scorecard - Local Government NSW

Council's sustainable spend is largely concentrated on the purchase of roadbase made from recycled materials, Forest Stewardship Council (FSC) accredited timber, certified enviro-concrete, non-toxic chemicals/paints, green power, environmental lighting, recycled paper, solar panels, and recycled materials for parks and rainwater tanks.

While Figure 5.3 suggests that Council's performance in relation to sustainable procurement has declined between 2013 and 2014, this can be attributed to the major capital purchase of solar panels and heat pumps installed on the roof of Council's Administration Centre and the Oasis Fitness and Aquatic Centre.

Adjusting Figure 5.3 to take into account the impact of these one-off capital purchases gives an overall spend which has remained stable. On this basis the COE 9.1 has been assessed as 'stable'.

Strategic Actions to be Undertaken for Community Indicator COE 9.1 Council use of recycled materials

Strategic Actions to be Undertaken	Timeframe
Explore a proposal to use the recycled organic material from the WMF on Council parks and gardens	2016-2017

6

Caring for Our Environment

A Sustainable Council

State of Environment Report 2012-2016

CARING FOR OUR ENVIRONMENT – A SUSTAINABLE COUNCIL

CSP Sustainable Hawkesbury Summary

Council's Strategic Objectives

The CSP's 'Caring for Our Environment' Theme has identified four broad Directions for future Council activities and decision making, four Strategies which identify how Council aims to deliver what the community has requested and ten Goals.

All of these Directions, Strategies and Goals are identified below, and those that are relevant to this section of the SoE, which address a sustainable council, are highlighted.

Caring for Our Environment

2013 - 2032

Directions

1. **Be a place where we value, protect, and enhance the cultural and environmental character of the Hawkesbury's towns, villages and rural landscapes.**
2. **To look after our cultural and environmental assets for future generations so that they too can enjoy, and benefit from, a clean river and natural eco-systems, rural and cultural landscape**
3. **Take active steps to encourage lifestyle choices that minimise the ecological footprint**
4. **Work with our communities and businesses to use our resources in a sustainable way and employ best practices and technologies that are in harmony with the natural environment.**

Strategies

1. Effective management of our rivers, waterways, riparian land, surface and ground waters and natural ecosystems through local action and regional partnerships
2. **Reduce of environmental footprint through resource and waste management**
3. **Manage growth with ecologically sustainable principles**
4. **Engage with the community and work together to care for our environment**

Goals

1. Clean, healthy, useable rivers and waterways
2. **Balance the needs of our ecology, recreational and commercial activities**
3. Maximise the sustainable use of potable and recycled water
4. **Reduced greenhouse gas emissions**
5. **Our community is living more sustainably**
6. Waste management facility operating on a commercial basis
7. Reduced waste to landfill
8. **Environmental impact of growth is minimised**
9. Healthy functioning catchments and riparian corridors
10. Improved community awareness of the importance and value of healthy catchments, natural waterways, vegetated riparian corridors, surface water and ground water resources.

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Measures and Indicators

The Measures from the CSP outline the key performance guidelines that will identify if Council is on track and the Indicators measure the progress in the implementation of the Strategies within the CSP.

Measure	Indicator
COE 6 Council energy and water use	COE 6.1 Council energy and water use
COE 7 Council greenhouse gas emissions	COE 7.1 Council greenhouse gas emissions
COE 8 Adherence to sustainability indicators	COE 8.1 Performance against sustainability indicators
	COE 8.2 Satisfaction with the sustainable living performance

Part A – Energy

Background Context

The NSW Government recognises that the climate of NSW is changing. There has been a rise in average temperatures since the 1960s with the hottest decade on record recorded between 2001 and 2010, with the hottest year being 2014.

The changes in climate can largely be attributed to human induced greenhouse gases.

Greenhouse gases are a natural part of the earth's atmosphere making life on earth possible. Without the natural greenhouse effect the earth's temperature would be too cold. Since the start of the Industrial Revolution there has been an increased concentration of greenhouse gases in the atmosphere. This has caused a slowing in heat loss from the Earth creating a warming effect.

Council has recognised the need to manage the amount of greenhouse emissions released into the atmosphere. An important way to manage the emissions is to understand the corporate volume of emissions generated. Since 2006 Council has been working to understand performance of its top ten energy producing sites.

These were identified in an Energy Saving Actions Plan which was originally prepared in 2006 and revised 2011 and 2012 and included:

- Deerubbin Centre
- Oasis Aquatic and Fitness Centre
- street lighting
- South Windsor Waste Water Treatment Plant
- Council Administration Building and Old Library
- Waste water treatment pumps
- McGraths Hills Waste Water Treatment Plant
- Wilberforce Fire Control Headquarters
- Hawkesbury Indoor Stadium
- Wilberforce Depot.

The Energy Savings Action Plan (2012) became Council's blueprint for funding applications for energy efficiency projects for Council infrastructure. Most recently there has been a move away from Government funded sustainability and energy efficiency programs under the Waste and Sustainability Improvement Program (WaSIP) to a focus on waste projects as part of Waste Less Recycle More.

SoE Snapshot

Regional Street Lighting Project - Light Years Ahead

In August 2015, Council participated in a street lighting replacement program in partnership with eight other Western Sydney Councils which saw the replacement of 15% of street lights in the Hawkesbury with energy efficient LED lighting.

The Light Years Ahead project was the biggest LED street light replacement project in NSW with 13,951 LED street lights installed by Endeavour Energy crews across Western Sydney. More than 650 mercury vapour lights in residential streets of Bligh Park, Clarendon, Cornwallis, Freemans Reach, Oakville, Pitt Town, South Windsor, Wilberforce, Windsor, Windsor Downs and Vineyard have been replaced with LED street lights. The project will save more than \$740,000 and more than 3,260 tonnes of carbon dioxide emissions over the next 20 years, which is equivalent to lighting more than 4,000 Australian homes or taking more than 750 cars off the road every year. Western Sydney Regional Organisation of Councils (WSROC) coordinated the project, and WSROC is now investigating further options to expand this program, through the Clean Energy Finance Corporation, to cover all streetlights. The Light Years Ahead project received funding of \$5.3 million from the Australian Government and \$2.6 million in funding from the nine participating councils.



Part B – Water

Background Context

Australia experienced the Millennium drought from late 1996 to mid-2010, with Sydney being particularly affected during this time, with water restrictions put in place between 2003 and 2009. These drought restrictions included limiting outdoor water use for watering gardens and lawns, washing cars and hosing down hard surfaces.

Council is a large consumer of water and recognises that it has a role to play in the community which included setting a good example to the local community, reducing its own water consumption and efficiently using its resources and creating examples for the community to follow.

Council recognises that it has a leadership role to play in actively demonstrating its sustainability credentials and is committed to implementing strategies to reduce the environmental footprint of its operations.

Council finalised A Water Savings Action Plan in 2012 to try and improve its water performance and efficiency. It involved identifying its top 10 water consuming sites, being:

- Oasis Fitness and Aquatic Centre
- Richmond Swimming Pool
- Deerubbin Centre
- South Windsor Waste Water Treatment Plant
- McQuade Park
- Wilberforce Shops
- Administration Building and Old Library
- Animal Shelter
- Richmond Tennis Centre
- Australiana Village Park.

There has been a move away from Government funded sustainability and water efficiency programs under the Waste and Sustainability Improvement Program (WaSIP) to a focus on waste projects as part of Waste Less Recycle More. As a consequence there has been limited Government funding available for local government water efficiency initiatives.

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Measures and Indicators

Community Indicator COE 6 Council Energy and Water Use

This Indicator is intended to provide a measure of the volume of Council energy and waste use at their facilities.

CSP Measure	Indicator	Desired Trend	Outcome	
COE 6 Council Energy and Water Use	COE 6.1 Council Energy and Water Use	A decrease in (per-capita) energy and water consumption within Council facilities	mid term	↗ on track
			end term	↗ on track

Explanation of Community Indicator COE 6.1 Council Energy and Water Use

This Indicator measures the energy and water consumption generated by Council operations expressed on a per-resident basis to take into account the impact of population growth. Council recognises that it has a leadership role to play in actively demonstrating its sustainability credentials and is committed to implementing strategies to reduce the environmental footprint of its operations.

Outcome for Community Indicator COE 6.1 Council Energy and Water Use

Figure 6.1 and Figure 6.2 plot the respective levels of energy and water consumed in Council operations. Energy consumption is recorded as a gigajoules per resident figure while water consumption is recorded as a litre per resident figure.

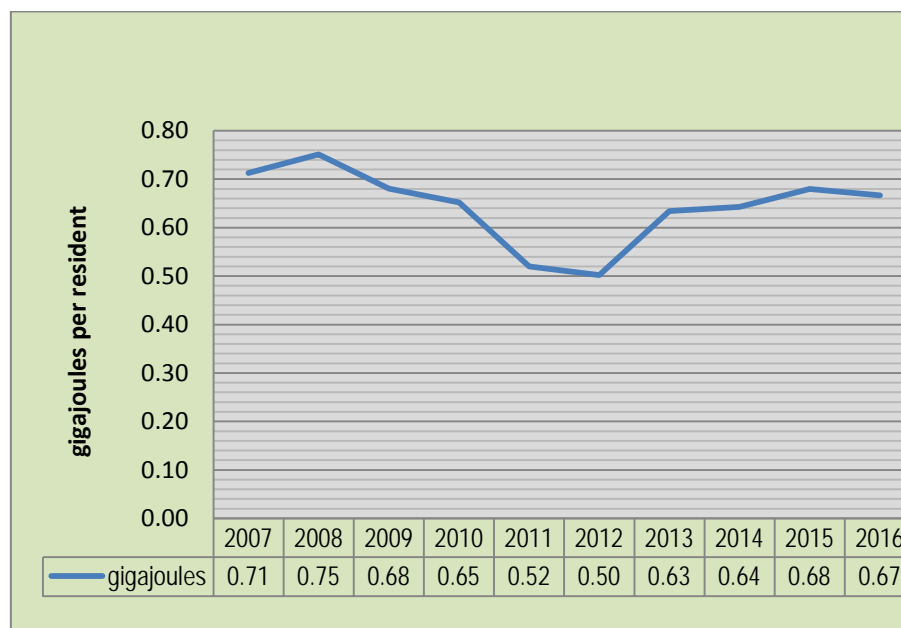


Figure 6.1 Energy consumption from Council operations (gigajoules per resident)

Source: Hawkesbury City Council data

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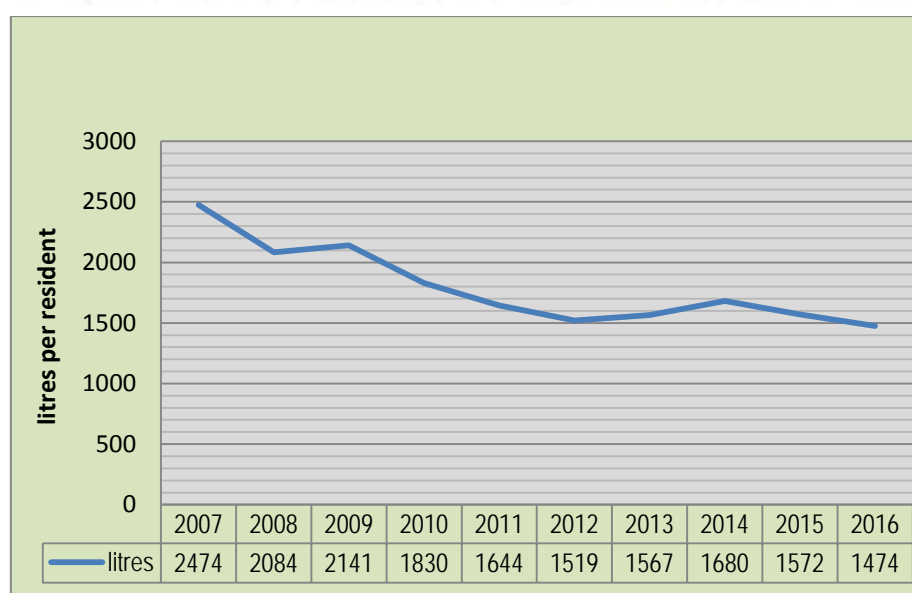


Figure 6.2 Water consumption from Council operations (litres per resident)

Source: Hawkesbury City Council data

Figure 6.1 shows that Council's energy consumption (expressed in gigajoules per-resident) has decreased by 6 % (from .71 gigajoules per resident in 2007 to .67 gigajoules per resident in 2016)⁴.

Figure 6.2 shows that Council's water consumption (expressed in litres per-resident figure) has decreased by 40 % (from 2,474 litres per resident in 2007 to 1,474 litres per resident in 2016). On this basis the COE 6.1 has been assessed as remaining 'on track'.

Strategic Actions to be undertaken for Community Indicator COE 6.1 Council Energy and Water Use

Strategic Actions to be Undertaken	Timeframe
Ongoing implementation of Stage 2 of the Energy Efficient and Street Lighting Replacement Program in partnership with eight other WSROC Councils	Ongoing
Continued LED retrofits of all lights in all Council properties	Ongoing
Installation of recycled water and waterless urinals at Council properties	Ongoing
Refurbishment of bathrooms at Oasis Aquatic and fitness Centre with water saving fixtures	Ongoing
Installation of a Building Management System at five locations Oasis Aquatic and Fitness Centre, South Windsor Family Centre, Deerubbin, Fire Control Centre Wilberforce, Kurrajong Community Centre	Ongoing

⁴ There was a substantial decline in energy consumption between 2011 and 2012, attributed to vacancies within Council's commercial property portfolio.

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Community Indicator COE 7 Council Greenhouse Gas Emissions

This Indicator is intended to provide a measure of the volume of greenhouse emissions generated from Council's operations.

CSP Measure	Indicator	Desired Trend	Outcome	
COE 7 Council greenhouse gas emissions	COE 7.1 Council greenhouse gas emissions	A decrease in greenhouse gas emissions within Council operations	mid term	↗ on track
			end term	↗ on track

Explanation of Community Indicator COE 7.1 Council Greenhouse Gas Emissions

This Indicator measures the total greenhouse gas emissions generated by Council's operations expressed on a per-resident basis to take into account the impact of population growth.

Outcome for Community Indicator COE 7.1: Council Greenhouse Gas Emissions

Figure 6.3 plots the greenhouse gas emissions generated from the Hawkesbury WMF and the emissions generated by Council operations through electricity and gas usage, street lighting, and fleet diesel (recorded as CO² equivalent kilograms per resident).

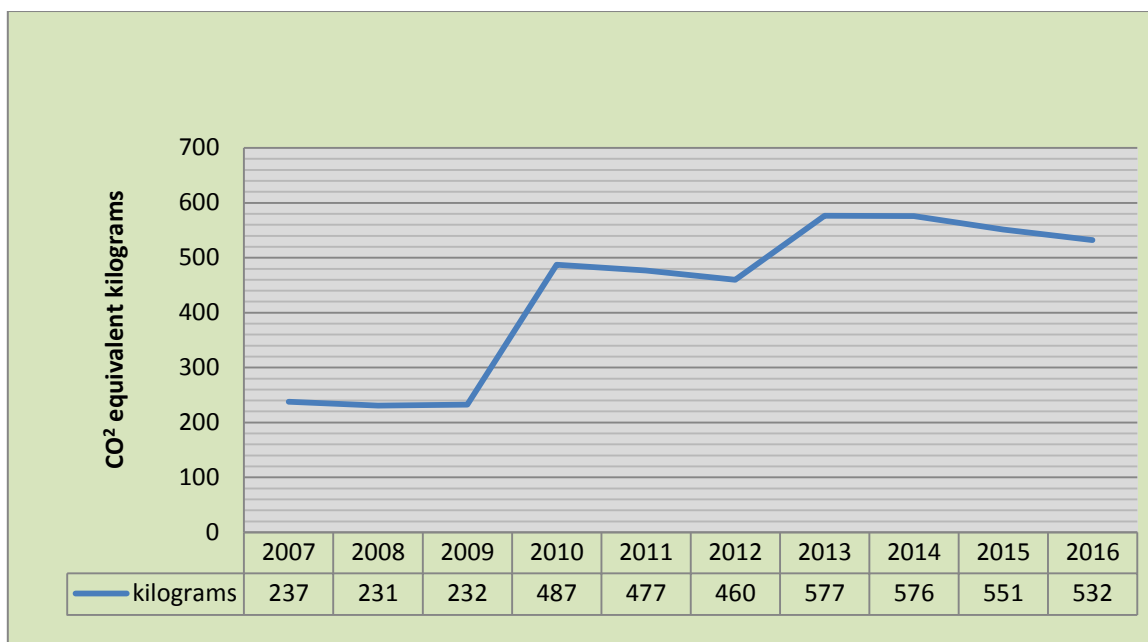


Figure 6.3: Greenhouse gas emissions - Council operations (CO² equivalent kilograms per resident)

Source: Hawkesbury City Council data

Figure 6.3 points to a sharp increase in recorded greenhouse gas emissions in 2010. Prior to 2010, emissions from the WMF were not recorded and were not included in the greenhouse emissions data. In the same way, the accuracy of the data captured by Council to measure greenhouse gas emissions substantially improved after 2012. For this reason, the post 2013 trend provides a more accurate indication of Council's performance against this Indicator.

Taking this into account, Figure 6.3 shows that Council's greenhouse gas emissions (expressed in CO² equivalent kilograms per-resident) have decreased by 7.8 % since 2013. On this basis the COE 7.1 has been assessed as remaining 'on track'.

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Additional Comments

Since 2012, as part of its greenhouse gas emissions reduction program, Council has installed rooftop solar photovoltaic (PV) system at the Oasis Aquatic and Fitness Centre at South Windsor, and Council's Administration Building in Windsor.

It has commissioned a Landfill Gas Capture and Flare System at the WMF to capture and destroy greenhouse gas emissions generated from landfilled household rubbish and has participated in an energy efficient LED street lighting replacement. These initiatives aim to reduce greenhouse gas emissions.

SoE Snapshot

Engaging the Community about Council's Solar System

Council has installed solar panels at both the Oasis Aquatic and Leisure Centre and Council's Administration Building in Windsor to reduce greenhouse emission.

A 16kW system was installed at Oasis Aquatic and Leisure Centre and a 30kW system at the Administration Building, with \$110,000 funding from the Waste and Sustainability Improvement Payment Program.

The energy produced from both these systems will be used onsite, with the 30kW system at the Administration Building powering Council's computer centre. Similarly, the 16kW system at the Oasis Aquatic and Leisure Centre is powering the pool plant, which also has daily power demands, allowing the power generated to be used directly and ensuring maximum efficiency.

The carbon reduction achieved is being displayed real time for all to see at Council's Customer Service area, where a screen displays how much power is being generated and how much carbon is being saved.

Payback periods are expected to be around five years, meaning Council will achieve huge savings over the 25 to 30 year life of the installations, especially considering the increases in the cost of electricity.

The installation of these solar panels is an important part of fulfilling Council's commitment to environmental sustainability. The newly installed solar energy systems are state of the art – it is estimated that these two systems will reduce Council's carbon emission by 57 tonnes per year, which is equivalent to the carbon generated from a car driving for 350,000 kms per year.



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Strategic Actions to be undertaken for Community Indicator 7.1 Council Greenhouse Gas Emissions

Strategic Actions to be Undertaken	Timeframe
Operation of the Landfill Gas Capture and Flare System at the Waste Management Facility for the next seven years	2016-2023
Ongoing implementation of Stage 2 of the Energy Efficient and Street Lighting Replacement Program in partnership with eight other WSROC Councils	Ongoing
Installation of a Building Management System at five locations Oasis Fitness and Aquatic Centre, South Windsor Family Centre, Deerubbin, Fire Control Centre Wilberforce, Kurrajong Community Centre which will include monitoring to identify carbon footprint and the savings in greenhouse gas that can be achieved.	Ongoing

SoE Snapshot

Reducing Greenhouse Gas Emissions

Council has successfully secured funding to maintain the landfill gas capture and flare system at our Waste Management Facility over the next seven years. More than 47,000 tonnes of greenhouse gas emissions will be saved from entering the air over the next seven years. The successful funding application for the maintenance of the project will result in cost savings of \$536,000 at the Facility over its term including an investment of \$200,000 in 15 new wells and collection infrastructure. The maintenance of the existing 15 gas wells will also be maintained at no cost to the community as part of this project.



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Part C – Sustainability Indicators

Background Context

One of the key roles of the Sustainability Advisory Committee (SAC) is to assist Council in developing Sustainability Indicators.

Council adopted a list of Community Indicators on 29 July 2014 to be used to measure progress in the implementation of the CSP. The list of the Community Indicators has been compiled to reflect the Strategies and Measures in the CSP. These Community Indicators have been used to prepare this SoE.

The Community Indicators were provided to the SAC as a starting point for development of Sustainability Indicators. The SAC met on 24 March 2014 and 17 November 2014 and at an informal meeting with some of the SAC members on 4 September 2014 to develop Sustainability Indicators.

At the meeting of 17 November 2014 it was agreed that the Community Indicators should be used as Sustainability Indicators. It was also agreed that if additional suitable Sustainability Indicators are developed these will be used in addition to the Community Indicators.

On 30 March 2015, the SAC adopted Council's existing Community Indicators as Sustainability Indicators. A Council resolution in May 2015 saw Council adopt the Community Indicators to also be used as Sustainability Indicators.

Measures and Indicators

Community Indicator COE 8 Adherence to Sustainability Indicators

This indicator is intended to provide a measure of adherence to the Sustainability Indicators.

CSP Measure		Indicator	Desired Trend	Outcome	
COE 8	Adherence to Sustainability Indicators	COE 8.1 Performance against Sustainability Indicators	Number of Sustainability Indicators which are on track	mid term	No data
				end term	↗ on track
		COE 8.2 Satisfaction with sustainable living performance	Increase satisfaction rating with selected sustainable living programs	mid term	→ stable
				end term	→ stable

Explanation of Community Indicator COE 8.1 Performance against sustainability indicators

This Indicator measures the number of Community Indicators which are 'on track' or 'stable'. The Sustainability Indicators provide a suitable tool for measuring 'quadruple bottom line' sustainability across Social, Economic, Environmental and Governance domains.

Outcome for Community Indicator COE 8.1: Performance against sustainability indicators

Table 6.1 summarises the performance of the Measures within the CSP based on the Community Indicators which have been adopted to track progress against these measures.

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CSP Theme	no of indicators		↑ on track		→ stable		↓ heading the wrong way		no data	data not yet available
Looking After People and Place	mid term	24	9	37%	5	21%	5	21%	5	21%
	end of term	24	11	46%	5	21%	3	12%	5	21%
Caring for Our Environment	mid term	12	7	59%	4	33%	0	0%	1	8%
	end of term	12	6	50%	6	50%	0	0%	0	0%
Linking the Hawkesbury	mid term	9	3	33%	3	33%	2	23%	1	12%
	end of term	9	4	44%	3	33%	1	11%	1	12%
Supporting Business and Local Jobs	mid term	14	4	29%	8	57%	0	0%	2	14%
	end of term	14	4	29%	8	57%	0	0%	2	14%
Shaping our Future Together	mid term	19	6	32%	6	32%	5	26%	2	10%
	end of term	19	6	32%	9	47%	2	11%	2	10%
Total	mid term	78	29	37%	26	33%	13	16%	11	14%
	end of term	78	31	40%	31	40%	6	7%	10	13%

Table 6.1 Performance against Sustainability Indicators

Table 6.1 indicates that data sets for 10 of the adopted 78 community indicators are not yet available.

This leaves 68 Indicators for which data is available to track progress in the implementation of the goals within the CSP. Of the 78 indicators, 31 (40%) are 'on track', 31 (40%) are 'stable', and 6 (7%) are 'heading the wrong way'. In total therefore, 62 of the 78 Indicators (91%) are either 'on track' or 'stable'.

Strategic Actions to be undertaken for Community Indicator 8.1 Performance against sustainability indicators

Strategic Actions to be Undertaken	Timeframe
Explore with the new Sustainability Advisory Committee whether there are additional Sustainability Indicators which are required to better measure Council's sustainable operation and growth.	2016-2017

Explanation of Community Indicator COE 8.2 Satisfaction with Sustainable Living Performance

This Indicator provides a subjective measure of community satisfaction with selected Sustainable Living Indicators based on data collected within Council's biennial community survey.

To measure 'Satisfaction with Sustainable Living Performance' Council engaged Micromex Research to conduct the Hawkesbury Community Survey every two years. As part of the Community Surveys resident satisfaction is measured against six 'Sustainable Living Indicators' - tree preservation, stormwater management and reuse, recycling services, health of Hawkesbury River and waterways, and protecting bushland and natural habitats

Outcome for Community Indicator COE 8.2: Satisfaction with Sustainable Living Performance

Figure 6.4 plots the level of community satisfaction with a notional set of 'Sustainable Living Indicators' based on aggregated responses recorded in Council's community survey.

Figure 6.4 captures community satisfaction responses to six indicators within the community. The satisfaction ratings for each of these attributes were aggregated to provide an overall 'sustainable living' satisfaction score.

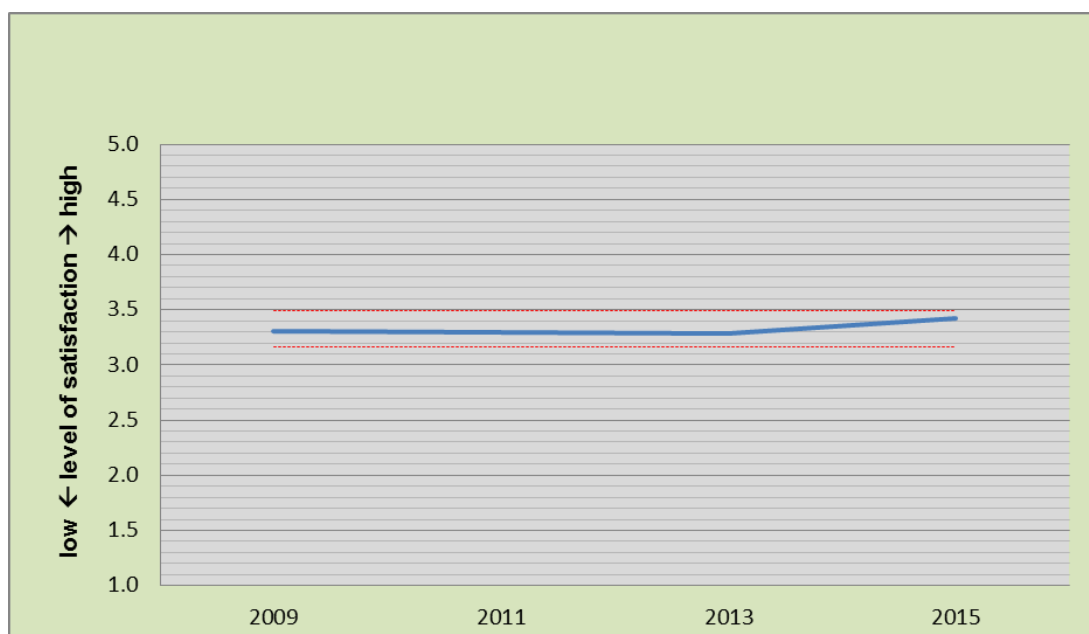


Figure 6.4: Community satisfaction with sustainable living performance

Source: Hawkesbury Community Survey - Micromex Research

Figure 6.4 shows that the average level of community satisfaction with the Sustainable Living Indicators derived from Council's community survey was 3.32 over the survey period 2009 to 2015 – which equates to a moderate level of community satisfaction. In trend terms, Figure 6.4 suggests that there has been a very slight increase in the level of community satisfaction between 2009 and 2015, however the change is not statistically significant⁵. On this basis the COE 8.2 has been assessed as remaining 'stable'.

Additional Comments

In relation to sustainable living performance, Council will be working towards further advancing the actions within the CZMP to include a monitoring program which would provide a clearer picture of the health of the Hawkesbury River, as well as identifying sections of the River which may require a more concerted focus.

Council is also considering submitting a request for the CZMP to be formally certified by the NSW Minister for Planning under Section 55G of the *NSW Coastal Protection Act 1979*. This certification would provide additional weight for the CZMP with the potential to attract further grant funding to accelerate the implementation of the actions in the CZMP.

Council will also be exploring the potential for partnerships with the Western Sydney University and other tertiary institutions, to advance the principles of water sensitive urban design (WSUD) principles. This would provide a framework for a more comprehensive and holistic approach to water cycle management to bolster actions and initiatives aimed at increasing the capture, treatment and reuse of wastewater and stormwater.

While waste education will remain a critical focus for Council action, based on recent trends, there is a risk that the impact of current programs may plateau. A wider and more strategic approach to waste management and its link to waste education programs may need to be considered in the future.

⁵ The survey has a maximum sampling margin of error of $\pm 4.9\%$ which essentially means that a response to a particular question could vary by this margin. A statistically significant trend (when comparing responses between surveys) is one which falls outside this margin. Accordingly, the tables within this report which document the outcomes of the Community Survey make reference to this margin to assist in determining whether a trend is statistically significant.

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Strategic Actions to be undertaken for Community Indicator 8.2 Satisfaction with sustainable living performance

Strategic Actions to be Undertaken	Timeframe
Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River CZMP.	Timeframe and scope of the monitoring program depends on the availability of NSW Government funding and certification of the CZMP
Continue to explore partnerships with Western Sydney University and other tertiary institutions to develop a more comprehensive approach to watercycle management.	2017-2018
Explore relationships between waste education and strategic waste management to minimise plateau effect of current programs	2016-2017



7

Caring for Our Environment Let's Update the Corporate Plans

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CARING FOR OUR ENVIRONMENT – LETS UPDATE THE HAWKESBURY CORPORATE PLANS

Possible inclusions for the Corporate Plans

It is proposed that Council undertake a significant review of the existing Corporate Plans (including the CSP, Delivery Program and Operational Plan) which will provide a unique opportunity to review the overarching vision and strategy for the Hawkesbury to ensure it reflects the communities aspirations, and that the strategies arrived at are measurable while being mindful of the Community Indicators that have been established in the Mid Term and End of Term Reports.

The preparation of this SoE will help to inform this review process.

A series of tables have been prepared, with reference to the Theme 'Caring for Our Environment', which provide information that could be considered during the preparation of the Corporate Plans.

Strategic Environmental Issue		Biodiversity			
<p>The Hawkesbury contains a variety of areas with high biodiversity value. Of the almost 2, 800km² of land within the Hawkesbury LGA, 71% or 198,800 hectares is contained within National Parks, Nature Reserves and State Recreation Areas. A further 0.6% of the LGA is Council managed reserves categorised as Natural Areas with 111 reserves covering an area of 1, 680 hectares. The core objective for these areas is management for biodiversity conservation and maintenance of ecosystem function. These reserves are further categorised as Bushland, Wetland, Watercourse, Foreshore and Escarpment.</p> <p>Issues affecting biodiversity within the Hawkesbury include:</p> <ul style="list-style-type: none">land clearing – this causes loss, degradation and fragmentation of habitatsweed invasion – there are currently 101 noxious weeds and 31 environmental weeds listed in the LGAferal animals and fish including deer, fox, pig, rabbit, cat, mosquito fish, and carp. These often out compete native species or prey upon our native animals, causing long-term losses and a decrease in biodiversityfire - too much fire, or in some cases infrequent fires may lead to a loss in biodiversity. If a fire occurs before a plant is able to mature and set seed, often there will be a loss of biodiversity. In other cases, fire is required to stimulate germination of plants that may have grown old and died.collection of firewood or bush rock - this disturbs or removes habitat for native animalsedge effects - where bushland areas occur adjacent to other land uses such as grazing or development, there is often an area of degraded habitat, with the impact extending 50-60 metres into bushland. Edge effects are generally detrimental so the establishment and persistence of native speciesgrazing or frequent mowing - While many herb species and native grasses may survive a frequent mowing regime, they will not be able to set seed to spread or maintain their population. Over time, this tends to lead to loss of native species diversity.					
Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Increase in biodiversity	Funding per hectare committed to natural area restoration and biodiversity conservation	Dollars spent on biodiversity conservation and restoration	Increased funding for biodiversity conservation and restoration	Funding per hectare committed to natural area restoration and biodiversity conservation is available for the years 2012-2013, 2013-2014, 2014-2015, 2015-2016	Ongoing advocacy at a regional level. Ongoing regional cooperation, relationship building and information sharing

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Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Conserving Endangered Ecological Communities (EECs) of the Hawkesbury	Area of EEC's in Council reserves over time	Area of EEC's in Council reserves over time	Increase in area of EECs	Vegetation mapping (2007)	Ongoing regional cooperation, relationship building and information sharing Consider being part of the Biodiversity Conservation Mapping Project with WSROC
To identify the condition of vegetation in the Hawkesbury	Mapping of vegetation condition	Confidence in vegetation mapping	Improvement in the accuracy of vegetation mapping	Individual contractors currently prepare Bushland Condition Assessments when working at a reserve	Seek regional cooperation from Strategic Alliance Councils - Blue Mountains and Penrith Investigate engaging one contractor to prepare Bushland Condition Assessments for all reserves every six months
Improve condition of native vegetation on Council and private land over time	Action taken to promote improved control of invasive species on private and public land	Extent and occurrences of invasive plant species	Work with landholders to promote improved control of invasive species (flora and fauna) on private and public land	No current programs	Develop an Invasive Species Program to manage invasive species on Council land and assist adjoining private landholders as required
Increase community awareness of biodiversity and provide opportunities for engagement	Number of participants at Council events	Number of participants at Council events	Maintain the number of community members involved in biodiversity	Numbers attending bushcare events	Create a database identifying event and numbers of attendees
Successful partnerships with other Councils, government bodies and interest groups	Council's participation in regional biodiversity projects	Number of partnerships	Increased number of partnerships with other Councils, government bodies and interest groups to improve regional biodiversity and habitat connectivity	Previously identified groups	Continue to develop regional partnerships through the Strategic Regional Alliance with Penrith and Blue Mountains Consider being part of the Biodiversity Conservation Mapping Project with WSROC Investigate partnerships to prepare CZMP Participation in the Regional Weeds Committee

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Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Conservation of koalas in the Hawkesbury	Number of koalas in the Hawkesbury	Population number of and habitat for koalas in the Hawkesbury	Growth in population numbers Retention of core koala habitat	All data currently held by NPWS and Science for Wildlife	Apply for government grants including those from NPWS and OEH Strengthen partnerships with koala community links Blue Mountains, Wollondilly and Wingecarribee Councils Work with Science for Wildlife to map koala sightings on their website

Strategic Environmental Issue		Water Quality			
Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Improvement in water quality in the Hawkesbury	Frequency in occurrence of algal blooms	Number of times algal blooms recorded	Reduction in the frequency of algal blooms	Department of Primary Industries – Water Nepean River at Richmond monitoring of algal blooms conducted by Sydney Water	Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River Coastal Zone Management Plan. Council has submitted a request to the NSW Minister for Planning to formally certify the Coastal Zone Management Plan potentially allowing it to attract further grant funding to aid its implementation.

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Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Improvement in water quality in the Hawkesbury	Compliance with Environmental Health Card parameters	Results of the Environmental Health Card available	Improvement in water quality in the Hawkesbury	Data is not currently available however it is proposed that the Environmental Health Card would capture results on Upper Hawkesbury River pH, salinity, dissolved oxygen, clarity (turbidity), biological indicators (chlorophyll-a, seagrass/macrophyte depth range, epiphyte abundance).	Continue to apply for grants to prepare an Environmental Health Card for monitoring of the Hawkesbury River which would identify clearly the health status of the River as identified in the Upper Hawkesbury River Coastal Zone Management Plan. Council has submitted a request to the NSW Minister for Planning to formally certify the Coastal Zone Management Plan potentially allowing it to attract further grant funding to aid its implementation.

Strategic Environmental Issue Noise

Noise pollution complaints and inquiries made to Council are predominately from sound equipment, motor vehicles, motor cycles or as part of land use conflicts. Council is the Appropriate Regulatory Authority (ARA) for most noise pollution inquiries that occur within the LGA with the exception of the Richmond RAAF Base. Council deal with noise issues through enforcement using the *Protection of the Environment (Operations) Act, 1997* which gives Council the power to control offensive noise. Council only instigates further action after there has been attempts made to resolve the matter.

Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Community satisfaction with noise levels in the Hawkesbury	Community satisfaction with noise levels in the Hawkesbury	Results of community survey	Maintain or improve on results of community survey		

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Strategic Environmental Issue Air

Council is involved in the management of local air quality issues that arise from the impacts of activities and premises on their neighbours. Other significant air quality issues arise from rural landuse conflicts, motor vehicles, fires and emissions from wood and other fuel heaters.

Possible Objective	A suitable Measure	A possible Indicator	Target	Data currently available	Strategic Action
Community satisfaction with air quality in the Hawkesbury	Community satisfaction with air quality in the Hawkesbury	Results of community survey	Maintain or improve on results of community survey		Ongoing air quality measurement at the STP Implementation of the Strategic Business Plan for Sewerage Service April 2013 including the Plan's requirements for air quality monitoring

Strategic Environmental Issue Waste

Current COE 5 - Recycling Volumes per capita

Investigate amending COE 5 to create a measure of proportional recycling through a comprehensive waste audit with the data being extrapolated across the Hawkesbury.

Possible CSP Objective	A suitable CSP Measure	A possible indicator	Target	Data currently available	Strategic Action
Enhance recycling operations at the WMF	Recycling volumes per capita	Recycling volumes per capita	Increased recycling volumes per capita	Current Waste Audit to be revised	Preparation of the Hawkesbury Council Waste Management Strategy detailing plans for new infrastructure Establish new infrastructure

Other issues that have been identified through on going consultation and may require additional investigation include:

- landuse changes
- greenhouse gas emissions
- climate change
- sustainability (wider than the Council operations).