



Shire of Manjimup

**Environmental Management
and
Sustainability Strategy**

2013

[adopted by Council 3 October 2013]

It is not the intention of this strategy to increase the amount of 'green tape' needing to be addressed for any of Council's operations without necessary, significant and measurably improved environmental or sustainability outcomes being at stake.

It is an underlying assumption of this strategy that any action or program implemented in the pursuit of sustainability must also provide a cost saving in the medium to long term, or at worst be cost-neutral.

This strategy does offer a number of positive actions for consideration by Council in its operations, by residents and community groups in pursuit of their own environmental sensitivity and sustainability and by Council working together with residents in the pursuit of common goals.

Because the array of stakeholders is likely to be wide, adoption of any part of this strategy should occur only after thorough consultation between parties including Council, their officers, directorates and departments, residents, community groups and other agencies present in the Shire of Manjimup.

The aims of this strategy are to:

- 1. provide Council with a starting point for engagement with residents of the Shire of Manjimup on matters of environmental management and sustainability;***
- 2. guide Council in undertaking environmental management and sustainability actions so that there will be sound reason for a shift in community perception of Council's performance, in these areas, to a more positive view.***

Pursuit of these aims will require regular review and revision of this strategy. It is anticipated that additions, alterations, refinements and deletions will be made to the strategy measures, programs and actions this document contains.

CONTENTS

	page
VISION	1
BACKGROUND & ISSUES	2
AIMS & OBJECTIVES	5
MEASURING SUCCESS	6
ASSOCIATED POLICIES & STRATEGIES	7
ABBREVIATIONS	11
ACKNOWLEDGMENTS	12
STRATEGY MEASURES	13
1. Water	13
(a) adapt existing public infrastructure to better conserve & reuse water	14
(b) promote water efficiency measures and initiatives	15
2. Energy	16
(a) adapt street lighting to improve energy efficiency	19
(b) adapt public buildings and facilities to improve energy efficiency	20
(c) explore the potential of renewable energy alternatives	21
(d) explore avenues to reduce consumption and decrease energy use	22
3. Land	23
(a) planning	24
(b) control of extractive industries and activities	25
(c) agriculture & forestry	26
(i) protect agricultural integrity	26
(ii) preserve our place in food security	27
(iii) encourage other agroforestry strategies	29
(d) reserves	30
(i) improve biodiversity	32
(ii) reduce fuel hazard	33
4. Climate	34
(a) explore the carbon price market	37
(b) plan for coastal flooding	38
(c) reduce net loss of existing natural habitat due to climate change	39
5. Recycling	40
(a) encourage & provide more opportunities for recycling	42
(b) increase the use of recyclable products	43
6. Community	44
(a) develop policy	45
(b) provide or support education programs	46
CONCLUSION	47

VISION

The Vision statement of the Shire of Manjimup Strategic Community Plan (2012 – 2022) captures the aspirations of this Environmental Management & Sustainability Strategy:

“We are a thriving region which is safe, liveable and welcoming. We value our quality of life and embrace our natural environment which affords us both economic and recreational pursuits. Our industries are recognised for their resilience, quality and innovation and for their contribution to the state of Western Australia.”

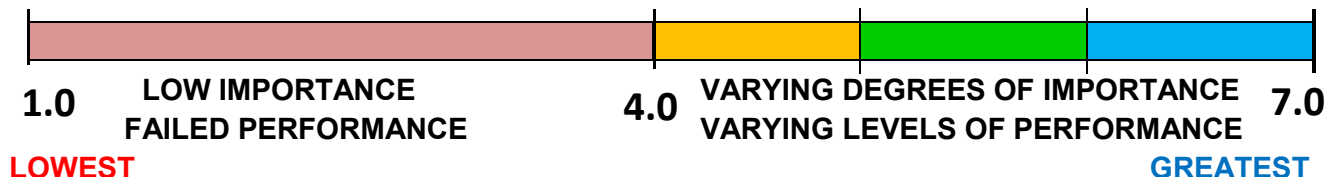
BACKGROUND & ISSUES

BACKGROUND

A Community Satisfaction Survey was carried out across the Shire of Manjimup on behalf of Council in January 2011.

The survey included two questions on nine environmental management and climate change functions of Council. Question 9 asked respondents to rate the **importance** of each function (originally on a four-point scale but adjusted here to a seven-point scale), while question 10 asked respondents to rate Council's **performance** of the same functions (on a seven-point scale). The table below compares the average results of survey questions 9 and 10:

Environmental Management & Climate Change area	average importance rating (7-point scale)	average performance rating (7-point scale)
a) adapt public buildings, facilities and street lighting to improve energy efficiency.	5.36	3.80
b) raise community awareness on how to improve environmental management.	5.06	3.69
c) adapt existing public infrastructure to better conserve or reuse water.	5.81	3.47
d) apply land use, subdivision and development controls which address environmental aspects of new developments.	5.51	3.79
e) engage the community in environmental policy development.	5.32	3.56
f) provide recycling collection opportunities and invest in infrastructure to improve reuse of recyclable products.	5.53	4.35
g) maintain a fuel hazard reduction program for Council managed reserves.	6.07	3.80
h) rehabilitate degraded Council managed reserves in order to improve biodiversity.	5.29	3.68
i) develop use of renewable energy alternatives so as to reduce reliance on fossil fuels.	5.81	3.10



The survey report concluded that in the Shire of Manjimup, the various environmental management and climate change functions of Council were broadly considered to be *'moderately to very important'*, but at the same time Council performance of most of these functions was rated as *'poor, relative to community expectations'*.

Following the survey, Council has taken steps to address the findings the survey presented. These have included:

- appointing a Shire of Manjimup Sustainability Officer (replacing the previous position of shared Regional Environmental Officer);
- appointing a Coordinator of Ranger & Emergency Services;
- adopting the Shire of Manjimup Fuel Hazard Reduction Plan 2011 – 2015;
- engaging Planet Footprint as an independent monitor for its energy and water use;
- securing funding to add ground source heat pump technology to the Manjimup Regional Aquatic Centre;
- continuing and expanding the Mottram Street Reserve streamline rehabilitation project to engage with the local community;
- engaging a structural engineer to assess the ability of Council's large community recreation buildings to bear the weight of solar photovoltaic arrays (should funds become available to install such systems).

The development of an Environmental Management and Sustainability Strategy is an integral part of Council's efforts to address the issues highlighted by the survey.

The aims of this strategy are to:

1. **Provide Council with a starting point for engagement** with residents of the Shire of Manjimup on matters of environmental management and sustainability;
2. **Guide Council in undertaking environmental management and sustainability actions** so that there will be sound reason for a shift in community perception of Council's performance, in these areas, to a more positive view.

Pursuit of these aims will require regular review and revision of this strategy. It is anticipated that additions, alterations, refinements and deletions will be made to the strategy measures, programs and actions this document contains.

Further, Council notes that the design and style of this Strategy should provide for a broad spectrum of appeal, interest and usefulness.

ISSUES

Global & local

The survey highlighted community perception of issues local to the Shire of Manjimup. However, the community is well aware of, and may share, deepening concern around climate change as a global issue. Acknowledging this, Council wishes also to contribute to the solution of a global problem through action at a local government level.

Energy costs

The Australian Government carbon price legislation provides for a price of \$23 (in 2012-13) per tonne of carbon dioxide equivalent (CO₂-e) emitted by any of the nation's top 500 polluters (which includes most electricity producers) to be paid to the Australian Government. These costs will be passed on to consumers.

For the Shire of Manjimup, this is likely to result in an increase in electricity costs of approximately 10%, or in the order of an additional \$30,000 cost of electricity per annum if no action is taken to reduce energy use and costs by one means or another.

With this in mind, Council notes that any actions or programs implemented with the aim of reducing greenhouse gas emissions must also provide a cost saving in the medium to long term, or at worst be cost-neutral.

Coastal flooding

For the Shire of Manjimup, with its approximately 140 km coastline, there are coastal issues related to climate change. Current modelling indicates that sea level rises over the next 50 to 70 years will lead to increases in the frequency of coastal flooding events.

The coastal flooding impacts of climate change will affect both the constructed and the natural environments.

Carbon offsets

While Australia's carbon price mechanism may result in increased costs of energy for Council operations, it also presents the theoretical potential for developing an income stream by trading carbon credits earned in a carbon offset program. However, such programs are complex and unlikely to generate large income at the scale available to Council.

Carbon offset schemes come in a variety of forms and Council would need to explore the most appropriate for its location and purpose.

Adaptation & transformation

Finally, Council can demonstrate leadership through promoting and supporting incremental ('ground-up', community-driven) adaptation to climate change while also providing transformative ('top-down', policy-driven) adaptation through the implementation of action-focussed strategies.

AIMS & OBJECTIVES

In pursuing its Vision, this Strategy **aims** to:

1. provide Council with a starting point for engagement with residents of the Shire of Manjimup on matters of environmental management and sustainability; and
2. guide Council in undertaking environmental management and sustainability actions so that there will be sound reason for a shift in community perception of Council's performance, in these areas, to a more positive view.

The **objectives** of this Environmental Management & Sustainability Strategy are to:

1. Guide Council in:
 - a) **adapting** infrastructure to improve energy efficiency and to better conserve or reuse water;
 - b) **raising community awareness** of and engagement in our environmental management;
 - c) **applying land use, subdivision and development controls** in a way which provides for a balanced approach to conservation of biodiversity and the maintenance of natural environmental values in new developments;
 - d) **encouraging and providing recycling** opportunities and improving use of recyclable products;
 - e) maintaining a **fuel hazard reduction** program for Council managed reserves;
 - f) rehabilitating degraded Council managed reserves in order to improve **biodiversity**;
 - g) promoting a **consideration of renewable energy alternatives** so as to reduce reliance on fossil fuels.
2. Guide Council in its communications with residents and communities of the Shire about its work by providing clear and useful explanations of the direction Council is taking to manage the natural environment of the Shire of Manjimup.
3. Guide Council in exploring how best to respond to the needs of the residents and communities of the Shire of Manjimup as they express their concerns for climate change, environmental and sustainability issues which continue to emerge and develop in the personal, local and global collective consciences.
4. Provide access to and clarity around the various policies which guide Council in specific aspects of environmental management.
5. Be a document which is accessible to all – Council, its officers, and the residents of the Shire - and which provides clarity and direction in dealing with issues impacting on biodiversity and natural resources at local, regional and global levels.

MEASURING SUCCESS

This Strategy incorporates six broad Strategy Measures, each embracing a number of sub-measures, and each of these in turn a number of Actions.

While the pursuit of any action in this Strategy should result in some degree of success, it is not the purpose of this Strategy to define how that success is measured. To define a measure of success for each action in the Strategy at the outset would be to limit the flexibility with which any given action can be implemented.

This is not to say that challenging goals and measurable outcomes shouldn't be set for actions undertaken. But simply put, the measure of success of any action should be established *at the time* of planning for implementing that specific action.

Appropriate measures of success for any action will vary according to the circumstances. Those who actually embark upon implementing an action will be best placed to understand the hurdles and challenges, and to identify what is an appropriate measure of success.

The success of the Strategy as a whole will be judged in part by how often it is referred to, whether or not it is used for its intended purposes, and how often it is reviewed and revised.

Its success may also be judged by how well life in our community comes to approximate the sustainable life referred to in the Vision statement.

ASSOCIATED POLICIES & STRATEGIES

This Environmental Management and Sustainability Strategy sits within the framework provided by Commonwealth and State legislations.

At the same time, this Strategy aligns with various other policies, strategies, plans and action plans of the Shire of Manjimup and of other stakeholders.

It is not intended that this Strategy contradict or alter the objectives or measures of any other Shire of Manjimup policy, strategy, plan or action plan; rather, it is intended to augment them. Nothing about this Strategy should be read so as to construe that it contradicts or alters the objectives or measures of any other Shire of Manjimup policy, strategy, plan or action plan.

COMMONWEALTH & STATE LEGISLATION

Objectives, measures and actions of this strategy adhere to all existing applicable legislation. This legislative framework is provided by the:

- Commonwealth of Australia Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act), and:
 - (a) Matters of National Environmental Significance – significant impact guidelines 1.1
 - (b) EPBC Act referral guidelines for three threatened black cockatoo species

- Western Australia Environmental Protection Act 1986 (EP Act), and:
 - (a) Environmental Protection (Noise) Regulations 1997
 - (b) Environmental Protection (Clearing of Native Vegetation) Regulations 2006

- Western Australia Planning and Development Act 2005
 - (a) State Planning Policy No. 2 Environment and Natural Resources
 - (b) State Planning Policy No. 2.5 Agricultural and Rural Land Use
 - (c) State Planning Policy No. 2.6 State Coastal Planning
 - (d) State Planning Policy No. 2.7 Public Drinking Water Source
 - (e) State Planning Policy No. 2.9 Water Resources
 - (f) State Planning Policy No.3 Urban Growth and Settlement

Various WA Department of Water plans, strategies, policies, initiatives and manuals inform this Strategy and the relevant actions it contains, including:

- [South West Regional Water Plan 2010](#)
- [South West Groundwater Areas Allocation Plan May 2009](#)
- [Warren-Donnelly Surface Water Allocation Plan 2012](#)
- [State Water Recycling Strategy – An Overview 2008](#)
- [Operational Policy 4.3: Identifying & Establishing Waterways Foreshore Areas 2012](#)
- [State Waterways Initiative 2008](#)
- [Better Urban Water Management 2007](#)
- [Stormwater Management Manual for WA 2004-2007](#)

and by:

- Western Australian Government [Adapting to our changing climate](#) statement, October 2012.
- Western Australian Planning Commission [Warren-Blackwood Rural Strategy](#) August 2004.

SHIRE OF MANJIMUP

This strategy should be read in the context of the overarching objectives of:

- [The Road Ahead](#) – Shire of Manjimup Strategic Plan 2010 – 2020 (Plan for the Future)
- [Manjimup SuperTown Growth Plan](#) (and associated plans)
- [Shire of Manjimup Local Planning Strategy 2003-2013](#)
- [Shire of Manjimup Local Planning Scheme No.4](#) (and associated Local Planning Policies)

Other Shire of Manjimup policies, strategies, plans and action plans which have particular relevance to specific sections of this strategy (and therefore which should be consulted when following this strategy) include:

Policies

- Corporate Policies
 - 2.1.22 Volunteers
 - 2.3.2 Vehicle specifications
 - 2.3.3 Wildflower picking
 - 2.3.5 Purchasing
 - 2.4.2 Goals, objectives & guidelines – tourist development & coordinating committee

- Community Development
 - 3.5.1 Youth policy principles

- Statutory Services Policies
 - 4.2.10 Windy Harbour camping ground
 - 4.2.11 Windy Harbour reticulated water usage and use of bores

- Environmental Policies
 - 5.1.7 Genetically Modified organisms
 - 5.3.4 Restricted and prohibited burning period
 - 5.3.7 Firebreaks on road verges
 - 5.3.8 Firebreaks - variation
 - 5.3.11 Fire protection measures for new subdivision development

- Local Planning Policies
 - 6.1.32 Subdivisions
 - 6.1.33 Rural subdivision
 - 6.1.38 Extractive industries
 - 6.1.40 Agroforestry & tree plantations
(*and Issues Paper: Agroforestry & tree plantations*)
 - 6.1.44 Windy Harbour land use and development control
 - 6.1.46 Managing the natural environment

- Technical Services Policies
 - 9.1.3 Street lighting
 - 9.1.4 Guidelines for subdivisional development
 - 9.1.8 Road reserve vegetation management
 - 9.2.2 Waste collection

- Works and Services Policies
 - 10.1.6 Weed spraying of verges adjacent to organic farms
 - 10.2.3 Street tree planting and replacement (Pemberton)
 - 10.2.4 Street tree planting and replacement (Northcliffe)
 - 10.2.5 Street tree planting and replacement (Walpole)

Strategies

- Local Planning Strategy (and Local Planning Scheme # 4)
- Natural Environment Strategy (11 July 2008)
- Weed Strategy (9 October 2009)
- Local Biodiversity Strategy (2013)

Plans & Action plans

- Shire of Manjimup Fuel Hazard Reduction Plan 2011 - 2015
- Sustainable Manjimup Draft Action Plan 2011 – 2015
- Windy Harbour Management Plan 2007 - 2017
- Shire of Manjimup Local Bike Plan (March 2008)

OTHERS

Other papers, strategies, policies and action plans which inform, augment or complement this strategy include:

- Roadside Vegetation & Conservation Values in the Shire of Manjimup
(Roadside Conservation Committee, June 2005)
- Sea Level Change in Western Australia (Application to Coastal Planning)
(WA DOT, February 2010)
- A Sustainable Street Lighting Project Proposal for Western Australia
(WALGA, September 2011)
- draft State Planning Policy 2.6 – State Coastal Planning Policy Guidelines
(WA Department of Planning, WAPC February 2012)
- Climate Change Management
(WALGA 2013)
- LG Biodiversity Conservation Planning Strategy
(WALGA 2013)

ABBREVIATIONS

CEEP	Community Energy Efficiency Program (funding program)
CFOC	Caring For Our Country (funding program)
DAFWA	Department of Agriculture & Food WA
DCU	Shire of Manjimup Development Control Unit
DEC	WA Department of Environment & Conservation (now DPAW)
DOP	WA Department of Planning
DOT	WA Department of Transport
DOW	WA Department of Water
DPAW	WA Department of Parks & Wildlife (formerly DEC)
GHG	greenhouse gas
GMO	genetically modified organism
HDPE	high-density polyethylene (plastic)
LBS	Local Biodiversity Strategy
LCAL	Low Carbon Australia Ltd
LED	light-emitting diode
LG	Local Government
LGEEP	Local Government Energy Efficiency Program (funding program)
MRAC	Manjimup Regional Aqua Centre
MWAG	Manjimup Weed Action Group
NRM	natural resource management
PET	polyethylene terephthalate (plastic)
PVC	polyvinyl chloride (plastic)
RBG	Recognised Biosecurity Group
solar PV	solar photo-voltaic
State NRM Office	WA State Natural Resource Management Office (funding agency)
SWCC	South West Catchments Council Inc
WALGA	Western Australia Local Government Association
WAPC	Western Australia Planning Commission
WCC	Warren Catchments Council Inc
WDREG	Warren Districts Renewable Energy Group Inc

ACKNOWLEDGEMENTS

Several individuals, organisations and agencies submitted feedback on the draft Shire of Manjimup Environmental Management & Sustainability Strategy 2013 which was used to inform the writing of this final adopted version of the Strategy.

Points of specific, written feedback were submitted by Glen Burston and Jo Burston (Maroo Wildlife Refuge Inc), Simon Dooley (Stellar Violets Inc), Michael Gill, Marie Little, Julian Sharp (all as individuals) and Carol Anderson (Department of Water SW Region).

Broad supportive comment, written or verbal was received from Lee Fontanini, Peter Keppel (Regional Manager, Department of Parks & Wildlife), Andy Russell (Warren Ribbons of Blue) and Paul Owens (Warren Catchments Council Inc).

Council is grateful for their interest and for their willingness to share their views and knowledge in the useful process of refining the draft Strategy.

It is hoped that future reviews and revisions of this Strategy will again benefit from individual and organisational input, ensuring it evolves into a truly community-owned document.

STRATEGY MEASURES

1. Water

Bureau of Meteorology records show that for twelve stations around Manjimup, winter rains (May to October) have decreased in a substantial and sustained trend since about the middle of last century. Winter rainfalls which averaged around 800mm in the 1950s now average around 600mm or less. This is a reduction of more than 25% so far - and the trend appears to be continuing.

In the Shire of Manjimup water has become a significantly more limited resource than was previously the case. This is at a time when a variety of influencing factors are emerging which will create extra impetus for town growth and expansion of agriculture – both of which will result in greater pressure on water resources.

This circumstance applies for all consumers – residential and industrial - of water supplied through Water Corporation under town schemes, for rural households collecting, storing and using rain water, for schools, agricultural operations and municipal operations including the maintenance of roads, public parks, gardens and recreational facilities.

Historically, all of the water utilised by residents, businesses and other agencies in the Shire of Manjimup originates, one way or another, from surface runoff resulting from rain falling over the catchments of the Shire or from bores tapping into ground waters (which recharge from surface rain run-off waters percolating down into the groundwater layer).

However, in mid-2013 work was completed on a pipeline to link Manjimup to the Bridgetown Regional Water Supply Scheme. This is expected to ensure the long-term security of Manjimup town water supply by adding water from sources external to the Shire's catchments.

At the same time it is important to note that there are ongoing pressures on the water resources available to the towns of Pemberton, Northcliffe and Walpole. With this in mind, rain water storage tanks will be a consideration in planning for future buildings and in planning for future upgrades to Council facilities.

Therefore, with current modelling predicting a continuing trend towards a drier climate and lower rainfall predictability for the region, it is prudent to put in place measures which will:

- (a) adapt existing public infrastructure to better conserve and reuse water, and***
- (b) promote water efficiency measures and ensure homes & businesses have access to State and Commonwealth water efficiency initiatives.***

1 (a) adapt existing public infrastructure to better conserve & reuse water

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • Community Gardens as models for improved water efficiency; • Water Corporation restrictions applied to town scheme; • watering of sports ovals using treated wastewater (Pemberton); • stormwater harvesting & storage, and reuse of collected water (Rea Park & Collier Street).
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • explore water efficiency measures in all Shire facilities; • expand use of treated waste water.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • there is a significantly reduced consumption of potable water in all Shire facilities and operations.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • SuperTowns funding program • Commonwealth stormwater harvesting & re-use scheme funding

1 (b) promote water efficiency measures and ensure homes and businesses have access to State and Commonwealth water efficiency initiatives

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • H₂ome Smart water saving program (Water Corp + Greenskills) • Community Gardens as models for improved water efficiency
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • support the continued rollout of the H₂ome Smart water saving program; • provide up-to-date information on State and Commonwealth water efficiency initiatives applicable to homes and businesses.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • homes and businesses across the Shire are more efficient in their consumption of water; • water supplies across the Shire are better conserved (after seasonal rainfall variations and population growth are taken into account).
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • H₂ome Smart water saving program (Water Corp + Greenskills)

2. Energy

BEST PRACTICE

Best practice actions aiming to reduce greenhouse gas (GHG) emissions through improved energy efficiency should follow the nine-step sequence:

1. **measure** current levels of energy consumption/GHG emissions (develop baseline);
2. set objectives which provide realistic **targets** to aim for;
3. **avoid** installation of further fittings which have undesirably poor energy efficiency;
4. **reduce** consumption by retrofitting (lights, heaters, coolers etc) for greater efficiency, or adopting protocols to change behaviour i.e. use less;
5. **switch** to renewable energy sources e.g. solar;
6. **sequester** GHG emissions directly generated (if possible);
7. **assess** residual level of GHG emissions;
8. **offset** any residual emissions through reforestation or revegetation programs;
9. **measure** (resume the cycle).

In order to develop baseline data, Council has commenced measurement of current levels of energy consumption through Planet Footprint, an independent monitoring agency.

STREET LIGHTING

At present, Council is charged by Western Power for street lighting on a 'per pole' basis, in which different lighting technologies (using different amounts of electricity) are charged at different rates. Street lighting accounts for close to 20% of GHG emissions stemming from Council consumption of electricity.

Significant effort to replace existing street lighting with newer technologies of greater energy efficiency would not, in the current market, result in substantial reductions in GHG emissions and no savings on annual electricity expenditure.

Such a replacement operation has more complexities than is immediately apparent and would require close collaboration with Western Power. Where street lighting is associated with existing Western Power overhead powerlines there is little opportunity for change, however, Western Power is gradually replacing its luminaires with compact fluorescent lighting in a systematic program. The changes to supply along Mottram Street in Manjimup (as part of the SuperTown project) may present an opportunity to install more energy-efficient lighting.)

Broadly, any changes possible would entail considerable cost to implement due to the present high costs of the luminaires and their installation. However, these costs are unlikely to rise as quickly as the cost of electricity, so such retrofitting will become more

cost effective over time. In some instances more energy-efficient compact fluorescent street lighting could be installed to replace existing lighting units; however, again because of high purchase and installation costs there may be little or no cost savings over the life of each unit. Therefore while embarking on such a program may in fact reduce GHG emissions (but not running costs), at this point it is not likely to reduce total energy costs.

It is worthy of note that at present the LED street lighting luminaries available do not meet Australian Standards for public lighting.

The desire to at least maintain present levels of service (i.e. street lighting) without unduly increasing costs precludes Council from taking broad action to significantly reduce the energy consumption due to street lighting at this time.

In the meantime, Council's broad philosophy on street lighting energy consumption is to pursue more energy-efficient options whenever they become available through cost-effective means. Council will take such opportunities to retrofit existing street lighting when specific additional funding is available.

PUBLIC BUILDINGS

Community groups which occupy or use public buildings and facilities usually pay for the costs of the energy (particularly electricity) which they consume.

By their nature, community groups tend to have to work to very tight budgets. Given that revenue is generally difficult to increase, the groups must continually seek new ways to reduce their costs of operation.

The costs of lighting, heating, cooling and operation of other electrical equipment are arguably among the most significant they must meet.

Therefore one of the most significant ways in which community groups might strengthen their financial position may be through a reduction in their consumption of electricity: i.e. through improved energy efficiency.

There are several ways in which the adaptation of public buildings could contribute to a significant improvement in energy efficiency.

However, while adaptation of buildings is a useful measure, behavioural change often requires far lower investment and results in comparable returns. Both measures (building adaptation and behavioural change) can be applied in conjunction to maximise efficiencies – and, ultimately, maximise cost savings.

A final benefit to community groups and their members of such adaptive action is the knowledge that at a local level they are contributing to a global issue through a reduction in greenhouse gas emissions attributable to their activities.

NEW PUBLIC BUILDINGS & FACILITIES

Planning for new public buildings or facilities should consider energy efficient design, potentially utilising both active and passive elements.

RENEWABLE ENERGY ALTERNATIVES

In considering adaptations to public buildings, facilities and street lighting, Council will explore opportunities available for the funding and use of renewable energy alternatives, including solar PV systems, solar hot water systems, ground source heat pumps and passive solar design.

REDUCING CONSUMPTION: DECREASING ENERGY USE

An alternative approach to reducing the cost to the consumer of electricity consumption is to simply reduce consumption. This can be achieved either through the retrofitting of lighting, cooling, heating and other appliances with more energy-efficient units, or simply through behavioural change. Retrofits require an initial investment. The size of this investment and the length of the pay back period will be critical factors in determining whether or not to pursue such a program.

Behavioural change should be at no cost, and to be effective, also needs to:

- be initiated through a strongly consultative approach;
- be easily understood and undertaken;
- be readily adopted by all levels of stakeholder (rather than being dictated);
- be sustainable over a long term;
- have achievable but challenging goals and
- have easily observed and real, measurable outcomes.

POLICY FRAMEWORK

Programs, projects or actions which adapt street lighting, public buildings and facilities to improve energy efficiency will be implemented with due consideration to relevant policies including:

- WAPC Planning Policy # 2 Environmental & Natural Resources (2003) *section 5.10 Greenhouse Gas Emissions and Energy Efficiency*
- Shire of Manjimup Technical Services policy 9.1.3 Street lighting
- WALGA Sustainable Street Lighting Strategy

Ultimately, whether the core motivation is economy or ecology, the following action areas will result in reduced costs associated with energy use and reduced greenhouse gas emissions:

- (a) adapt street lighting to improve energy efficiency (where real, cost-effective opportunities exist),***
- (b) adapt public buildings and facilities to improve energy efficiency,***
- (c) explore the potential of renewable energy alternatives, and***
- (d) explore avenues to reduce consumption and decrease energy use.***

2 (a) adapt street lighting to improve energy efficiency (where real and cost-effective opportunities exist)	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • Western Power's gradual & systematic replacement of luminaires with compact fluorescent lighting; • Walpole TransWA bus stop area fit-out with solar/LED lighting; • Manjimup Mottram Street – opportunity to consider energy-efficient lighting at time of moving overhead power to underground.
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • pursue more energy-efficient options whenever they become available through cost-effective means; • retrofit existing street lighting when specific additional funding is available; • consider every street lighting project from a reduction in GHG emissions perspective.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • greenhouse gas emissions attributable to Council's street lighting will be reduced due to improved energy efficiencies; • the ongoing dollar cost of operating Council's street lighting will be reduced due to improved energy efficiencies; • Council will be able to further develop street lighting provision without significant additional cost due to improved efficiencies.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • Aust Govt CEEP grants • Low Carbon Australia Ltd (LCAL)

2 (b) adapt public buildings & facilities to improve energy efficiency

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • ongoing monitoring of energy use and greenhouse gas emissions across the entire organisation is being carried out through an independent monitoring agency (Planet Footprint); • Manjimup Depot administration extension is a thermally efficient building; • Manjimup Regional Aqua Centre (MRAC) upgrades to pool & space heating for greater energy efficiencies, partly funded through an Australian Government Community Energy Efficiency Program (CEEP) grant, round 1.
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • construct ground source heat pump system at MRAC; • investigate retrofitting LED lighting in Shire facilities; • explore potential of voltage optimisation technology to provide greater efficiency in use of electrical appliances in public buildings & facilities; • fit solar heated hot water services to public buildings & facilities presently using gas or mains electricity to heat water; • research costing models and funding for installation of grid-connected solar photovoltaic systems.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • improved energy efficiencies will reduce greenhouse gas emissions attributable to Council's public buildings & facilities. • improved energy efficiencies will reduce the ongoing dollar cost of operating Council's public buildings and facilities. • improved efficiencies may provide opportunity for Council to further develop public buildings and facilities without significant additional cost.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • Aust Govt LGEEP • Low Carbon Australia Ltd (LCAL)

2 (c) explore the potential of renewable energy alternatives	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • Windy Harbour Council house/office and camp ground powered sites use a combination of solar and wind energy with a diesel-fuelled back-up generator.
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • consult with the Warren Districts Renewable Energy Group (WDREG); • augment at least one major public building electricity supply with electricity from a renewable energy source; • explore potential for Council operations at Windy Harbour to utilise renewable energy sources; • survey roofs of large public buildings for potential to accommodate grid-connected solar photovoltaic systems.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • improved energy efficiencies will reduce greenhouse gas emissions attributable to Council's public buildings, facilities and street lighting. • improved energy efficiencies will reduce the ongoing dollar cost of operating Council's public buildings, facilities and street lighting. • improved efficiencies may provide opportunity for Council to further develop public buildings, facilities and street lighting provision without significant additional cost.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • Aust Govt LGEEP • Low Carbon Australia Ltd (LCAL)

2 (d) explore avenues to reduce consumption & decrease energy use

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • conversion of Council’s vehicle & plant fleet to being almost entirely diesel fuelled
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • explore voltage optimisation technology; • implement behavioural change with respect to energy use across all of Council’s operations; • publish Council’s energy use data where it is available; • explore the idea of supporting or operating at least one electric or hybrid vehicle as a means of researching at a local level the pros and cons of such vehicles; • support community interest in Energy Descent Action Plans.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • improved energy efficiencies will reduce greenhouse gas emissions attributable to Council’s public buildings, facilities and street lighting. • improved energy efficiencies will reduce the ongoing dollar cost of operating Council’s public buildings, facilities and street lighting. • improved efficiencies may provide opportunity for Council to further develop public buildings, facilities and street lighting provision without significant additional cost.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • Aust Govt LGEEP • Low Carbon Australia Ltd (LCAL)

3. Land

The Shire of Manjimup is comprised of a land area of some 7,000+ square kilometres with around 140 kilometres of coast. It has a diversity of landforms. Rainfall varies across the Shire, generally decreasing to the east and away from the coast. Natural vegetation ranges from low coastal heaths to the tallest hardwood forests in the state. A very large proportion (around 85%) of the Shire has natural or near-natural vegetation cover. Timber production is a significant industry. Agricultural activity in the Shire is noticeably both highly diverse and highly productive, with the region acknowledged as something of a 'food bowl'. The foods produced are broadly accepted as being of very high quality.

It is Council's desire to see that this richness of productivity is preserved or increased in a sustainable fashion. However, it is also Council's wish that the population of the Shire will increase in response to the actions and influences of the Manjimup SuperTown Growth Plan.

Balancing ongoing growth in land productivity with population growth is not a simple task and Council applies a strategic approach to maintaining such a dynamic equilibrium.

The four key aspects of sustainable land use in the Shire of Manjimup requiring a strategic approach, then, are:

- (a) **planning**
- (b) **extractive industries (the control of such activities)**
- (c) **agriculture & forestry**
- (d) **reserves**

(a) planning

New developments will be subject to controls that will allow Council to pursue its objective of providing for a sustainable balance between the sometimes competing land uses of housing, commercial, industrial and agricultural productivity and protection of biodiversity (particularly where there is a statutory requirement to do so).

There are various mechanisms in place which form and inform these controls, including, but not limited to:

- Western Australian Planning Commission State Planning Policies
- Western Australian Planning Commission (WAPC) South West Planning and Infrastructure Framework
- Warren Blackwood Rural Strategy
- Shire of Manjimup Local Planning Strategy 2003-2013
- Shire of Manjimup Local Planning Scheme No 4 & associated Local Planning Policies
- Manjimup SuperTown Growth Plan

(Additionally, during 2013 the Shire of Manjimup will develop its draft Local Biodiversity Strategy with assistance from WALGA.)

This Environmental Management and Sustainability Strategy considers the various controls of land use, of subdivision and of planning.

3 (a) planning	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none">• Shire of Manjimup Local Planning Strategy;• Shire of Manjimup Local Planning Scheme No 4• Manjimup SuperTown Growth Plan
POSSIBLE ACTIONS	<ul style="list-style-type: none">• review of Shire of Manjimup Local Planning Strategy• prepare Townsite Expansion Plans• prepare and regularly review Local Planning Policies on environmental management and sustainability matters.
MEASURES OF SUCCESS	<ul style="list-style-type: none">• endorsement of revised Local Planning Strategy incorporating Townsite Expansion Plans.• general community agreement with the strategic land use planning direction of the Shire of Manjimup.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none">• internal budget allocations and staff resources

(b) control of extractive industries and activities

Council's position on extractive industries is expressed in local planning policy 6.1.38 Extractive industries. In essence the Shire of Manjimup **“supports the establishment of extractive industries in an environmentally sensitive and sustainable manner”**.

The objectives of Council's policy are to (a) protect the economic viability of the general farming areas and (b) retain the rural character of the area by preventing the operation of extractive industry activities in a manner detrimental to the area's amenity or environment.

Council places conditions on its approval of any application to carry out any extractive industry activities (without limiting its discretion). Matters which may have conditions imposed on them include permissible hours of operation, requirements to maintain drainage of the excavation site, restoration, reinstatement and rehabilitation of the site, staging of operations so that the works area is limited and any affects of the proposal on local amenity (such as noise, dust, vibration, waste production, smoke, odour and etc).

Council also notes that any proposed operation will be required to adhere to the Western Australia Environmental Protection (Noise) Regulations (1997) under the Environmental Protection Act (1986).

3 (b) control of extractive industries and activities	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none">• extraction of gravel for road construction from Shire reserves vested for the purposes of gravel (with or without other purposes);• standard planning permission procedures applied to any/every instance of application for permission to carry out an extractive industry.
POSSIBLE ACTIONS	<ul style="list-style-type: none">• maintain current programs of action on an 'as need arises' basis
MEASURES OF SUCCESS	<ul style="list-style-type: none">• the objectives of Council's local planning policy 6.1.38 <u>Extractive industries</u> are met;• the community and Council agree with and uphold the policy.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none">• rehabilitation of Shire reserves which require revegetation after the extraction of gravel may be funded or part-funded through a range of Commonwealth, state and regional environmental grants including the Caring for our Country program (Commonwealth), State NRM Office community grants program, and the South West Catchments Council Inc Groundworks program.

(c) agriculture & forestry

Within its sphere of responsibility and when necessary, Council's objective is to protect the agricultural integrity of the land within the Shire of Manjimup. Furthermore, Council seeks to promote the Shire of Manjimup as a key and critical region in the future food security of both the domestic and international markets. Council also wishes to promote sustainable productivity.

(i) protect agricultural integrity

Council's stance in pursuing its objective of protecting agricultural integrity is reflected in its environmental policy 5.1.7 Genetically modified organisms (GMO), which holds that due to a general concern about the impacts GMO may have on the status of health in the community and on its environment, Council does not support the commercial release of GMO, nor the growing of GMO crops within the Shire of Manjimup.

However, it is also policy that every GMO application which Council is asked to comment on will be dealt with on an individual basis.

Council's view is that a critical means of providing for the protection of the integrity of agriculture in the Shire of Manjimup is through the exclusion of GMO.

3 (c) agriculture & forestry (i) protect agricultural integrity (with respect to GMO)	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none">• Council's stance is stated in its environmental policy 5.1.7 <u>Genetically modified organisms (GMO)</u>.
POSSIBLE ACTIONS	<ul style="list-style-type: none">• continue to apply policy, noting that every GMO application Council is asked to comment on is dealt with on an individual basis;• review policy in a timely manner.
MEASURES OF SUCCESS	<ul style="list-style-type: none">• the objectives of Council's environmental policy 5.1.7 <u>Genetically modified organisms (GMO)</u> are met;• the policy is up to date, accurate and reflects Council and community views;• the community and Council agree with and uphold the policy.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none">• unknown

(ii) preserve the Shire's place in the provision of food security

The Shire of Manjimup encompasses some of the most productive agricultural land in Western Australia. Significant amounts of a large variety of foods of high quality are produced annually. The area lays claim to being the food bowl of the south west.

Around 50 different fruits and vegetables, sheep, dairy products and beef, truffles, marron, trout and wines are all produced in the area. Agritourism is an associated industry.

Present agricultural productivity of the 'Southern Forests' region is estimated at around \$96 million per annum, making it the area's most significant economic driver.

There is currently in place a \$7 million Agricultural Expansion Project in the region under the Shire of Manjimup's Royalties for Regions SuperTowns funding.

At the same time a new industry emerging across the nation is carbon farming. Carbon farming refers to the sequestration (storage) of carbon and to the avoidance or reduction of emissions not covered by the national carbon price mechanism.

Examples of **sequestration** activities include reforestation, revegetation and increasing soil carbon (e.g. through the application of biochar).

Emissions avoidance activities are grouped into three types: agricultural emissions avoidance (e.g. methane from the digestive tracts of livestock or from the decomposition of livestock urine or dung, from burning crop stubble or from the soil), introduced animal emissions avoidance (e.g. culling populations of larger feral animals) and landfill legacy emissions avoidance (for waste accepted at landfill before 1 July 2012).

While the need for Australia to contribute to global avoidance and reduction of emissions and sequestration of carbon is great, and the outcomes of doing so are beneficial, there is the possibility that such activity (i.e. carbon farming) in the Shire of Manjimup could reduce the region's production of food. More specifically, there is the possibility that parts of the most productive land in the Shire could become 'locked away' in carbon storage projects rather than engaged in food production.

Such a circumstance is not viewed by Council as desirable. It is critical to the current Agricultural Expansion Project that the most productive land be available for food production rather than be locked into the carbon farming initiative.

Council supports efforts to meet the global need to sequester carbon and avoid or reduce greenhouse gas emissions; however, its priority is to ensure that adequate land is available for agricultural expansion, particularly highly productive land. This will allow the Shire's place in the provision of food security (domestic and global) to be preserved.

3 (c) agriculture & forestry (ii) preserve the Shire's place in provision of food security (wrt carbon farming)	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • Agricultural Expansion Project in the region under the Shire of Manjimup's Royalties for Regions SuperTowns funding
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • develop policy for Council's position on carbon farming and the potential for conflict with the Agricultural Expansion Project and the preservation of the Shire's place in the provision of domestic and global food security.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • the land area for the production of food in the Shire of Manjimup is not reduced by carbon farming projects; • the Shire's place in the provision of domestic and global food security is preserved; • parties wanting to establish carbon farming projects in the Shire of Manjimup are able to do so on land which is not productive agricultural land.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • Commonwealth Clean Energy Future fund; • South West Catchments Council sustainable agriculture and carbon farming initiatives programs.

(iii) encourage other agroforestry strategies

For purposes of clarity, in this strategy tree plantations imply a practice of monoculture (e.g. Tasmanian blue gum plantations), whereas agroforestry implies integration of trees and shrubs into the farming of crops and/or livestock. Agroforestry suggests a wider range of permutations and combinations. Both practices, it is assumed, are carried out for purposes of profit.

Council's position on agroforestry and tree plantations is reflected in the Shire of Manjimup local planning policy 6.1.40 Agroforestry and tree plantations, and is further expanded in the Shire of Manjimup Agroforestry and tree plantations Issues Paper (DPAW 2005).

One objective of the policy is to (c) **encourage agroforestry as an alternative to tree plantations**. This objective is discussed in the issues paper section 4.5 Agroforestry versus tree plantations. Reasoning behind this objective includes minimising water loss from the catchment, visual amenity of the rural landscape and fostering co-existence of multiple rural land uses.

There are benefits to be found in both styles of forestry, including financial and conservational benefits. There will also be a range of practical considerations or costs. Which benefits ultimately carry the most weight will depend upon the context of each individual case. However, Council's concluded position on this issue is summarised in this discussion as: *"Agroforestry is preferred to tree plantations in various instances, however, it will be a matter for landowners and the market to decide which agricultural land use is suitable for the property."*

3 (c) agriculture & forestry (iii) encourage other agroforestry strategies (wrt plantations)	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none">• Council's position is stated in its local planning policy 6.1.40 <u>Agroforestry and tree plantations</u>, with discussion in the associated Shire of Manjimup <u>Agroforestry and tree plantations</u> Issues Paper (DPAW 2005).
POSSIBLE ACTIONS	<ul style="list-style-type: none">• continue to apply policy;• review policy in a timely manner with due consideration of community feedback and views and of policy development by other stakeholders including DAFWA, DOW and WAPC.
MEASURES OF SUCCESS	<ul style="list-style-type: none">• the objectives of Council's local planning policy 6.1.40 <u>Agroforestry and tree plantations</u> are met;• the policy is up to date, accurate and reflects Council and community views;• the community and Council agree with and uphold the policy.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none">• unknown

(d) reserves

The Shire of Manjimup manages approximately 170 reserves representing a total land area of over 1,700 ha.

A little under half of this total land area (around 800 ha over about 38 reserves) is vested in such uses as park, parklands, forestry & parkland rehabilitation, gravel & parkland rehabilitation, heritage trail, parkland & public utility, park & dam site or park and recreation.

These reserves in particular have the potential to attract some interest or pressure from residents and other stakeholders as requiring either an improvement to their levels of biodiversity or a reduction in the fuel hazard they represent. Many reserves will doubtless be the subject of both lines of thinking, and it is critical that Council continues to ensure that both perspectives are represented when planning for the management of reserves is carried out. To this end, the Shire of Manjimup Development Control Unit (DCU) functions as an effective forum for collaborative planning on matters of biodiversity and fuel hazard reduction.

However, the importance of naturally vegetated Shire reserves should be seen in the context of the Shire of Manjimup land area as a whole.

Of a total Shire land area of approximately 7,000 square kilometres, about 85% (or roughly 6,000 square kilometres) is naturally vegetated. Much of this is managed by other authorities such as the WA Department of Parks & Wildlife (DPAW). Shire reserves vested as parkland or similar account for only 8 square kilometres or 0.13% of the total naturally vegetated area of the Shire.

Therefore neither improving the biodiversity nor reducing the fire hazard of naturally vegetated Shire reserves would significantly alter the status of either attribute over the region.

However, their particular location gives some reserves added strategic value and there may well be a case for investing Council funds in improvement of biodiversity, reduction of fuel hazard, or, indeed, a combination of the two, for these reserves. Large reserves such as the Northcliffe Forest Park or Windy Harbour already present complex challenges in planning for fuel reduction without unduly compromising their biodiversity values.

With particular reference to loss of natural habitat through climate change [*refer 4, Climate Change*] paying strategic attention to biodiversity on Council reserves will have a positive impact on vulnerable icon species including the three black cockatoo species, the quokka and the quenda.

Biodiversity values and fuel hazard reduction requirements notwithstanding, Council must also utilise particular reserves for their vested purpose of gravel extraction. Such operations are without any doubt absolutely necessary for the proper development and

maintenance of the road infrastructure system of the Shire of Manjimup and therefore any planning for the purposes of protecting or restoring biodiversity on a Shire reserve must take into account the necessity of maintaining access to critical resources, in this case gravel.

Planning for a sustainable future will, with due thought and care, provide for a balance between the needs of the community and the needs of the environment, present and future.

In relation to both biodiversity and fuel hazard reduction, it is noted that European trees (which are of lower biodiversity value than native) could be planted if appropriate and where less fire-prone vegetation is required. This does not, however, guarantee fire protection.

This Strategy notes also that measures to reduce fire hazard should, quite properly, remain the domain of the Shire of Manjimup Fuel Hazard Reduction Plan.

In summary:

Regarding biodiversity conservation and fuel hazard reduction, many reserves will be the subject of both lines of thinking, and it is critical that Council continues to ensure that both perspectives are represented when planning for the management of reserves is carried out. To this end, the Shire of Manjimup Development Control Unit (DCU) functions as an effective forum for collaborative planning on matters of biodiversity and fuel hazard reduction.

Biodiversity values and fuel hazard reduction requirements notwithstanding, Council must also utilise particular reserves for their vested purpose of gravel extraction. Such operations are without any doubt absolutely necessary for the proper development and maintenance of the road infrastructure system of the Shire of Manjimup and therefore any planning for the purposes of protecting or restoring biodiversity on a Shire reserve must take into account the necessity of maintaining access to critical resources, in this case gravel.

Planning for a sustainable future will, with due thought and care, provide for a balance between the needs of the community and the needs of the environment, present and future.

(d) Reserves: while considering the value of acting strategically in the Shire-wide context, Council will develop a program which addresses its reserves with respect to their:

- (i) improved biodiversity, and***
- (ii) fuel hazard reduction.***

**3 (d) reserves
(i) improve biodiversity**

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • process to create a Local Biodiversity Strategy with WALGA support; • Mottram Street Reserve stream rehabilitation project; • Middlesex Speedway native vegetation clearing permit – offset planting project; • financial and other support of various community-based groups focussed on achieving landcare and/or conservation outcomes.
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • continue development of the LBS (as above); • seek membership of the Manjimup Weed Action Group (MWAG) for both the Manager Parks Operations and the Sustainability Officer; • explore the value of being a part of a Recognised Biosecurity Group (RBG); • select and target particular reserves for biodiversity improvement; • support local residents and community groups to form and work as ‘friends of the reserve’ groups targeting appropriate reserves and working on them to an agreed plan; • source funding to provide adequate resources to carry this out; • control invasive pest plant and animal species including the three Weeds of National Significance (WONS) recorded in the Shire: blackberry, bridal creeper and Montpellier broom; • support research into effectiveness of and issues around installation of artificial nesting hollows for black cockatoos; • allocate at least one reserve to provide a site for a strong community engagement model for collaborative management of biodiversity conservation and fuel hazard reduction.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • Shire of Manjimup has a Local Biodiversity Strategy in place; • Shire of Manjimup supports local groups (incorporated or non-incorporated) to ‘adopt’ a reserve as a ‘friends of the reserve’ group. • Programs are in place and supported by funding to control WONS and other invasive pest plants and animals.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • State NRM Office community grants program • DAFWA RBG funding • Caring for our Country program (Commonwealth) • South West Catchments Council Inc Groundworks program • Coastwest grants program • Lotterywest

3 (d) reserves
(ii) reduce fuel hazard

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • Shire of Manjimup <u>Fuel Hazard Reduction Plan</u> 2011 - 2015
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • continue to consult with the community and review the existing Plan and modify or revise it as necessary (nominally every five years); • allocate at least one reserve to provide a site for a strong community engagement model for collaborative management of biodiversity conservation and fuel hazard reduction.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • the Fuel Hazard Reduction Plan is executed; • fuel hazard reduction burning does not unduly compromise the health or safety of the community; • fuel hazard reduction burning does not unduly compromise the biodiversity values of Shire reserves as a whole.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • State NRM Office community grants program

4. Climate

CARBON PRICE

On 1 July 2012, Australian Government carbon price legislation took effect. This legislation provided for a price of \$23 (in 2012-13) per tonne of carbon dioxide equivalent (CO₂-e) emitted by any of the nation's top 500 polluters to be paid to the Australian Government – effectively a tax on carbon. During 2013 the Australian Government announced that from July 2014 Australia would transition from a carbon tax to an emissions trading scheme. Estimates of the future price per tonne of carbon dioxide equivalent (CO₂-e) emissions vary greatly. Carbon pricing is at present a highly-politicised issue.

However, the costs of a price on carbon are typically passed on to consumers – notably consumers of electricity.

For the Shire of Manjimup, this results in an increase in electricity costs of approximately 10%, or in the order of an additional \$30,000 cost of electricity per annum if no action is taken to mitigate by one means or another.

With this in mind, Council notes that any actions or programs implemented with the aim of reducing greenhouse gas emissions must also provide a cost saving in the medium to long term, or at worst be cost-neutral.

While the carbon price mechanism may result in increased costs of energy for Council operations, it also presents the potential for developing an income stream generated by trading carbon credits earned in a carbon offset program. However, such programs are complex and unlikely to generate large income at the scale available to Council.

Having said this, should Council ever choose to undertake a manageable-sized carbon offset project, the opportunity for Shire of Manjimup landholders to observe and learn from this venture would be significant.

Carbon offset schemes come in a variety of forms and Council would need to explore the most appropriate for its location and purpose. A key factor would be the need to not lock productive agricultural land up in a long-term carbon sequestration project.

Council's promotion (via local media or its website) of its efforts to operate more sustainably would provide a degree of inspiration in the community.

COASTAL FLOODING

The Shire of Manjimup has around 140 kms of coastline, much of it not easily accessible.

There are however, several locations which provide popular access to the coast, estuaries and the sea. These include Windy Harbour, Walpole (Walpole and Nornalup inlets), Broke

Inlet (Camfield) and the Donnelly River Huts, each with their own unique infrastructure and constructed environments. Additionally there are numerous points of access to the coast by foot, boat or vehicle which are visited by the public for swimming, fishing and other recreation purposes.

Therefore there are coastal issues related to climate change. Ongoing measurement indicates that the sea level around the southwest coast of Western Australia is rising by around 7.1 to 7.4 mm per year since the early 1990s; this is more than double the global average.

A sea level rise of 50 cm (predicted for about 70 years from now according to current evidence) is predicted to lead to very large increases in the frequency of coastal flooding events. i.e. coastal flooding events which are now considered to occur 'once in one hundred years' could occur as often as *ten times every year* along that part of the WA coast which includes the Shire of Manjimup.

The coastal flooding impacts of climate change will affect both the constructed and the natural environments.

HABITAT LOSS DUE TO CLIMATE CHANGE

Climate change models predict a general reduction in rainfall (particularly in winter) for the south west of Western Australia. A changed climate will lead to changes in vegetation patterns due to reduced rainfall, more frequent and hotter wild fire and increased pressures from the agricultural sector and for run-off water for human requirements. This, in turn, will result in changed habitats.

Some native species will have a reduced range as their particular habitat diminishes, while other species may well enjoy increased range. The range over which invasive pest plant and animal species occurs may change also (either increasing or decreasing). Again this will impact negatively on some native species.

Some of the iconic species which will be vulnerable to a loss of their habitat through a changing climate include the three black cockatoo species (southern forest red-tailed, Carnaby's white-tailed and Baudin's white-tailed), the quokka and the quenda, the red tingle tree, Balston's pygmy perch and the Western trout minnow.

Indeed, even the locally common karri tree once occurred over a much wider range during times of greater rainfall. Local experience suggests that karri forests will not be self-sustaining where the annual rainfall is less than 900mm and does not fall mainly in winter.

While for some species suitable habitat takes centuries to form, a loss of the same may occur over just decades (or even years). It is because of this great imbalance in the rates of loss and gain, and because the rate of loss is generally increasing - that steps need to be taken to mitigate or avoid habitat loss and indeed to improve and even create additional areas of habitat suitable for icon species and others.

It is widely accepted that local jarrah marri forests only provide suitable nesting hollows for black cockatoos in individual trees over 300 years old. Council, through coordinated planning of the management of its reserves, can contribute to the [ongoing availability](#) of adequate nesting hollows for local populations.

Further, because of the glacially slow speed of formation of natural nesting hollows, a program to provide artificial nesting hollows would alleviate the present stress on breeding populations of black cockatoos.

All of these matters – carbon pricing, coastal flooding and loss of habitat through a changing climate – are charged with contention and continue to be discussed in the strongest terms by the community.

However, regardless of the merits or otherwise of our carbon price scheme, it exists and is already affecting costs. Prudence suggests taking actions which will minimise the impact of the added costs of carbon pricing on Council operations.

Coastal flooding predictions are based on observations of actual historic and present sea level rise. Nevertheless, many do not accept the efficacy of the predictions. Given that the possibilities of damage (and cost) due to future coastal flooding are going to continue to be debated, Council consensus may be reached if the Precautionary Principle* is applied.

Council will explore:

- (a) engaging with the carbon market,**
- (b) planning to mitigate or avoid the impacts of coastal flooding and**
- (c) countering the effects of climate change on availability of habitat [refer 6(a)]**

***PRECAUTIONARY PRINCIPLE**

*If an action or policy (or lack of action or lack of policy) has a reasonably suspected risk of causing or allowing harm to the public or to the environment, in the absence of scientific consensus that the action or policy is harmful, the burden of proof that it is **not** harmful falls on those taking the action or setting the policy (or deciding not to take any action nor set any policy).*

1. This principle allows policy makers to make discretionary decisions in situations where there is the possibility of harm from taking a particular course or making (or not making) a certain decision when extensive scientific knowledge on the matter is lacking.
2. The principle implies that there is a social responsibility to protect the public from exposure to harm, when scientific investigation has found a plausible risk.
3. These protections would be relaxed only if further objective findings emerge that provide sound evidence that no harm will result.
4. In some legal systems (e.g. laws of the EU) application of the precautionary principle is a statutory requirement.

4 (a) explore the carbon price market	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> Planet Footprint independent monitoring of Council energy consumption is generating baseline data and highlighting specific sites of high/low energy use.
POSSIBLE ACTIONS	<ul style="list-style-type: none"> minimise exposure to additional costs due to carbon-influenced price rises by developing a broad-based & comprehensive plan to reduce use of electricity; explore the potential to support or participate in a pilot carbon offset project (which does not negatively impact on the availability of productive land for agriculture) in order to provide a community model for generating carbon credits.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> total energy use through Council operations is reduced to such a degree that the total cost of energy use in Council operations is not increased after utility price rises (after the advent of the 'carbon tax').
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> unknown

4 (b) plan for coastal flooding	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • State Planning Policy 2.6 <u>State Coast Planning</u>
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • prepare local coastal plans (adaptation & management) in line with the proposed <u>Climate Change Readiness (Coastal Planning & Protection) Bill 2012</u>; • research the tourism implications of coastal flooding for specific sites within the Shire including Windy Harbour, Walpole townsite, Walpole & Nornalup Inlets, Camfield huts (Broke Inlet), Donnelly huts (Donnelly River) and the South Coast Highway between Walpole and Nornalup; • research the implications of coastal flooding for other sites within the Shire for decreased opportunity for swimming and beach driving, and for increased risk to infrastructure (jetties, bridges), dwellings or planned developments; • improve understanding of the implications of increased coastal flooding on biodiversity (broadly and for particular iconic species) both for protection of environmental values and for protection of tourism's potential to contribute to local economy.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • local coastal plans (adaptation & management) are in place; • implications of local coastal flooding potential are better understood.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • Coastwest grants program (WAPC & WA Dept of Planning) • WA Dept of Transport – coastal protection grants • WA Dept of Transport – recreational boating facilities scheme

4 (c) reduce net loss of existing natural habitat due to climate change	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • South West Biodiversity Project field assessments (2008); • Mottram Street Reserve stream rehabilitation project; • Draft Local Biodiversity Strategy (with WALGA 2013).
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • develop and implement plan for protection, replacement and/or extension of key remnant vegetation reserves and corridors, particularly with reference to Manjimup SuperTown Growth Plan, section 3.5 Environment; • define 'icon species' status and develop list of locally-present icon species; • map reserves for presence of natural habitat for icon species; • understand the projected impacts of habitat loss due to climate change for icon species; • implement rehabilitation programs for suitable reserves in order to protect, replace or extend natural habitat for icon species.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • where mapping occurs, the mapped existing natural habitat shows no net loss of area.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • State NRM Office community grants program • Caring for our Country program (Commonwealth) • South West Catchments Council Inc Groundworks program

5. Recycling

Landfill volumes can be reduced by approximately 25% through effective recycling by households.

At present the range of recyclable materials which Shire of Manjimup townsites households can divert to their yellow-lidded recycling bins for fortnightly kerbside pickup includes paper and cardboard, glass, aluminium, steel and plastic (PET, PVC & HDPE).

Rural households in the Shire of Manjimup are not provided with a recycling pickup service; however, they can take recyclable materials to drop off facilities at the Manjimup landfill site or at waste transfer stations at Northcliffe, Pemberton and Walpole. A disposal charge applies.

While rural households do not pay for waste disposal in their rates, they are charged for each visit to a landfill site or waste transfer station. There are separate charges for landfill waste and recyclable materials. The charge for depositing recyclables is half that of dropping off domestic waste to landfill (for the same volume).

However, because this charge is a 'pay as you go' cost and therefore more visible, it can provide a disincentive to recycle.

Therefore, to reduce costs rural households may choose to either deposit recyclable materials to landfill along with their general waste (which then takes up often limited landfill space unnecessarily) or simply dispose of it at home (by burning or burying it), neither of which contributes to the potential for recycling programs to re-capture useful resources.

The various Council waste sites also accept car and domestic (torch) batteries, used domestic motor oil, used plastic oil containers, scrap metal, fluorescent lighting tubes, mobile phones, agricultural chemical drums (drumMUSTER), unwanted agricultural & veterinary chemicals (ChemClear) and green waste (to 50mm stem diameter) free of charge.

Both the Shire of Manjimup administration and depot offices accept printer cartridges and mobile phones from residents for forwarding to recycle.

Other Manjimup-based agencies may support the recycling of various items. For example, printer cartridges can be sent to Planet Ark for recycling via a drop box at the post office, although this service appears to be available only intermittently. Mobile phones have been accepted for recycling at a local primary school, but for a limited period.

Council will continue to seek opportunities to encourage greater participation in recycling programs through diverse avenues, for example the promotion of 'worm farming' using

shredded waste paper and household food waste and the installation of informative signage explaining the value of fish offal disposal systems at Walpole and Windy Harbour.

Another avenue to reducing pressure on raw materials is to substitute some currently-used products for products which are recyclable; photocopy paper being perhaps the most obvious example. At present Council purchases 'carbon neutral' copy paper (rather than recycled copy paper) because recycled paper typically results in significantly more photocopier jams. However, there is great potential to reduce pressure on natural resources more broadly by then ensuring that the paper waste due to Council operations is, where possible, diverted to recycling rather than landfill.

Footnote:

At present there are doubts around the viability of the market for glass cullet (crushed glass ready for melting and reuse) in Western Australia. Because of high transport costs (it is almost entirely processed in the eastern states) and deteriorating market conditions, the major contractor O-I Australia (ACI Australia Pty Ltd) still accepts suitable glass but will no longer pay for it. However, there is belief in the industry that O-I will eventually not accept any cullet in WA.

For now, however, Council's recycling contractor, Warren Blackwood Waste, can still transport cullet to Perth for disposal but will receive no payment for it and must bear the costs of transport. This puts the productive recycling of glass in jeopardy.

However, in the year to 30 June 2012, over 285 t of glass was recycled from the Shire of Manjimup*. The community sees glass as the 'flagship' of recycling and any suggestion that collected glass might be returned to landfill could undermine community willingness to participate in the yellow-lid recycling bin program.

It will be important for Council to keep households informed and motivated to recycle, while also working through WALGA to have container deposit legislation introduced in Western Australia (which would inject greater value into the recycled glass market). Council could also look for other markets, closer to home, for cullet (e.g. in concrete products manufacture).

**** (figure from Shire of Manjimup Waste Management Officer, 07/01/13)***

Council will consider how to cost effectively:

- (a) encourage and provide more opportunities for recycling, and***
- (b) increase the use of recyclable products.***

5 (a) encourage and provide more opportunities for recycling

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • kerbside collection of yellow-lid recycling bins; • recyclable material acceptance facilities at Manjimup landfill site and at Northcliffe, Pemberton & Walpole waste transfer stations; • fish offal is processed at Walpole waste transfer station.
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • Council consider charging rural rate payers a levy in their rates which covers charges for drop-off of recyclable materials, the payment of which will be an incentive for rural ratepayers to recycle material through Council landfill site or waste transfer stations rather than treat it as rubbish; • Council consider a 50% reduction in the rates levy for rubbish collection for townsite households so that these households only have their rubbish bin emptied every second week (and therefore potentially send only half the previous amount of household rubbish to landfill); • improve recyclable deposit facilities at all sites to encourage more recycling (e.g. retaining walls to provide for top-loading); • promote greater uptake of 'worm farming' option for processing food scraps (currently 30% of wastes); • procure chippers to process green waste at transfer stations; • provide more receptacles for collection of spent (non-rechargeable) torch batteries and forward these to appropriate recycling agency; • use extracts from fish offal (from disposal systems at Walpole & Windy Harbour) for Council and community gardens or offer it for agricultural use; • produce mulch for use on Council and community gardens and for sale to the public (sourced from chipped green waste at landfill site and waste transfer stations), sales proceeds to be used to offset costs of mulch purchased for Council gardens.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • volume of recyclable materials collected increases at a greater rate than other waste materials; • range of recyclable materials collected increases; • annual volume of landfill is reduced; • cost to Council for mulch used in the maintenance of gardens is reduced.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • WA Waste Authority Community Grants Scheme • WA Waste Authority Regional Funding Program • WA Waste Authority Engagement in Action Partnerships

5 (b) increase the use of recyclable products	
PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none"> • photocopy paper used by Council operations is recyclable (and 'carbon neutral'); • shredded waste paper is reused or made available for reuse in one form or another (e.g. for worm farms, as mulch, for compost) • printer cartridges are collected for recycling; • old IT equipment (e-waste) is sent to recycling when replaced.
POSSIBLE ACTIONS	<ul style="list-style-type: none"> • provide more paper shredders for Council offices; • implement collection of shredded paper by recycling agency; • develop baseline data for proportions of Council's photocopy paper being sent to landfill and to recycling annually; • explore recyclability of Council-owned office equipment (e.g. IT equipment); • increase the weight of recyclability considerations in the Shire of Manjimup corporate policy 2.3.5 <u>Purchasing</u>; • provide links on the Shire website to information on using recyclable products.
MEASURES OF SUCCESS	<ul style="list-style-type: none"> • proportion of photocopy paper previously sent to landfill by Council is reduced and proportion recycled is increased; • there is greater consideration of recyclability in making purchasing decisions.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none"> • WA Waste Authority Community Grants Scheme • WA Waste Authority Regional Funding Program

6. Community

In the 2011 Community Satisfaction survey, the community of the Shire of Manjimup placed reasonably high importance in the various functions of environmental management which Council undertakes, with fuel hazard reduction being seen as most important [*refer Background, page 1*]. At the same time, the Council's performance of these functions was perceived by the community as reasonably low, with Council's use of renewable energy alternatives seen as the lowest.

This strategy, then, engages Council with the community because (a) the community says environmental management and sustainability are important and (b) Council needs the community to see where action is being undertaken to address historic shortcomings.

There are other reasons for engaging the community. The challenges facing Council in undertaking to improve the way in which it addresses environmental and sustainability issues are vast enough to require the assistance of the community where it is willingly offered or can be supported. There will be interest and specific expertise within the community – among its individuals and its interest groups – which augments that of Council and its officers. Finally, the people of the Shire of Manjimup are an integral part of its environment and its future and as such have a vested interest in its environmentally sustainable management.

Productive consultation with the broader community on sensitive matters such as environmental management, climate change and sustainability can be a slow process. One avenue to maximising efficiency of consultation is to engage with the various local community groups which have a particular environmental or sustainability focus. Such groups include the Warren District Renewable Energy Group (WDREG), the Warren Catchments Council (WCC) and the Manjimup Weed Action Group (MWAG). There are others. Council already has an ongoing presence on some.

The schools of the Shire of Manjimup are generally very enthusiastic to participate in educational programs with an environmental or sustainability focus. Typically the schools welcome support, either financial or through provision of facilitators and opportunity. Current examples of such programs and opportunities are the Council-sponsored Warren Ribbons of Blue water quality program (through the WCC) and the ongoing Mottram Street Reserve streamline rehabilitation program. The Strategy notes that the provision of hands-on learning opportunities tends to result in enhanced community engagement.

Council will either directly with individuals or through local schools and organisations, engage with the broader community on:

- (a) policy development, and**
- (b) education programs**

6 (a) develop policy

PROGRAMS ALREADY IN PLACE	<ul style="list-style-type: none">• Council represented (by Councillor) as an Agency Member of the Warren Catchments Council Inc committee;• Council represented (by Officer) on the Manjimup Weed Action Group;• Council represented (by CEO) as independent Chair of the Warren Donnelly post-blackberry restoration project oversight committee (WCC Biodiversity Fund project 2012 – 17).
POSSIBLE ACTIONS	<ul style="list-style-type: none">• develop a definitive list of the various community groups (and their contact details) in the Shire of Manjimup established for environmental or sustainability objectives;• maintain communication with each group and consider appropriate means through which to support them;• seek formal membership of the Warren Districts Renewable Energy Group;• ensure Council communications (including website, newsletters etc) to the broader community provide for engagement on matters pertaining to environmental management, climate change and sustainability;• invite input from individuals and relevant community groups when developing or reviewing policies which include an environmental management, climate change or sustainability component;• develop an 'environmental & sustainability scorecard' for Council's annual performance, available to the public.
MEASURES OF SUCCESS	<ul style="list-style-type: none">• Council believes it is more comprehensively informed than previously of Shire residents' views on environmental management, climate change and sustainability;• Shire residents believe that Council responds effectively to their input on matters of environmental management, climate change and sustainability;• future customer satisfaction surveys reflect a perception among rate payers of improved performance by Council of its environmental management and sustainability functions.
POTENTIAL SOURCES OF FUNDING	<ul style="list-style-type: none">• State NRM Office community grants program• Caring for our Country program (Commonwealth)• South West Catchments Council Inc Groundworks program• Coastwest grants program• Lotterywest?

6 (b) provide or support education programs

<p>PROGRAMS ALREADY IN PLACE</p>	<ul style="list-style-type: none"> • Warren Ribbons of Blue water quality program (through WCC) • Mottram Street Reserve streamline rehabilitation program
<p>POSSIBLE ACTIONS</p>	<ul style="list-style-type: none"> • support 'junior landcare' group or programs in schools; • facilitate a biennial 'youth regional environmental' conference or expo; • promote or support the principles of sustainability and change to more sustainable practices in the community; • create a local walking & cycling trails network to provide rewarding active experience of Council and other reserves; • install interpretive signage where appropriate to inform the community of Council's role in environmental management.
<p>MEASURES OF SUCCESS</p>	<ul style="list-style-type: none"> • young people of Shire have increased opportunity to take part in environmental projects and programs; • in the view of the community Council is closely linked with increased opportunities for participation by young people in action-focussed environmental programs; • the broader community's awareness of Council's role in environmental management is enhanced.
<p>POTENTIAL SOURCES OF FUNDING</p>	<ul style="list-style-type: none"> • State NRM Office community grants program • Caring for our Country program (Commonwealth) • South West Catchments Council Groundworks program • Coastwest grants program • Lotterywest?

CONCLUSION

Clearly, there will always be conflicts between economic growth, community needs and environmental protection.

In a growing community, sustainability is about the pursuit of a dynamic balance which accommodates the economic and ecological needs of the present and future community.

In 1987 the United Nations Brundtland Report defined sustainable development as:

development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

- The region's environmental assets are among the factors frequently put forward as reason to visit or move to (or indeed remain living in) the Shire of Manjimup.** A growing population places additional pressures on these assets, as will the effects of a changing climate, according to current modelling. Further there is an increasing awareness of the need to live sustainably so that future generations will not be penalised by over-consumption by the present generation.
- The values of individuals and groups in the broader community will differ and this diversity (which, as a Shire, we celebrate) must be given due consideration when developing policy.** As an example, for some Shire reserves supporters of biodiversity conservation and supporters of fuel hazard reduction may have contradictory views but careful consultation and good communication may result in an action plan which both parties can accept.
- The local resource needs of a growing Shire population must be met, although with due consideration to sustainability.** Conversely, any plan to conserve biodiversity should also take into account the population's need to access resources such as water, energy, minerals, timber, agricultural land and residential, commercial, industrial and municipal space.
- Council can provide transformative policy-driven 'top-down' adaptation to bring about change through its own leadership** in implementing an action-focussed strategy to address issues of environmental management, climate change and sustainability **while also promoting incremental change by supporting community-driven 'ground-up' action.**