

**CITY OF YARRA**  
**GREENHOUSE ACTION PLAN**  
**2004**

## **FOREWORD**

The City of Yarra is committed to improving its natural and built environment for residents and visitors. Actions for the local environment are undertaken within the context of regional and global environmental concerns through the Yarra Environment Strategy. The Greenhouse Action Plan focuses on a key global environmental concern, namely, climate change.

The Yarra Greenhouse Action Plan was developed as part of the City's participation in the Cities for Climate Protection™ (CCP™) program. Funding assistance from the Australian Greenhouse Office enabled development of the plan, which is a comprehensive document to guide future activities to help reduce greenhouse gas emissions both in the Council and across the whole of the Yarra community.

Everyone has a role in reducing greenhouse gas emissions. What Yarra does at a local level will impact on global climate change. This will involve Council changing the way its manages its own operations, as well as forming partnerships with business and industry, environmental and governance organisations, community networks, and individual residents to work towards a better future.

The Council looks forward to working with you on this challenge and hopes you find this Yarra Greenhouse Action Plan a useful document.

Cr Kay Meadows

Mayor

## **EXECUTIVE SUMMARY**

The combustion of fossil fuels for electricity, heat and transportation, and the decomposition of organic waste are releasing greenhouse gas emissions. They are contributing to climate change. The CSIRO predicts that Victoria will experience changes in the frequency and severity of rainfall and temperature extremes. The effects of this will flow on into other aspects of our lives.

The seriousness of climate change has been recognised at all political levels. For example, at the international level through the United Nations Framework Convention on Climate Change and at the national and state levels through greenhouse strategies. At the local level, the Cities for Climate Protection (CCP™) program, run by the International Council for Local Environment Initiatives, has proved to be a successful means for addressing climate change.

The CCP™ program has 5 milestones: complete an inventory of greenhouse emissions for council and the community; set reduction targets; develop a greenhouse action plan; implement the plan; and, monitor and review emissions and the implementation of the plan. This document is the City of Yarra's Greenhouse Action Plan for Milestone 3 of the program.

The City of Yarra's greenhouse inventory shows that emissions from all community sectors, namely residential, commercial, industrial and transport, are expected to increase significantly. Within Council, streetlights and operation of buildings each account for just under half of Council's emissions, with the vehicle fleet then waste making up the remainder. Council can directly address its own emissions, but as the community's emissions are around 100 times greater they need particular focus, despite being more difficult to influence.

By implementing this plan, the City of Yarra hopes to act as a role model for the community by abating emissions, educating staff and the community on greenhouse issues, advocating on behalf of the community, and demonstrating that reduction of emissions is possible.

The plan attempts to balance those actions that are easy to implement against those that target the major sources of emissions. Actions will be incorporated into the annual planning cycle, ensuring that Council divisions must report on the progress of actions they are responsible for. Actions will be reviewed and updated annually, with a comprehensive review of the Greenhouse Action Plan to occur in 2007 / 2008. The action plan will therefore be a dynamic document, taking into consideration changes in attitudes, technology, and means for addressing climate change.

Overall, the City of Yarra intends to make a valuable and ongoing contribution to addressing climate change. This action plan represents a significant step towards this.

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# 1 BACKGROUND TO CLIMATE CHANGE

Climate change is a global issue that has gained prominence in recent years, yet there is still some confusion about its causes and potential impacts. This section provides a background to climate change and the projected impacts, highlighting the need for action. It is followed by a summary of the international, national, and state responses to climate change, which provide a context for the City of Yarra's actions presented in later sections.

## 1.1 The Greenhouse Effect, the *Enhanced* Greenhouse Effect and climate change.

The Greenhouse Effect is the name for the natural climatic system that warms the earth to a habitable temperature. Put simply, radiation from the sun heats up the earth, which is insulated by the layer of gases surrounding it known as the atmosphere. The *Enhanced* Greenhouse Effect, is the increased insulation of the earth as a result of a significant increase in so-called greenhouse gases in the atmosphere since about 1900. This is leading to an increase in the average global surface temperature and to climate change<sup>1</sup> (refer to Figure 1).

There are many gases that are described as “greenhouse gases”, the most abundant of which is water vapour. However, human activities have little direct impact on the amount of water vapour in the atmosphere. The most abundant greenhouse gases associated with human activity are carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>)<sup>2</sup>. Human activities resulting in the release of carbon dioxide include combustion of fossil fuels such as: coal and gas for electricity; petrol, diesel and gas for transport; and, wood and gas for heating. Human activities resulting in the release of methane include the disposal and consequent decomposition of organic materials such as paper, wood and food.

Many people confuse the enhanced greenhouse effect and the hole in the ozone layer<sup>3</sup>. They are two separate atmospheric issues, although some gases are classed as both greenhouse gases and ozone-depleting gases<sup>4</sup>.

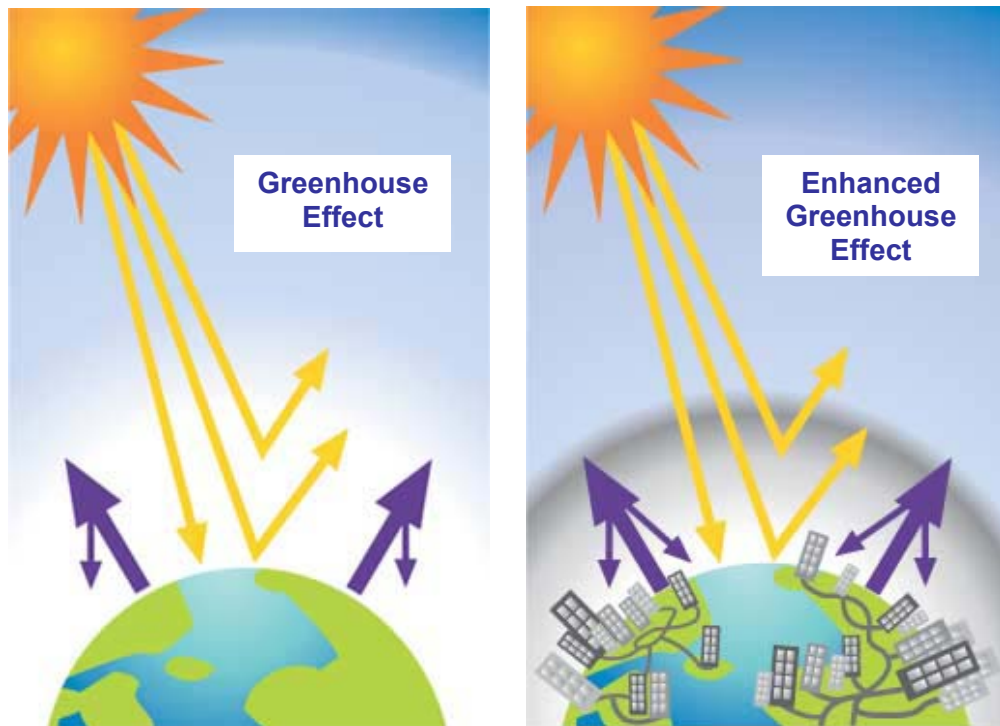
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<sup>1</sup> [www.greenhouse.gov.au/science/faq/page5.html](http://www.greenhouse.gov.au/science/faq/page5.html) and [www.greenhouse.gov.au/science/faq/page6.html](http://www.greenhouse.gov.au/science/faq/page6.html)

<sup>2</sup> [www.greenhouse.gov.au/science/faq/page5.html](http://www.greenhouse.gov.au/science/faq/page5.html)

<sup>3</sup> [www.greenhouse.gov.au/coolcommunities/publications/research.html](http://www.greenhouse.gov.au/coolcommunities/publications/research.html)

<sup>4</sup> [www.greenhouse.gov.au/science/faq/page15a.html](http://www.greenhouse.gov.au/science/faq/page15a.html)



**Figure 1 – The Greenhouse and Enhanced Greenhouse effects<sup>5</sup>**

Once released, greenhouse gases do not necessarily stay in the atmosphere. Water vapour is constantly on the move falling as rain or snow, running into rivers, lakes and the ocean, before evaporating into the air again. This is known as the hydrological cycle<sup>6</sup>. Similarly, carbon, in the form of carbon dioxide and methane, is part of the carbon cycle. Gases are released from various human and natural sources into the atmosphere; some are then absorbed by the ocean and plant life and eventually released again. Some carbon is also held in the ground in the form of fossil fuels. Figure 2 shows this pictorially.

The enhanced greenhouse effect is therefore the result of an imbalance in the rate at which greenhouse gases are released and absorbed. To illustrate the extent of this imbalance, the Federal Minister for Environment and Heritage, Dr David Kemp, has stated that "... on the best science currently available, [we need] to reduce global emissions by some 60 per cent by the end of the century."<sup>7</sup> Actions that reduce the enhanced greenhouse effect are those that reduce the release of greenhouse gases into the atmosphere and those that increase absorption. Actions that the City of Yarra has taken and will take will be discussed in Section 3.

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<sup>5</sup> [www.greenhouse.gov.au/science/faq/page5.html](http://www.greenhouse.gov.au/science/faq/page5.html)

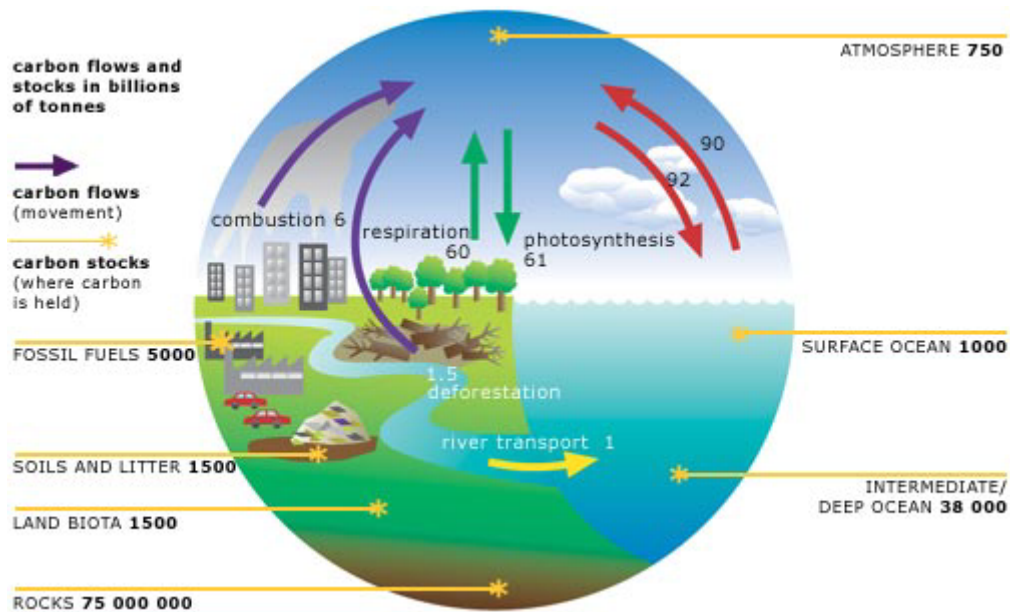


Figure 2 – The Carbon Cycle<sup>8</sup>

## 1.2 Projected impacts of climate change

While some uncertainty still remains, climate modelling by various scientific bodies indicates that we can expect changes to the climate we are used to.

The Intergovernmental Panel on Climate Change (IPCC) estimates that, by 2100, without efforts to reduce greenhouse gas emissions, average global surface air temperatures will be between 1.4°C and 5.8°C higher than temperatures recorded in 1990<sup>9</sup>. Closer to home, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) projects that average annual temperature in Victoria will rise by up to 1.5°C by 2030 and up to 5°C by 2070 above those in 1990<sup>10</sup>. This may sound like only a small increase, however it should be remembered that this is the average and that the increases will not be evenly distributed. For example, Melbourne, which typically has 8 days over 35°C per year, is expected to have between 9 and 12 such days by 2030, and 10 to 20 in 2070. Other examples of projected impacts can be found at [www.greenhouse.vic.gov.au/climatechange.pdf](http://www.greenhouse.vic.gov.au/climatechange.pdf).

<sup>6</sup> [www.waterquality.crc.org.au/consumers/Consumersp4.htm#T1](http://www.waterquality.crc.org.au/consumers/Consumersp4.htm#T1)

<sup>7</sup> [www.deh.gov.au/minister/env/2003/sp28feb03.html](http://www.deh.gov.au/minister/env/2003/sp28feb03.html)

<sup>8</sup> [www.greenhouse.gov.au/science/faq/page9.html](http://www.greenhouse.gov.au/science/faq/page9.html)

<sup>9</sup> [www.ipcc.ch/pub/wg2SPMfinal.pdf](http://www.ipcc.ch/pub/wg2SPMfinal.pdf)

<sup>10</sup> [www.dar.csiro.au/publications/projections2001.pdf](http://www.dar.csiro.au/publications/projections2001.pdf)

In addition, a variety of changes to climate are expected which will have consequences for human activities and natural ecosystems. Victoria is expected to receive less rainfall, although extreme rainfall events may increase in both intensity and frequency in some regions<sup>11</sup>. The number of frosty days is likely to decrease and alpine regions are expected to shrink<sup>12</sup>.

In short, climate change has the potential to affect every aspect of our lives. Although adaptation may reduce these impacts to some extent, it should be thought of as complementary rather than preferable to prevention<sup>13</sup>.

### **1.3 International Response to Climate Change**

In 1988, growing international concern over climate change saw the World Meteorological Organisation (WMO) and United Nations Environment Program (UNEP) establish the Intergovernmental Panel on Climate Change (IPCC). The IPCC published extensive reports in 1990, 1996 and in 2001, which have been used in discussions and decision-making regarding the enhanced greenhouse effect<sup>14</sup>.

The United Nations Framework Convention on Climate Change (UNFCCC), adopted by the UN in 1992, provides the overall policy framework for addressing climate change. The objective of the Convention is to achieve:

*“...stabilisation of the greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.”<sup>15</sup>*

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<sup>11</sup> [www.greenhouse.vic.gov.au/impacts.htm](http://www.greenhouse.vic.gov.au/impacts.htm)

<sup>12</sup> [www.greenhouse.vic.gov.au/unclimch.pdf](http://www.greenhouse.vic.gov.au/unclimch.pdf)

<sup>13</sup> [www.greenhouse.vic.gov.au/science/impacts/overview/pubs/overview4.pdf](http://www.greenhouse.vic.gov.au/science/impacts/overview/pubs/overview4.pdf)

<sup>14</sup> [www.ipcc.ch/about/about.htm](http://www.ipcc.ch/about/about.htm)

<sup>15</sup> <http://unfccc.int/resource/docs/convkp/conveng.pdf>

To achieve this objective, the Convention contains a number of principles to guide the Parties' actions and a series of general commitments for Parties, including requirements to<sup>16</sup>:

- Prepare national inventories of greenhouse gas emissions and sinks;
- Develop, implement and report on national programs to mitigate climate change and develop adaptation strategies;
- Cooperate in the development and transfer of technologies, practices and processes that control, reduce or prevent the emissions of greenhouse gases; and
- Take climate change considerations into account in relevant social, economic and environmental policies and actions.

The countries party to the convention have met regularly since the 1992 Rio De Janiero Earth Summit to determine the details of the Convention's implementation. These meetings are known as the Conference of Parties (COP). The COP1 was held in Berlin in early 1995, while the most recent meeting, COP9, was held in Milan in December 2003<sup>17</sup>.

In December 1997, COP3 in Kyoto agreed to the Kyoto Protocol, which requires developed countries to collectively reduce their greenhouse gas emissions by at least 5% below 1990 levels by the period 2008-2012. Within this target, individual countries have agreed to differentiated targets based on economic circumstances and differing capacities to make emissions reductions. Australia's target is to reduce it's greenhouse gas emissions in the target period to no more than 8% above 1990 levels. In achieving their targets, countries can take account of reductions in emissions and establishment of sinks to absorb greenhouse gases<sup>18</sup>.

The federal Australian government has stated that it will not ratify the Protocol until developing nations are included<sup>19</sup>. The Kyoto Protocol will enter into force and become legally binding after it has been ratified by at least 55 parties to the Convention, including industrialised countries representing at least 55% of the total 1990 CO<sub>2</sub>-equivalent emissions from this group. As of November 2003, over 100 countries had signed the protocol, however they represent only 44.2%

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<sup>16</sup> <http://unfccc.int/resource/docs/convkp/conveng.pdf>

<sup>17</sup> <http://unfccc.int/index.html>

<sup>18</sup> <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

<sup>19</sup> [www.deh.gov.au/minister/env/2002/mr19nov202.html](http://www.deh.gov.au/minister/env/2002/mr19nov202.html)

of emissions. For the Protocol to come into force, either the Russian Federation or the USA must sign on<sup>20</sup>. The USA has stated that it is opposed to the protocol in its current form<sup>21</sup>.

#### **1.4 Australia's Response to Climate Change**

Although Australia represents only a small proportion of global greenhouse gas emissions, our per capita emissions are the highest in the world<sup>22</sup>. This is due to 90% of Australia's electricity being generated by coal fired power stations, extensive land clearing, a large agricultural base, high transport use and energy intensive industries and export products. Despite not signing the Kyoto Protocol, Australia is working towards its Kyoto target, in accordance with its current major policy initiative for responding to climate change, the National Greenhouse Strategy (1998)<sup>23</sup>.

Recent analysis suggests that Australia's average emissions between 2008 and 2012 will be just over 110% of 1990 emissions<sup>24</sup>. So while the target of 108% is close, further work is still required.

#### **1.5 Victoria's Response to Climate Change**

In 2002, the Victorian Government released the *Victorian Greenhouse Strategy (VGS)*, which outlines a range of actions for combating climate change<sup>25</sup>. The goals of the VGS are to build community awareness and understanding, limit Victoria's emissions, position Victoria for a carbon constrained economy, and develop understanding of impacts and relevant adaptation actions<sup>26</sup>. A comprehensive range of actions is proposed to achieve these goals, spread across 10 modules (see Box 1).

The strategy speaks highly of the Cities for Climate Protection™ (CCP™) program and states that, "Local government has a responsibility to ensure that it makes wise use of resources and can provide a model of greenhouse best practice for local businesses and households."<sup>27</sup>

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<sup>20</sup> <http://unfccc.int/resource/kpthermo.html>

<sup>21</sup> [www.whitehouse.gov/news/releases/2001/03/20010314.html](http://www.whitehouse.gov/news/releases/2001/03/20010314.html)

<sup>22</sup> [www.tai.org.au/Publications\\_Files/Papers&Sub\\_Files/BP19.pdf](http://www.tai.org.au/Publications_Files/Papers&Sub_Files/BP19.pdf)

<sup>23</sup> [www.ngs.greenhouse.gov.au](http://www.ngs.greenhouse.gov.au)

<sup>24</sup> [www.greenhouse.gov.au/projections/tracking/pubs/tracking2003.pdf](http://www.greenhouse.gov.au/projections/tracking/pubs/tracking2003.pdf)

<sup>25</sup> [www.greenhouse.vic.gov.au/strategy/index.htm](http://www.greenhouse.vic.gov.au/strategy/index.htm)

<sup>26</sup> [www.greenhouse.vic.gov.au/strategy/parta-3.htm](http://www.greenhouse.vic.gov.au/strategy/parta-3.htm)

<sup>27</sup> [www.greenhouse.vic.gov.au/strategy/partb-5.htm#1](http://www.greenhouse.vic.gov.au/strategy/partb-5.htm#1)

### **Box 1 – Modules in the Victorian Greenhouse Strategy<sup>28</sup>**

1. Government leadership
2. Energy supply
3. Greenhouse best practice in Victorian industry and commerce
4. Reducing greenhouse gas emissions through improved management of wastes
5. Working with local government and the community
6. Greenhouse friendly households
7. Influencing travel choices and behaviour
8. Greenhouse sinks and natural resource management
9. Supporting greenhouse best practice in agriculture
10. Climate change impacts and adaptation

#### **1.6 Local government response - The Cities for Climate Protection Australian Campaign**

The Cities for Climate Protection™ (CCP™) was conceived in January 1993 at the First Municipal Leaders Summit on Climate Change, held at the United Nations in New York. The International Council for Local Environmental Initiatives (ICLEI) initiated the CCP™ campaign in response to the widespread scientific agreement of the enhanced greenhouse effect.

Municipalities are the focus of the CCP™ program as it is estimated that Local Government can influence over 50% of greenhouse gas emissions. Through planning schemes, local laws, community programs and management of their own operations, councils can directly influence and in many cases control activities that are the source of greenhouse gases.

CCP™ membership requires a resolution adopted by Council and a commitment to meet the 5 Milestones in the program. The 5 Milestones for councils' to complete under the CCP™ Campaign are:

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<sup>28</sup> [www.greenhouse.vic.gov.au/strategy/partb-intro.htm](http://www.greenhouse.vic.gov.au/strategy/partb-intro.htm)

1. Establish a base year inventory and forecast of greenhouse gas emissions for the corporate and community sectors
2. Set targets for reducing emissions from the corporate and community sectors
3. Develop and adopt a greenhouse action plan
4. Implement the greenhouse action plan
5. Monitor and report on emissions and implementation of the action plan

At the time of writing, 53 Victorian Councils and 187 councils nationally had committed to the CCP™ Campaign and were working through the Milestones. The City of Yarra completed Milestones 1 and 2 during 2003. This action plan enables Yarra to meet the requirements of Milestone 3.

## **2 THE CITY OF YARRA AND ITS GREENHOUSE GAS EMISSIONS**

With increasing certainty of impact predictions and response to climate change occurring at so many levels, it is time for the City of Yarra to play its part. This section describes the municipality, then outlines the processes followed to complete Yarra's greenhouse gas inventory and set reduction targets. Finally it summarises the inventory and the emissions reduction targets.

### **2.1 The City of Yarra**

The City of Yarra is a very diverse area. The land now within the municipality was originally inhabited by the Wurundjeri Aboriginal community and was first settled by Europeans around 1835. It was only in June 1994 that the City of Yarra was created, with a merger of the former Councils of: Collingwood; Richmond; Fitzroy (including the annexed part of Carlton North); and the parts of Alphington and Fairfield south of Heidelberg Road<sup>29</sup>. The City of Yarra is adjacent to Melbourne's Central Business District and many major national tourism and recreational facilities, linked by public and private transport. It is one of the smallest inner metropolitan councils,

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<sup>29</sup> [www.yarracity.vic.gov.au/area/history.asp](http://www.yarracity.vic.gov.au/area/history.asp)

encompassing 19.5 square kilometres, with a population density of 3,563 persons per square kilometre<sup>30</sup>.

This high population density reflects the high proportion of public housing, terrace houses, flats and apartments within the municipality. According to the then Victorian Department of Infrastructure<sup>31</sup>, the population of Yarra in 1996 was estimated to be 67,136 and was projected to rise by 6% to 71,324 by 2010. Yarra's residents come from a wide variety of backgrounds including Vietnamese, Greek, Italian, and Chinese<sup>32</sup>.

The City of Yarra has the largest business base in Victoria outside the Melbourne CBD. It is estimated that 70,000 workers are employed in a range of industries including retailing and wholesaling, manufacturing, and commercial, community and hospitality services. Commercial services, including personal and property services, are the dominant business type, accounting for 32% of all businesses. Yarra's range of shopping and lifestyle strips, including Bridge Road, Smith Street and Brunswick Street, provide an important attraction for Melburnians and tourists. Along with these major retail strips a number of neighbourhood shopping villages serve the needs of their local communities, including Queens Parade, Nicholson Street, St Georges Road and Rathdowne Street<sup>33</sup>. A wide variety of local community festivals in streets and parks play an important part in Yarra's cultural development.

The built form of the municipality consists of a large mixture of inner-urban residential, industrial and commercial buildings. The municipality also boasts an array of natural assets including tracts of natural bushland, creeks, wetlands and the Yarra River. The picturesque Dights Falls are located at the junction of Merri Creek and the Yarra River and have significant Aboriginal and European cultural value. The linear parklands along the Merri Creek provide a range of recreational opportunities in a peaceful setting. Nestled on a bend of the Yarra River lies seven

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<sup>30</sup> [www.yarracity.vic.gov.au/area/01profile.asp](http://www.yarracity.vic.gov.au/area/01profile.asp)

<sup>31</sup> Department of Infrastructure (2000) 'Population projections for the City of Yarra', Victorian State Government, Melbourne. The Department of Sustainability and Environment is now responsible for planning and consequently for making population projections. See [www.dse.vic.gov.au/research](http://www.dse.vic.gov.au/research) for more information.

<sup>32</sup> [www.yarracity.vic.gov.au/area/01profile.asp](http://www.yarracity.vic.gov.au/area/01profile.asp)

<sup>33</sup> 2001-2002 Annual report

hectares of paddocks, gardens, rustic buildings and shady trees that make up the Collingwood Children's Farm, a great community resource for residents and visitors<sup>34</sup>.

## **2.2 Compilation of Yarra's Greenhouse gas inventory**

To complete Milestone 1 of the CCP<sup>TM</sup> program, Council had to produce an inventory of greenhouse gas emissions for a selected base year and a forecast of Business-As-Usual (BAU) emissions for 2010. This was completed during the first half of 2003. In Yarra's case the base years are 1996 for the community and the 2000/2001 financial year for Council. Base years were selected based on availability of data.

For the community, data from various government agencies, such as the Australian Bureau of Statistics, was provided by ICLEI. This was used in conjunction with population data from the then Victorian Department of Infrastructure, as listed in the previous section. For the Council, referred to as 'Corporate' in the inventory, data was obtained from a variety of internal and external sources, including utility suppliers, and council officers responsible for fleet, streetlights and waste. For the base year, 2000/2001, historical data was available. For the forecast year, 2010, some assumptions were required and in the absence of quantifiable change it was decided that no change would be assumed. Given the uncertainty regarding future developments within council, no change was a common assumption. A summary of the inventory is presented and discussed in Section 2.4.

## **2.3 Setting Yarra's Reduction targets**

To complete Milestone 2 of the CCP<sup>TM</sup> program, Council had to set greenhouse gas reduction targets for both the community and corporate segments, expressed as percentages of the base year emissions. In deciding these targets, Council considered a range of factors including:

- Expected population growth;
- Timeframes over which the targets apply; and
- Targets of other councils.

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<sup>34</sup> 2001-2002 Annual report

Council also discussed the community target with the Environment Community Advisory Committee (ECAC). It was recognised that although Council cannot control the activities of the local community and the associated environmental impact, it can influence actions across different parts of the community sector. While the Australian Government has acknowledged that a reduction of 60% of greenhouse gas emissions is required by the end of the century to stabilise climate change<sup>35</sup>, such a target is unrealistic in the short term. This is because society's dependence on fossil fuels is reinforced at many levels such as laws, government policy, scientific and engineering knowledge, community expectations about price and performance, and investment practices.

ECAC recommended that Council adopt a goal to reduce greenhouse emissions to 20% below 1996 levels by the year 2010 for the community sector. This is in line with numerous neighbouring councils. Internal consultations regarding the target for council emissions resulted in a recommendation for a 25% reduction below 2000/2001 levels by 2010. Council adopted both targets in November 2003.

## **2.4 Yarra's Inventory summary and targets**

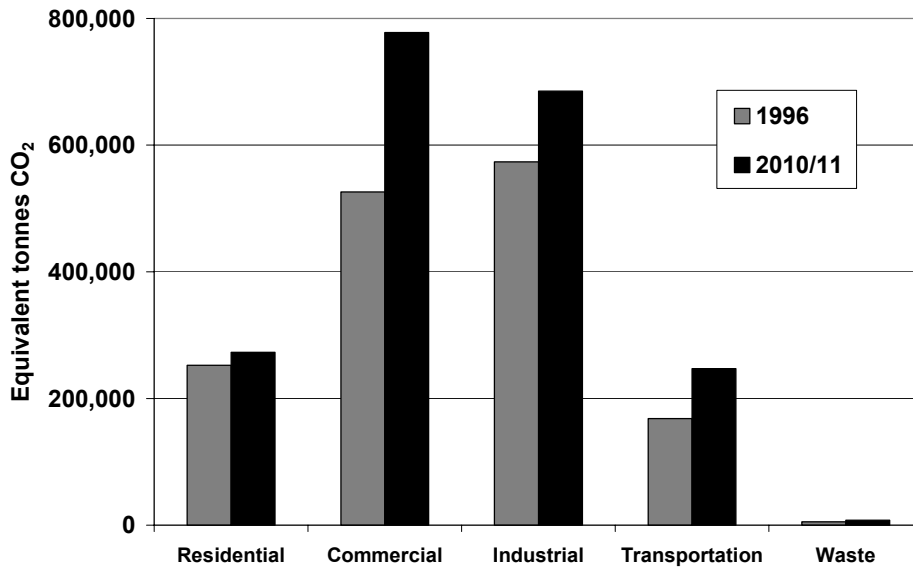
The following summary of the greenhouse gas inventory gives emissions in terms of tonnes of CO<sub>2</sub>-equivalent or CO<sub>2</sub>-e. Each greenhouse gas has its own global warming potential (GWP) or insulating effect on the earth. For example, methane has a GWP 21 times that of CO<sub>2</sub>. Therefore, with regards to global warming, releasing 1 tonne of methane would be equivalent to releasing 21 tonnes of CO<sub>2</sub>. CO<sub>2</sub> is used as the reference because it is the most prevalent greenhouse gas released as a result of human activity.

### ***Community***

In 1996, the total greenhouse emissions from the community were 1,525,649 tonnes CO<sub>2</sub>-e. A breakdown of the community's greenhouse gas emissions by sector in 1996 and the Business-as-Usual (BAU) forecast is presented in Figure 3.

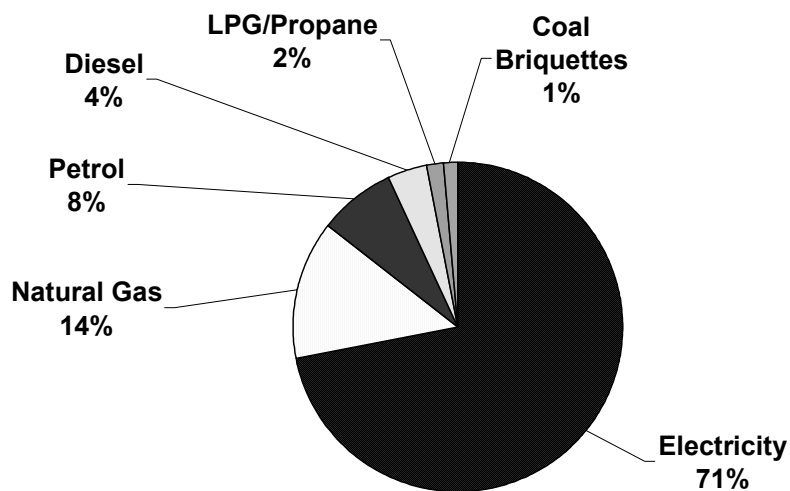
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<sup>35</sup> [www.deh.gov.au/minister/env/2003/sp28feb03.html](http://www.deh.gov.au/minister/env/2003/sp28feb03.html)



**Figure 3 - Community base year (1996) and Business as Usual forecast year (2010) emissions**

It can be seen that the largest growth in emissions is expected in the commercial sector, followed by industrial and transportation. As aggregated data was used more specific comments cannot be made about these trends. However, presenting the base year data by fuel source, as shown in Figure 4, does provide some further insight. Electricity is by far the largest fuel source, followed by natural gas.



**Figure 4 – Community base year (1996) emissions by fuel source**

## **Corporate**

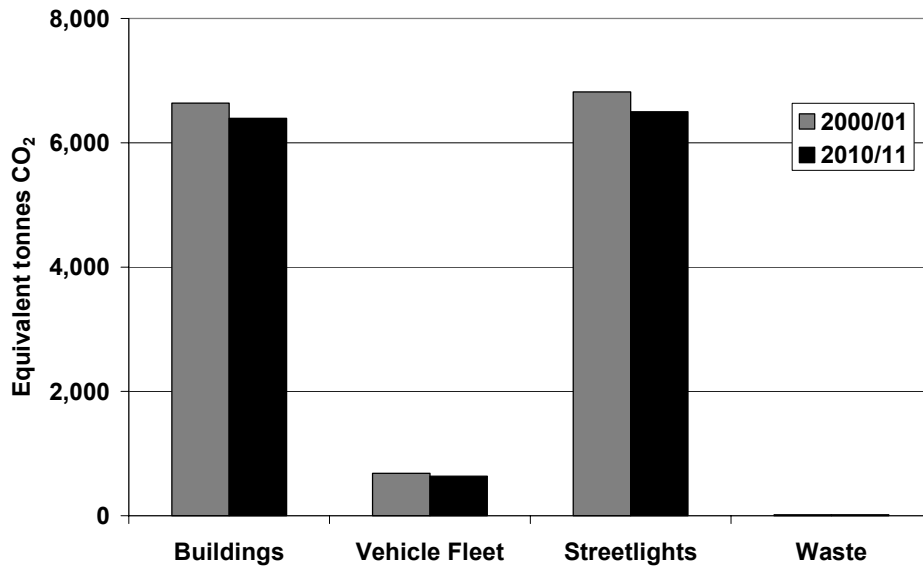
In the 2000/2001 financial year, the total greenhouse emissions from Council's activities were 14,150 tonnes CO<sub>2</sub>-e, or approximately 1% of the community's base year emissions<sup>36</sup>. A breakdown of the corporate greenhouse gas emissions by sector in 2000/2001 and the Business-as-Usual (BAU) forecast is presented in Figure 5. Buildings and streetlights are the major sources of greenhouse gas emissions in council, with vehicles then waste<sup>37</sup> making up the remainder. Within the buildings sector, the town halls and the swimming pools at Richmond, Collingwood and Fitzroy were by far the largest individual sources, each contributing between 8% and 20% towards the buildings total. Together they contributed just over 80% of the buildings total.

As noted previously, when calculating the forecasts no change in energy consumption was assumed in the absence of quantifiable information. The result, as Figure 5 shows, is that the forecast emissions are lower than the base year. This is due to expected changes in electricity generation, with increasing use of gas and renewables anticipated. These fuels result in fewer emissions per unit of energy compared to coal; therefore Council's emissions are likely to decrease despite using the same amount of energy. However, this does not justify complacency. Aside from emissions reduction being our environmental responsibility, there will be financial benefits from many actions that reduce greenhouse emissions.

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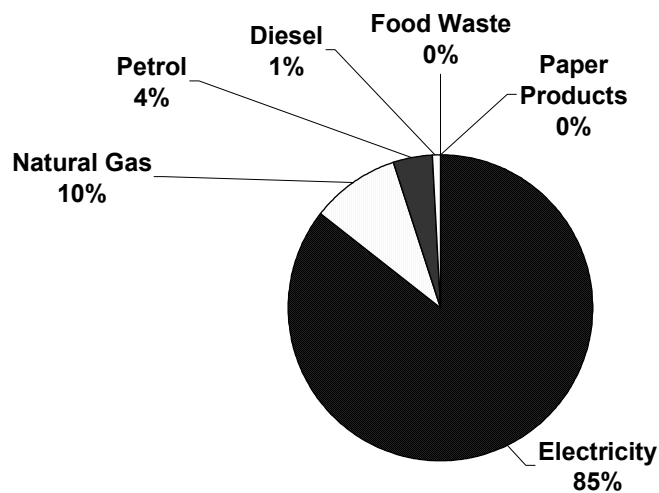
<sup>36</sup> Note that the corporate and community segments have different base years, so this figure should be seen as indicative only.

<sup>37</sup> Although not visible in the figure, waste does contribute to Yarra's greenhouse gas emissions.



**Figure 5 – Council base year (2000/01) and forecast emissions (2010)**

As it was for the community, electricity was the largest source of emissions by fuel, followed by natural gas (see Figure 6). This is due to the extensive use of electricity for street lighting and in council buildings, particularly those buildings noted above.



**Figure 6 – Council base year (2000/01) emissions by fuel source<sup>38</sup>**

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<sup>38</sup> Food and paper waste have been shown because they represent some emissions, though less than 0.5%.

The targets for the community and council of 20% and 25% reductions from base years were presented earlier. Table 1 shows what these percentages translate to in annual tonnes of CO<sub>2</sub>-equivalent.

**Table 1 – Greenhouse gas emission reduction targets (tonnes CO<sub>2</sub>-equivalent)**

	Base year and emissions		Target year and emissions		Reduction Targets
Community	1996	1,525,649	2010	1,220,519	305,130
Corporate	2000/2001	14,150	2010	10,613	3,538

The reduction target for the community is equivalent to taking about 71,000 cars off the road<sup>39</sup> or planting about 460,000 trees<sup>40</sup>. The reduction target for the Council is equivalent to sourcing just over 50% of street lighting supply from Green Power, or closing the 3 leisure centres<sup>41</sup>. Please note that these examples are not suggested actions. They are only included to make the targets more tangible.

### **3 CITY OF YARRA’S PLAN FOR GREENHOUSE GAS REDUCTION**

The City of Yarra is a contributor to the enhanced greenhouse effect. As such, it must be prepared to take responsibility for its impact, as so many other Councils have done by addressing the impacts of their own areas. This section begins with the objectives of the plan, a summary of existing actions, and the plan development process. It then concludes with the proposed actions, which are the key element of Yarra’s greenhouse action plan.

#### **3.1 Objectives of the Greenhouse Action Plan**

The City of Yarra’s commitment to the environment is not restricted to climate change. In November 2000, the Yarra Environment Strategy (Y.E.S.) was adopted which drew together all of Yarra’s environmental activities. The strategy defines an environmental charter, which is the embodiment of Council’s environmental values (See Box 2).

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<sup>39</sup> Based on the average car emitting 4.3 tonnes of CO<sub>2</sub>/year. Figure obtained from [www.greenfleet.com.au/greenfleet/objectives.asp](http://www.greenfleet.com.au/greenfleet/objectives.asp)

<sup>40</sup> Based on a model tree absorbing 0.67 tonnes CO<sub>2</sub>. Figure obtained from [www.greenfleet.com.au/transport/technical.asp](http://www.greenfleet.com.au/transport/technical.asp)

<sup>41</sup> Based on data collected as part of the greenhouse gas inventory.

### **Box 2 – Yarra’s Environmental Charter**

1. A commitment to working with all stakeholders to help achieve ecological, social, cultural and economic sustainability.
2. A recognition of the importance of the environment to the community’s wellbeing.
3. An acknowledgement that we are dependent upon natural systems and processes.
4. A commitment to help reverse, where possible, adverse environmental trends.
5. A recognition that humans share the environment with many other non-human species.
6. A recognition that we must change accepted habits to find more sustainable ways of managing the environment.
7. An acknowledgement that we must strive to improve our understanding of our society and its interaction with the natural environment.

It was with the environmental charter in mind that the objectives of the Greenhouse Action Plan were developed. They can be summarised as to abate, educate, advocate and demonstrate.

More specifically, the City of Yarra will show leadership and act as a role model in pursuit of the following objectives:

- To abate the effects of climate change by reducing greenhouse gas emissions to the targets adopted by Council;
- To educate Council staff and the community on the enhanced greenhouse effect, expected impacts, and ways to reduce the impacts;
- To advocate on behalf of the community on significant greenhouse matters, and;
- To demonstrate to Council staff and the community through practical initiatives that reduction of greenhouse gas emissions can be achieved economically, technically, and socially, helping to sustain Yarra and the wider community.

The need to meet the adopted targets is self-evident. The need to educate and demonstrate must be emphasised because recent research indicates that there is a poor understanding in the

community regarding the enhanced greenhouse effect, its causes and consequences, and opportunities for addressing it<sup>42</sup>. Council's most important long-term role is to educate the community to enable them to respond to the threat of climate change because, "Attempting to change householder behaviour solely through appealing to the public's understanding and concern about the greenhouse effect is unlikely to be effective."<sup>43</sup> Actions for education and demonstration should be complimented by Council advocating for increased greenhouse action at state and federal levels, either as a Council or through partnerships with neighbouring councils, the private sector, relevant organisations, and the community sector.

### **3.2 Relationship to other plans and policies**

The Yarra Environment Strategy is the overarching guide to Council's environmental plans and programs. Elements of the Y.E.S. are incorporated into the City Plan, the statutory corporate plan for the City of Yarra. In particular, for the Key Commitment Area of Urban and Natural Environment, the City Plan states key goals related to greenhouse gas emissions:

- Promote waste minimisation
- Promote alternatives to car use
- Reduce Council's energy use (including join the CCP<sup>TM</sup> program).
- Increase Council's support of renewable energy programs

The City Plan is to be revised in the form of a Council Plan in accordance with legislative changes concerning a 4-year Council term, beginning with the 2005 – 2006 financial year. The new Council Plan is being developed in accordance with the principles of sustainability adopted by Council in late 2003 under a proposal titled Sustaining Yarra, aiming for positive environmental, economic, social and cultural outcomes in Council's many programs. The formal adoption of this greenhouse action plan will enable its proposed actions to be incorporated into the annual planning cycle and ultimately the Council Plan, ensuring that actions are implemented as intended, as officers become publicly accountable for the actions.

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<sup>42</sup> See [www.greenhouse.gov.au/coolcommunities/publications/research.html](http://www.greenhouse.gov.au/coolcommunities/publications/research.html) and [www.greenhouse.gov.au/coolcommunities/literature-review/index.html](http://www.greenhouse.gov.au/coolcommunities/literature-review/index.html)

<sup>43</sup> [www.greenhouse.gov.au/coolcommunities/publications/research.html](http://www.greenhouse.gov.au/coolcommunities/publications/research.html)

Another statutory document of council, the Yarra Planning Scheme, also provides some direction in regards to improving energy efficiency across the municipality. Clause 15.12 of the State planning policy framework, titled Energy Efficiency, states an objective:

*“To encourage land use and development that is consistent with the efficient use of energy and the minimisation of greenhouse gas emissions.”*

The Municipal Strategic Statement of the Local planning policy framework also provides some direction, in clause 21.03-4, Protecting Environmental Assets – A sustainable local environment:

*“Establishing requirements for promoting energy efficient building design and construction and business practices.”*

As the Municipal Strategic Statement and other sections of the Yarra Planning Scheme are being reviewed, opportunities to promote energy efficiency and reduce greenhouse impacts should be identified and incorporated.

### **3.3 What has been done so far?**

While the need for this plan is undeniable, many actions that reduce greenhouse gas emissions have been initiated independently of the CCP™ program since the base years. Actions that reduce greenhouse emissions from Council activities are listed in Table 2. Actions that reduce greenhouse emissions from the community are listed in Table 3. The benefit of the CCP™ program is that it provides Council with a strategic framework for actions that reduce emissions.

In addition, it should be acknowledged that a number of companies within Yarra are also working to reduce greenhouse emissions independently of Council. For example, Amcor Australia Paper Division and Carlton and United Breweries have joined the Australian Greenhouse Office’s Greenhouse Challenge<sup>44</sup>.

To quantify some of these existing actions, the replacement of CRT monitors with LCD screens will save in the order of 17,000 kWh/year of electrical energy and consequently approximately 17 tonnes CO<sub>2</sub>-e/year. Purchasing 15% Green Power for streetlights has resulted in an ongoing

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<sup>44</sup> [www.greenhouse.gov.au/challenge/index.html](http://www.greenhouse.gov.au/challenge/index.html)

saving of just over 1000 tonnes CO<sub>2</sub>-e/year.

**Table 2 – Existing actions that help to reduce greenhouse emissions from Council Activities**

CCP™ Sector	Action	Status	Details
Buildings	Completion of Energy Audits for Richmond and Collingwood Town Halls	Completed	Energy Audits of Richmond and Collingwood Town Halls conducted in 2000 and 2002 respectively, and recommendations for energy efficiency measures made.
	Development of a Utility Management System	Ongoing	Consultants engaged in 2003 to audit Yarra's utility accounts and develop a Utility Management System to enable better tracking of electricity, gas and water usage and associated environmental and financial costs.
	Use of a thermal blanket at Fitzroy pool.	Completed	Thermal blankets placed on 50m and toddler pools at night to reduce heat loss.
	Use of energy efficiency equipment	Completed	Replacement of approximately 140 CRT computer monitors with LCD flat screens, which consume approximately 60% less power.  New PCs switch to power save mode after 20 minutes of inactivity, also turning off monitor.  Printers go into power save mode after ½ an hour. Photocopiers automatically switch off after 1 or 2 hours depending on their size.
Vehicle Fleet	Development of a Green Travel Plan	Completed	A range of recommendations aimed at facilitating non-car travel by staff. Some actions like staff training for bicycle safety, an interim staff bicycle use policy, and provision of Metcards for staff trips have been implemented.
	Fleet management	Ongoing	As new vehicles are purchased, smaller sized vehicles are given preference, and gas vehicles are purchased where practical.
Street Lights	Purchase of 15% Green Power	Ongoing	Following electricity contestability a new contract for energy supply was negotiated (through the Municipal Accredited Purchasing Scheme (MAPS)) with Energex at a substantial saving, and the savings invested in purchasing 15% Green Power. The current contract applies from August 2001 until July 2004. The Y.E.S. states a commitment to continue increasing the percentage of Green Power purchased for council operations including streetlighting (no target specified).

**Table 3 – Existing Council actions that help to reduce greenhouse emissions from the community**

CCP™ Sector	Action	Status	Details
Residential	Partner in Community Power scheme	Ongoing	The City of Yarra, in partnership with the City of Melbourne, City of Darebin, and the Moreland Energy Foundation, formed the Community Power buying group and negotiated with AGL for an agreed low tariff on Green Power for residents.
	Funding local neighbourhood houses	Ongoing	Funds may be used for education programs, including workshops on environmental action like energy efficiency, as has occurred at Burnley neighbourhood house.
Commercial	Established pilot Green Street program in Smith Street	Ongoing	Funds from City West Water and support from City of Yarra are being used to employ consultants Village Green to work with participating traders towards improving their environmental performance, in the areas of waste, water and energy.
	Support to the Sustainable Schools Program	Ongoing subject to annual review	The City of Yarra subsidises three local schools to participate in the Gould League's 'Sustainable Schools' program. In the first year of the program, 2003, one school completed the energy efficiency module.
	Commercial Waste Management Guidelines	Completed	The City of Yarra produced and released a booklet 'Commercial Waste Management Guidelines' which details good waste management practices for commercial businesses.
Industrial	Builders Code of Practice	Completed	The code has been developed to guide builders and developers in good management practices for waste including wood and cardboard, via the requirement for a Waste Management Plan.
Transport	Promote alternatives to car travel	Ongoing	A range of actions work towards this goal, including ongoing improvement of bicycle paths and lanes and parking bays, and continuous improvement of pedestrian safety through road capital works program
	Advocacy for alternatives to car travel	Ongoing	Yarra participates in the development of the Northern Central City Metropolitan Corridor Strategy (NCCCS), the Metropolitan Transport Forum, and the Melbourne 2030 Inner Melbourne Action Plan (with Cities of Melbourne, Port Phillip and Stonnington)
Waste	Waste audits	Ongoing	Consultants have been contracted to perform audits of waste to landfill and of recycling streams, in preparation for the development of a new waste management strategy.
	Composting and worm farming workshops	Completed	The City of Yarra hosts free workshops for residents at public housing estates and other public venues to encourage residents to reduce the volume of organic waste going to landfill.

### 3.4 Plan development principles

The City of Yarra's greenhouse action plan was developed based on principles of consultation and integration. In order to achieve the objectives of the plan, the co-operation of all stakeholders is required. So to encourage stakeholder ownership of the plan, it was developed through extensive consultation with relevant Council officers, managers and directors, and Council's Environment Community Advisory Committee.

As stated in Section 1.1, the majority of greenhouse gas emissions from human activities result from either the use of fossil fuels or the decomposition of organic waste. Table 4 lists generic actions that lead to a reduction of greenhouse gases being released or an increase in gases being absorbed. Treating actions in an isolated manner tends to lead to end-of-pipe solutions, rather than integrated win-win type solutions<sup>45</sup>. To assist with the integration of actions and everyday activities, generic actions higher in Table 4 were encouraged over those lower in the table. For example, reducing energy consumption in Council's buildings is preferable to purchasing Green Power as it is likely to save money, raise staff awareness and action for greenhouse abatement, and reduce greenhouse emissions.

The City of Yarra recognises that in Council's own activities the generic actions in Table 4 can be achieved. However, where there is insufficient information to reduce emissions, gathering more information is a warranted course of action. Many actions have the potential for education and demonstration, but targeted education programs will also add value. Council also has an important role as an advocate for the community on greenhouse related matters.

The City of Yarra also recognises that the implementation of actions will require financial and staff resources. The integration of this plan into the annual planning cycle will ensure that actions are listed in branch Service Plans, so that staff will be required to report on the implementation of actions as a matter of course. Integration into the planning cycle will also mean that staff will be required to quantify the financial resources required for each action when preparing budget bids.

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<sup>45</sup> Pears, A. 2000, 'Technologies and Processes for Ecological Sustainability' in Dunphy, D., Benveniste, J., Griffiths, A., and Sutton, P., *Sustainability – the corporate challenge for the 21<sup>st</sup> century*, Allen & Unwin, St. Leonards, pp. 167-190

**Table 4 – Generic actions to directly reduce greenhouse gas emissions**

<b>Combustion of Fossil Fuels (for electricity, transport and heat)</b>	<b>Decomposition of Organic Waste</b>
Energy/fuel conservation <sup>46</sup>	Reduce amount of organic waste
Energy/fuel efficiency	Increase amount of organic waste recycled
Use of less greenhouse gas intensive fuels	Capture landfill gases <sup>47</sup>
Sequestration of released gases	

### **3.5 Proposed Actions**

The City of Yarra recognises that whilst numerous actions have already been implemented, a more focused approach is required to achieve the objectives detailed in Section 3.1. The actions proposed in this plan attempt to balance ease of implementation and targeting of the major emissions sources. Proposed actions are summarised below in Table 5, Council, and Table 6, Community, with a selection discussed in more detail in Section 4. The full list is not presented in detail to keep this plan concise and readable and because many actions require further investigation, particularly in regards to associated cost implications. It is important to recognise that this list is not fixed and will be continually improved as other actions and technologies become available.

The priority allocated to each action corresponds with annual planning cycles. A priority of High indicates that the action is to be implemented in the 2004-2005 or 2005–2006 year. Actions given a Medium priority will be implemented in 2006–2007, and actions with a Low priority in 2007–2008. A major review of the Action Plan will also occur in this final year (see Section 5).

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<sup>46</sup> The dotted line is to indicate that the distinction between energy conservation and energy efficiency is not always clear.

<sup>47</sup> Not appropriate for Yarra due to the lack of a landfill site.

**Table 5 – Proposed actions that help reduce greenhouse emissions from Council activities**

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
Buildings	Implement and maintain Utility Management System (UMS)	Assets	H	Use the UMS to track utilities usage over time and investigate the potential to reduce energy consumption and cost.
	Install energy efficiency computer equipment	Information Services	H	Continue replacement of CRT monitors with LCD flat screens (about 310 remaining to be changed).
	Develop an ESD code / contract specification for new council buildings and renovations	Environmental Management, Assets	H	Develop an ESD policy that applies to all new council buildings and renovations. Set standards for construction and demolition, energy efficiency, materials selection, water use, internal environment.
	Develop a Materials Policy	Assets	H	Develop a standard building materials policy, which incorporates energy efficiency and environmental impact criteria. Materials include construction materials, lights and fittings, whitegoods, etc. This may be part of the ESD code described in above action.
	Assess the feasibility of implementing energy audits.	Assets	H	Assess the costs and benefits of recommended actions from audits undertaken for Richmond and Collingwood town halls and implement accordingly.
	Consider computerised energy management	Assets	M	Assess the feasibility of developing a computerised building energy system to trend power usage and efficiency of appliances etc for all buildings. Also consider incorporating “power correction factor” systems into energy supply contracts.
	Manage energy supply to Yarra buildings	Assets	H	Evaluate Yarra’s energy supply contract and investigate alternative arrangements such as energy performance contracts, aiming to improve the efficiency of council’s energy consumption.

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
	Investigate the potential for solar hot water heating in leisure centres	Yarra Leisure, Assets	M	Investigate the potential and feasibility of installing solar hot water heating in leisure centres to supplement gas boilers, and report findings and recommendations to Executive.
	Investigate potential for timers in all leisure centres	Yarra Leisure, Assets	M	Investigate potential for timers on saunas and spas, and push button timed showers, and report recommendations to Executive.
	Investigate thermal pool blankets	Yarra Leisure, Assets	H	Investigate the feasibility of using thermal blankets on Collingwood and Richmond pools, and report findings and recommendations to Executive.
	Install external blinds at Richmond Leisure Centre	Yarra Leisure, Assets	M	Install external blinds to windows of the Yoga room at Richmond Leisure Centre.
	Audit air conditioning equipment	Assets	H	Audit air conditioning in all main buildings to identify plant in need of replacement in coming 5 - 10 years. When replacing equipment, consider life cycle costs and energy efficiency.
Vehicle Fleet	Finalise and implement green travel policy	Organisational Development, CEO	H	Finalise and implement the green travel policy that is currently under development. The policy includes the establishment of a green travel steering group chaired by the CEO, and actions relating to car sharing, public transport tickets, cycling, and information provision.
	Finalise the Passenger Fleet Vehicle Policy and Procedures	Executive	H	Retain suggested measures for reducing fleet size, reducing vehicle size, and minimising life cycle costs (eg: purchasing cars made in Australia).

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
Streetlights	Prepare a comprehensive street lighting policy	Infrastructure, Environmental Management	H	Expand the existing policy based on technical standards to include environmental and public health considerations, and identify the potential for use of more energy efficient lighting.
	Purchase Green Power for streetlights	Infrastructure	H	Investigate the potential to increase the current level of 15% Green Power for streetlights (in accordance with Yarra Environment Strategy)
Waste	Revise the 1997 Yarra Waste Management Strategy	Environmental Management	M	Revise the 1997 Yarra Waste Management Strategy, involving an evaluation of its implementation and recommendations for improvement, including actions to reduce organic waste from Council operations.
Other	Assess the feasibility of creating a CCP™ officer or energy manager position	Executive	L	Given the actions listed above for buildings and streetlights, it may be advantageous to employ a suitably qualified and experienced person to analyse energy data and investigate opportunities for savings.
	Increase staff awareness and action about greenhouse	Organisational Development	H	Include information about the greenhouse action plan and energy efficiency at work in staff induction kits, and place signs about energy efficiency around buildings and near appliances.

**Table 6 – Proposed actions that help reduce greenhouse emissions from the community**

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
Residential	Produce 'Energy Efficiency at Home' kits for distribution at council facilities	Environmental Management	H	Develop energy efficiency kits for residents drawing on experience from other councils and organisations.
	Investigate the feasibility of participating in the Sustainability Street program	Environmental Management	M	Assess the success of the current Sustainability Street trial program in western suburbs of Melbourne and determine the feasibility of adopting the program in Yarra, and report to Executive.
	Introduce a planning scheme amendment for ESD in buildings	Environmental Management, Strategic Planning	H	Introduce a planning scheme amendment to facilitate ESD in all buildings in Yarra, including objectives to minimise energy consumption in the construction and operation of buildings. Develop ESD educational resources for planners and applicants.
	Report to manager of responsible unit on feasibility of hosting energy efficiency workshops	Environmental Management, Community Partnerships	H	Work with community centres like neighbourhood houses to develop education programs, and apply for external funds (eg: Community Action Fund) to host workshops. Investigate the possibility of expanding existing waste management workshops to address energy efficiency at home and implement accordingly.
	Encourage schools to address energy management	Environmental Management	H	Assess the feasibility of expanding support for the Sustainable Schools program, and identify alternative programs for energy management to promote to schools.
Commercial	Strengthen relationship with Green Plumbers	Environmental Management	H	Promote the aims and benefits of the Green Plumbers program to residents.

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
	Expand Green Streets program	Economic Development	M	Evaluate pilot program and determine the merit in improving the energy component of the program and expanding it to other streets in Yarra.
	Develop and distribute energy smart business kits	Economic Development, Environmental Management	M	Develop energy smart kits drawing on experience from other councils and organisations. Include information in forthcoming business start-up kits
Industrial	Encourage businesses to join the Greenhouse Challenge	Economic Development, Environmental Management	H	Promote the Australian Greenhouse Office's Greenhouse Challenge program to businesses by, for example, by promoting or hosting workshops.
Transport	Host a Car Free Day	Strategic Planning	H	Work with traders, public transport companies, Vic Roads, community networks and other stakeholders to host a 'car free day' in Yarra.
	Develop a Strategic Transport Statement	Strategic Planning	H	Develop a strategic transport statement that will lay the foundation for the development of a 20-30 year transport plan for Yarra, with strong targets for low impact transport modes, and lower of through-traffic capacities.
	Determine the potential for a Walking School Bus	Strategic Planning, Recreation	M	Work with selected schools and funding organisations to determine the potential for a Walking School Bus program in Yarra.
	Publish and promote a Cycling and Public Transport Map	Strategic Planning, Infrastructure	H	Produce a map of the municipality that shows cycling, pedestrian, and public transport routes and places of local interest. This may be undertaken in conjunction with neighbouring inner Melbourne councils, if it is possible to produce a meaningful map of a practical size and scale.
Waste	Revise the 1997 Yarra Waste Management Strategy	Environmental Management	H	Revise the 1997 waste management strategy. Aim towards the draft targets proposed by Eco-recycle for reductions of waste to landfill.

CCP™ Sector	Action	Responsible Branch and/or unit	Priority	Details
Other	Gather more detailed information regarding the sources of emissions in the community	Environmental Management	H	Obtain more detailed information on emissions from the community from sources such as Utilities, consultants, Government Agencies, and ICLEI, to enable future actions to be better designed and targeted.

## 4 SELECTED ACTION DETAILS

This section discusses a number of the actions listed in and Table 6 in greater detail. The actions have been selected to show the variety present with different actions contributing towards some objectives more than others. For example, some are more direct and quantifiable in their emissions reduction, some have greater education and demonstration potential, and others require strong leadership from Council.

### 4.1 Council Operations

If the City of Yarra is to be a role model for addressing greenhouse emissions, it must 'practice what it preaches'. As actions for its own operations are implemented and quantified, Council can promote the benefits of actions to the community to provide further incentive for people to take responsibility for their own greenhouse action.

#### ***Investigate the feasibility of solar heating for swimming pools***

The buildings sector represented almost half of the City of Yarra's emissions. The recreation centres featured heavily in this. A major energy use in the centres is heating the swimming pool water. Case studies available from ICLEI have shown that other municipalities have had success in harnessing solar energy to heat pool water, supplemented by gas. At present, it is unknown whether or not such measures are applicable to Yarra, so investigation of options will be undertaken.

#### ***Increase staff awareness and action about greenhouse***

The town halls are a significant source of greenhouse emissions from Council's activities. However, in contrast to the recreation centres, the end-uses of energy are much more varied. For this reason, actions to reduce energy consumption in town halls, which are predominantly offices for council staff, need to focus on raising staff awareness and changing behaviour.

As staff join the City of Yarra they will be made aware of energy efficient practices. All staff will be informed and reminded about energy efficient practices throughout their employment by additional educational messages such as posters, signs, regular newsletters or workshops.

### ***Replace CRT monitors with LCD screens***

The town halls are a significant source of greenhouse emissions from Council's activities, with office equipment being a significant contributor. Approximately one third of computer monitors at Council have been changed from CRT type to LCD flat screens. The remaining two thirds, or approximately 310 monitors will be replaced over the next few years. This will result in a total emissions reduction of about 37 tonnes CO<sub>2</sub>-e/year.

### ***Purchase Green Power for street lighting***

Street lighting is a huge cost for council and the single largest source of greenhouse emissions in the corporate sector. In recognition of the need to abate this impact, the Yarra Environment Strategy states a commitment to continuously increase the proportion of electricity sourced for council operations from Green Power. Section 2.4 of this plan shows that the emissions reduction target for council operations can be met by purchasing just over 50% of electricity used for street lighting as Green Power. While this may present an "easy" way for Council to meet its target, it requires significant expenditure, and does not change practices or behaviour (refer Section 3.4). A better strategy is to increase the Green Power supply, but to less than 50%, leaving scope and motivation for other actions to be explored and implemented.

A complimentary action is to develop a comprehensive street lighting policy for the replacement of lamp fittings with more efficient types, thus decreasing the amount of electricity Council needs to purchase.

## **4.2 Community**

It is recognised that Council cannot control practices of the community but can influence them to varying degrees. Similarly, quantification of emissions reductions in the Community is difficult, so the focus is on education, demonstration and encouraging members of the Community to take responsibility for their own emissions.

### ***Host a Car Free Day***

The community emissions forecast in Section 2.4 showed that major growth in emissions is expected in the transport sector. Council is able to influence travel behaviour to some extent,

however it is ultimately in the hands of the commuter. The City of Yarra hopes to promote debate, awareness and use of more sustainable modes of transport with a Car Free Day<sup>48</sup>. Car Free Days have been held in many places throughout the world, including cities in Canada<sup>49</sup>, Columbia<sup>50</sup>, Europe<sup>51</sup>, and Australia<sup>52</sup>.

At present Council is consulting the community and key stakeholders in order to develop a range of options for the Car Free Day for Councillors to consider.

### ***Expand Green Streets Program***

The community emissions forecast in Section 2.4 showed that the largest growth in emissions is expected in the commercial sector. The Green Streets program is a major action that Yarra, along with City West Water and Village Green, is already implementing in Smith Street, Collingwood. At present there are over 20 participating businesses that have undergone audits and will receive feedback and training from Village Green in the near future<sup>53</sup>.

The City of Yarra, in collaboration with the other stakeholders, will analyse and evaluate the merit of the 'Green Streets' program with a view to potentially expanding the program to other streets in Yarra.

### ***Encourage businesses to join the Greenhouse Challenge***

The community emissions forecast in Section 2.4 showed that significant growth in emissions is expected in the commercial and industrial sectors. Curbing this expected increase represents a significant challenge given that Council has limited power to influence behaviour in these sectors. One action that Council can take is to encourage participation in the Greenhouse Challenge.

The Greenhouse Challenge is a program run by the Australian Greenhouse Office to abate emissions from businesses and industry. Participating organisations sign agreements with the Government that provide a framework for emissions abatement similar to the CCP<sup>TM</sup>

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<sup>48</sup> [www.yarracity.vic.gov.au/publications/news/carfree.asp](http://www.yarracity.vic.gov.au/publications/news/carfree.asp)

<sup>49</sup> [www.carfreeday.ca/](http://www.carfreeday.ca/)

<sup>50</sup> [www.colombiaupdate.com/Members/bill/NoCarDay2003/view](http://www.colombiaupdate.com/Members/bill/NoCarDay2003/view)

<sup>51</sup> [www.22september.org/](http://www.22september.org/) and <http://europa.eu.int/comm/environment/carfreeday/>

<sup>52</sup> [www.johannesburgsummit.org/html/sustainable\\_dev/carfreedayseries.html](http://www.johannesburgsummit.org/html/sustainable_dev/carfreedayseries.html)

<sup>53</sup> <http://villagegreen.com.au/media/newsletter01.pdf> and <http://villagegreen.com.au/media/newsletter05.pdf>

milestones<sup>54</sup>. An independent evaluation of the program in 1999 confirmed that it had been successful at attracting a large and diverse range of businesses, and in building the capacity of both Government and industry to monitor and manage greenhouse gas emissions<sup>55</sup>. Businesses in Yarra who have already taken up the Greenhouse Challenge include Amcor Australasia Paper Division<sup>56</sup> and Carlton and United Breweries<sup>57</sup>.

The City of Yarra will work with the Australian Greenhouse Office and relevant State agencies to develop and implement strategies that increase participation in the Greenhouse Challenge by business and industry in the municipality.

### ***Develop energy smart information materials for residents and businesses***

Given that the largest increase in emissions is in the commercial sector it is important to target informative and educational materials at small businesses. Even though residential emissions are not expected to grow significantly, reaching the 20% reduction target requires efforts in all sectors. Knowledgeable residents can also help promote the benefits of energy efficiency and greenhouse gas reduction in their networks.

“Energy smart” reference materials are available through organisations such as the Sustainable Energy Authority of Victoria and the Moreland Energy Foundation. The suitability of kits for different community sectors in City of Yarra needs to be determined, as does the availability of materials for modification or distribution.

## **5 IMPLEMENTATION, MONITORING AND REVIEW**

Although the City of Yarra’s Greenhouse Action Plan is not a legally binding document, it serves as a detailed guide for council to become a role model in greenhouse action. Upon Council adoption of the Greenhouse Action Plan, the proposed actions will be incorporated into the annual planning cycle and will therefore become part of a statutory document, namely the Council Plan. And like the Council Plan, the Greenhouse Action Plan will remain a dynamic document, and take into consideration changes in attitudes, technology, awareness and means

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<sup>54</sup> [www.greenhouse.gov.au/challenge/about/index.html](http://www.greenhouse.gov.au/challenge/about/index.html)

<sup>55</sup> [www.greenhouse.gov.au/challenge/about/report.html](http://www.greenhouse.gov.au/challenge/about/report.html)

<sup>56</sup> [www.greenhouse.gov.au/cgi-bin/challenge/dbsearch.pl?page=report\\_detail;aid=2607;report\\_id=4557](http://www.greenhouse.gov.au/cgi-bin/challenge/dbsearch.pl?page=report_detail;aid=2607;report_id=4557)

<sup>57</sup> [www.greenhouse.gov.au/cgi-bin/challenge/dbsearch.pl?page=report\\_detail;aid=208;report\\_id=5517](http://www.greenhouse.gov.au/cgi-bin/challenge/dbsearch.pl?page=report_detail;aid=208;report_id=5517)

for addressing climate change. Both plans will reflect Yarra's growing knowledge and experience in greenhouse gas reduction.

In the absence of a dedicated CCP™ Officer, implementation of the action plan will take a whole of Council approach, facilitated by Environmental Services. As shown in section 3.3, a number of actions have already been implemented to the extent that Yarra can legitimately work towards Milestone 4 of the CCP™ Program in the near future. This good start must continue.

The implementation of the plan will include monitoring of individual actions on an ongoing basis. Measures of the success of actions will include, where appropriate: financial costs and/or savings, greenhouse gas reduction, participation or distribution numbers for education materials, acceptance of the action, and observable changes in staff and/or community behaviour.

Review of Yarra's Greenhouse Action Plan will occur on an annual basis to inform the annual planning cycle and the incorporation of actions into the Council Plan. This review will report on implementation of actions and on implications of data collated during monitoring of actions. The review will identify areas in need of additional or alternative actions to ensure ongoing success of the plan in line with the stated objectives. This review will enable Council to work towards Milestone 5 of the CCP™ program.

Achievement of Milestone 5 will not be the end of Council's efforts. A comprehensive review of the Greenhouse Action Plan will occur in 2007 / 2008. This review will assess the relevance of the objectives, reductions targets, and actions in view of any changes to technologies, legislation, funding, Federal and State Government policy changes, and community expectations. With the experience Yarra will gain from the monitoring and review, Council and its community will be well placed to make a valuable ongoing contribution to combating climate change.