CITYSMART – BRISBANE CITY COUNCIL’S RESPONSE TO CLIMATE CHANGE AND IMPROVING SUSTAINABILITY

NATURAL ENVIRONMENT AND SUSTAINABILITY BRANCH, BRISBANE CITY COUNCIL

INTRODUCTION:

“Across the nation, people have taken an interest in climate change issues. The Brisbane community wants to do their part in helping to reduce their impact on the environment.

CitySmart is a new program of environmental initiatives dealing with getting the community involved to make Brisbane Australia’s most sustainable city.

Council is committed to addressing the challenges of climate change and energy use, and it is recognized that educating and empowering the residents of Brisbane is important to achieve this.

Brisbane City Council will provide the Brisbane community with a range of practical information and tools they need to reduce their environmental impact. By starting in the household, and expanding to the street, the neighbourhood, and the suburbs, we can all take positive steps towards reducing energy consumption and greenhouse gas emissions.

CitySmart is about changing behaviours while maintaining lifestyles. More importantly, CitySmart is about Council partnering with commonwealth and state government, the community, business and industry to take easy and relevant actions to achieve outcomes.” (Sustainable Brisbane—message from the Lord Mayor, Campbell Newman.)

This paper outlines two of the signature CitySmart projects and their goals, including the Regional Carbon Sink project. It also highlights the contribution already being made by Brisbane’s existing urban forest, and finally highlights the exciting changes being made to Brisbane’s street and park tree planting program and the role this will play in the Lord Mayor’s challenge to reduce the city’s greenhouse gas emissions by 50 percent by 2026.

COMMUNITY DRIVE AND INPUTS TO CITYSMART:

Over the past five years, Brisbane residents have reduced their average water consumption by 30 percent and around 28,000 residents have taken up the Council’s rainwater tank rebate offers. Ratepayers have also supported the The Bushland Preservation Levy which has now secured 2,300 hectares of bushland and wetlands in public reserves at a cost of $80 million. During the development of the suite of CitySmart projects, Council has continued to seek input from a community who have clearly expressed their strong desire to contribute and participate in environmental initiatives.

Sustainability and climate change are challenging, complex and broad concepts. Therefore, Council also set up an independent Climate Change and Energy Taskforce to advise Council on how to prepare and respond to climate change, increasing energy use, rising petrol prices and peak oil supply. Commissioned in 2006, Council adopted 24 of their recommendations to be implemented through the Brisbane Climate Change and Energy Action Plan. Those recommendations include:
• Reaffirming the greenhouse gas emissions reduction target of 50 percent by 2026
• Leading by example and positively influencing others
• Maximizing the economic opportunities of climate change
• Making Brisbane a model of sustainable living
• Investing in sustainable energy alternatives to power Council operations
• Effectively communicating messages about sustainability, climate change and related issues.

The CitySmart projects have synthesized these recommendations into simple priority actions to offer the community new opportunities to adopt more sustainable behaviours across the themes of water, energy, and waste management, reducing emissions, greening Brisbane and active travel (Figure 1).

The entire CitySmart program over the next four years includes seventeen separate projects and $8.45 million of investment. Just two of those projects, which are most relevant to the urban forest, are described below.

THE REGIONAL CARBON SINK PROJECT:

Starting with the Oxley Creek to Ocean Project (O2 Project), Council is aiming to plant one million trees over 1000 hectares in Brisbane over the next 12 months. The Lord Mayor is challenging colleagues in neighbouring local authorities to collectively grow a regional carbon sink of up to 400,000 hectares across south east Queensland. Following initial Council investment to get the O2 project started, the community will be invited to become carbon neutral by subscribing to the project and buying carbon credits to offset the balance of their greenhouse gas emissions that they cannot avoid or reduce.

Not only does the O2 project offer a visible and local carbon sink, but the locations targeted for planting also support enhancement of the city’s core biodiversity network.

The future of Brisbane’s extraordinary wealth of native flora and fauna has been partly secured in a network of public reserves, waterways and agreements with private landowners. However many of those ecosystems have degraded over time and our current remnant vegetation cover is at “threshold”. To ensure a resilient and robust network which can continue to sustain biodiversity values in climate change conditions, a target of 40 percent remnant vegetation cover by 2026 has been set.

Council is committed to maintaining strong linkages between planting for carbon sequestration and habitat restoration in Brisbane, and thereby achieving multiple benefits through targeted investment. In addition to habitat restoration, Brisbane stands to benefit with improved water quality, increased amenity and enhancement to open space areas.

CITYSMART VANS:

CitySmart Vans were launched in July this year and will visit 24 shopping centres and 18 events in 2007-2008, to provide a one stop environmental shop of information, advice and products to help Brisbane residents understand and reduce their environmental impacts. Residents are able to calculate their current greenhouse gas emission levels, find out about current local, state and commonwealth rebates and purchase discounted energy saving products such as compact fluorescent lamps (CFLs). The simple step of changing to CFL light bulbs can make a big difference. If every household in southeast Queensland replaced six of their incandescent light bulbs with CFLs, it is estimated that greenhouse gas emissions would be reduced by approximately 460,000 tonnes per year. CFLs also last between 4 and 10 times longer than regular light bulbs and use 80% less electricity.
Building on the success of Watersense Blue Vans and Green Choice Gardening vans, the CitySmart Vans also offer home gardeners simple tips to make the change to more sustainable gardening. This includes advice on the use of greywater and planting small to medium shade trees for summer cooling and energy conservation.

**CARBON STORAGE AND SEQUESTRATION OF BRISBANE’S EXISTING URBAN FOREST:**

The O2 project plantings are projected to soak up to 15 tonnes per hectare of carbon dioxide each year. These new plantings are the only ones that currently qualify under greenhouse friendly carbon sink guidelines. However in 2000, Council, in conjunction with the Australian Greenhouse Office and University of Queensland, estimated that Brisbane’s vegetation cover was already storing around 1.9 million tonnes of carbon and sequestering another 1.45-1.6 million tonnes of carbon dioxide per year. That was equivalent to around 10 percent of total greenhouse gas emission levels in 1999. Of even greater significance were the benefits of those trees growing closest to where we live. Brisbane’s residential tree cover was estimated to be absorbing the equivalent amount of carbon dioxide emitted by 30,000 cars per year, and cooling surface temperatures in the relatively mild month of October 1999 by up to 5 degrees Celsius (Yamamoto, 1999).

In the seven years since that study more than 8,000 community volunteers have planted approximately 600,000 trees for habitat restoration and another 15,000 trees in shade-hungry Brisbane streets.

It is clear that O2 is a valuable addition to existing community projects and the multiple benefits of Brisbane’s urban forest. Monitoring and promoting the greenhouse gas emission uptake values of the entire collective of tree planting projects can provide important new incentives for community participation.

As has been confirmed in analyses in several cities in the United States, valuable benefits of urban trees extend well beyond their direct carbon dioxide sequestration. Most recently, the important role of urban shade trees in the climate change agenda has been highlighted. In 2001, Atlanta’s urban forest was providing $135 million worth of environmental benefits each year. Interestingly, it was estimated that the cooling effect of shade trees in residential areas was avoiding a 658,000 tons of carbon dioxide emissions through reduced energy consumption in summer.

In April this year an analysis of New York City’s street tree resource also found that the level of emission reduction due to energy savings from their shade and cooling effects to be as much as 22 percent greater than their direct sequestration (Peper et al 2007). Like Brisbane, New York City has a street tree population of around 500,000.
NEIGHBOURHOOD SHADEWAYS.....TREE PLANTING THAT HELPS AVOID, CLEAN, STORE AND SEQUESTER EMISSIONS:

As reported last year, (Plant, 2006) Brisbane City Council is targeting “shade-hungry” streets, roads and bikeways identified from urban heat island and tree cover mapping in a Neighbourhood Shadeways program. Neighbourhood Shadeways offers an exciting opportunity to showcase tree planting that can not only reduce and absorb greenhouse gas emissions but where the shade from new trees can contribute to avoiding emissions by cooling urban heat islands, reducing summer energy consumption and increasing uptake of active and public transport. The goal is to enhance and sustain each suburb’s outdoor environment in a way that gives back a generous dividend of multiple social, economic and environmental benefits to that local community and collectively benefits the whole city.

2005 PERCENTAGE TREE COVER IN ROAD RESERVES BY SUBURB

The most shade-hungry streets closest to train stations, cycleways and bus routes were highlighted to communities involved in five Neighbourhood Planning projects earlier this year. Leafy, walkable streets had already been identified by those communities as important ways of enhancing the character and outdoor lifestyle of their suburb. As a result, Council’s 2007-08 budget provided funds for an additional 1,700 new street trees across those five areas. Apart from absorbing around 700 tonnes of carbon dioxide per year, it is estimated that a further 1000 tonnes could be avoided if those shadier streets and cycleways reduce total private car trips by as little as 1000 km per year across all five areas. That is not even considering any potential further emission reductions from the energy conservation and air quality benefits of that tree shade.
Brisbane's aspirational target is to increase street tree stocking levels from 73 percent to 90 percent by 2026. Community volunteers will plant more than two thirds of those street trees. In our increasingly warmer climate, shady, comfortable footpaths are essential for encouraging walking and cycling, and as long as sustainable sources of non-potable water are available, Council will continue to plant street trees. However, if we are to achieve our aspirational target, even greater support from other Council programs, and other potential sponsors is required. Council is keen to identify the direct, indirect and net emission avoidance, reduction and uptake benefits of street tree planting in order to promote further investment from within and outside Brisbane City Council for Neighbourhood Shadeways and Subtropical Boulevards.

The Sacramento Tree Foundation provided an outstanding example of a public/private partnership. They implemented a shade tree planting program funded by their local electricity authority, which provided free trees for private property owners to reduce their summer cooling costs by 20-40% and avoid peak summer supply problems caused by air-conditioning loads.

CONCLUSION:

Brisbane City Council's CitySmart program is an exciting suite of environmental initiatives aimed at partnering with the residents of Brisbane to address the challenges of climate change and energy use. To make Brisbane Australia's most sustainable city, the Lord Mayor is passionately committed to offering the community easy and relevant actions that can be applied house by house, street by street and suburb by suburb to make a difference. Community response to the launch of both the O2 project and the CitySmart Vans has been outstanding.

Council is also keen to continue to measure and promote the emission avoidance and reduction benefits of Brisbane's entire urban forest. Projects such as Neighbourhood Shadeways offer yet another twist on the role of urban shade trees in the climate change agenda by suggesting emission avoidance associated with increases in walking, cycling and use of public transport rather than private cars.
REFERENCES:

American Forests – CityGreen: Setting Urban Tree Canopy Goals:  
www.americanforests.org/resources/urbanforests/treedeficit.php

CitySmart Program  
www.brisbane.qld.gov.au/CitySmart


Sacramento Tree Foundation  
http://www.sactree.com/treeInfo/shadeTreeSignUp.html

Figure 1: The scope of CitySmart Program

- Council activity
- Regulation
- Incentives
- Advocacy/empowerment

KEY
- ENERGY MANAGEMENT
- WATER MANAGEMENT
- WASTE MANAGEMENT
- GREENING BRISBANE
- ACTIVE TRAVEL
- REDUCING EMISSIONS

CitySmart