



Peak Oil

Contingency Plan

Maribyrnong City Council

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“ We should not cling to crude down to the last drop – we should leave oil before it leaves us.”
International Energy Agency, 2008



1 Executive Summary

Oil is a vital input underpinning many activities performed by Council, as well as a necessary ingredient in the everyday lives for the Maribyrnong community. Rubbish collection, fleet vehicles and staff travel are just a small selection of the essential activities Council performs everyday with the aid of oil based fuels. The Maribyrnong community requires oil for essential activities such as the delivery of food and personal transport.

Concern over the future availability of oil is increasing. Peak Oil describes a period of maximum oil production. Beyond this point, less and less oil is available each year. A growing number of petroleum experts and commentators are arguing that Peak Oil has been reached or is imminent.

Planning for a future of less oil, turning around decades of growing consumption and the policies that underpin this growth requires the focused attention of government.

The aim of Maribyrnong’s Peak Oil Contingency Plan is to maximise Council’s business continuity ability in the face of either a short term supply crisis or a long term, gradual depletion in petroleum resources.

Council’s operations have been assessed and a group of ten representative service areas have been developed, based in part on their oil use and criticality. Staff within these service areas were presented with two Peak Oil scenarios. Scenario one involved

a short term disruption, with only 25% of usual fuel supply, lasting six weeks. Scenario two described a future in which oil has entered a long term decline. Council staff, through their involvement in a Peak Oil Workshop, run as part of this process, were asked to assess the *threats* to their core business presented by both scenarios. In addition, staff worked together to develop *responses*, as a way of mitigating or adapting to short and long term reductions in oil supply.

Applying a risk management approach

The information developed by Council staff during the workshop has been assessed in a manner consistent with the Maribyrnong City Council's Risk Management Policy. Consequence ratings have been applied to each service area under a short term oil supply cut (scenario one).

The consequence table below describes how the ratings 1-5 have been applied.

Consequence Rating	Descriptor	Consequence Description
1	Insignificant	No harm to human health
		Service delivery not affected
2	Minor	Potential harm to human health
		Services impacted but short-term solutions available
		Minor increase in operational costs
3	Moderate	Harm to human health
		Only non-core services interrupted
		25% non-critical staff not available
		Significant increase in operational costs
4	Major	Severe harm to human health requiring hospitalisation
		Disruption to a core service
		No disruption to essential services
		50% non-critical staff not available
		Some critical staff not available
		Major increase in operational costs
5	Catastrophic	Major public transport delays
		Possible or actual human fatalities
		Core services severely disrupted
		Essential services disrupted
		Most non-critical staff not available
		Critical staff attendance disrupted
		Operational costs affect financial plan, line of credit required
Major public transport failures		

The expectation was that responses to events under scenario one would be managed under the existing Emergency Response Management Plan.

In scenario two, the long term decline, each service area was analysed in terms of its exposure to Peak Oil. The rating also reflects how hard the service area would have to work to meet Council's target to reduce oil consumption by 3% per annum.

The ratings table below describes how the ratings 1 - 5 have been applied to Scenario Two.

Rating	Descriptor	Consequence Description
1	Insignificant	No changes to service delivery model required
2	Minor	Only minor changes to service delivery model required
		Fuel reduction target can be easily met
3	Moderate	The impact on current service delivery model is moderate
		Service delivery can be adapted relatively easily.
		Minor increase in operational costs.
4	Major	The impact on the current service delivery model is very high
		Adaptation is possible but will require significant time and resources
		Significant increase in operational costs
5	Extreme	The current service delivery model is not viable
		Unsustainable increase in operational costs

Scenario 1: Short-term Disruption

Service Area	Consequence Rating
Meals on Wheels	5
Waste Management	4
Fleet Management	4
Home Care	4
Customer Service and Communications	4
Information Technology	4
Maternal and Child Health	3
Infrastructure and Road Maintenance	2
Strategic Planning – Transport	2
Strategic Planning – Food Security	2

Scenario 2: Long-term Decline

Service Area	Consequence Rating
Waste Management	5
Infrastructure and Road Maintenance	5
Meals on Wheels	5
Fleet Management	4
Home Care	3
Maternal and Child Health	3
Customer Service and Communications	3
Information Technology	3
Strategic Planning – Transport	3
Strategic Planning – Food Security	2

The results demonstrate that there will be significant consequences for most service areas under a short term, significant cut in oil supplies. Moreover, the level of risk associated with a long-term decline of oil supplies is at least moderate or even major for most representative service areas, according to Maribyrnong City Council’s assessment matrix. A considerable level of human and financial resources should therefore be applied to reducing these risk levels.

The relatively low rating for the two strategic planning areas (transport and food security) is due to the focus of this report being on Council’s internal operations. There is little doubt transport and food security are two of the largest challenges posed by oil depletion and this will be addressed in greater detail when Council conducts its community peak oil contingency plan in the future.

Trigger points for action

In order to anticipate oil shortages and/or give the go ahead to enact contingency measures, a range of triggers have been developed. Factors that may provide leading indicators of oil supply reductions (particularly of a short term nature) include:

- **Changes to the local oil supply chain**
- **Community anger at high oil prices, sparking protests/ strikes (as occurred in the United Kingdom in 2000)**
- **Reductions in global spare capacity and increases in Australia’s reliance on imported fuel - this may indicate an increasingly likelihood of both a short and long term reduction in oil supply**

The current vulnerability of existing supply chains calls for a moderate level of spending on contingency actions for the delivery of Council services. The food chain network was found to be particularly vulnerable to short term cut in oil supply.

There will be significant consequences for most service areas under a short term, significant cut in oil supplies

A considerable level of human and financial resources should therefore be applied to reducing these risk levels.

The food chain network was found to be particularly vulnerable to short term cut in oil supply

Emerging Themes

Several important themes have emerged through the development of this Contingency Plan. The Peak Oil Workshop in particular highlighted some key concepts, threats and responses that were shared by multiple service areas of Council. These include:

Staff Travel to Work

All service areas highlighted Peak Oil as a major threat to how staff travel to work. A significant proportion of staff currently arrive by car and are therefore highly exposed to oil supply disruptions.

Community Mobility and Access

Mobility within the Maribyrnong community, although slightly less car dependent than the Melbourne average, is still highly vulnerable to oil supply shortages. The prospect of a short or long-term cut in oil supply would present a major disruption to community mobility.

Food Security

The significant oil inputs involved in the production and transport of food is likely to result in higher priced, less plentiful and varied food supplies. This will impact negatively on Maribyrnong's vulnerable populations in particular. The relatively low consequence ratings for food security in the above tables reflect that it is ostensibly an issue for the general community, rather than Council operations.

Disadvantaged Communities

The availability of cheap and abundant oil supplies have helped provide lower priced goods and services. A drying up of inexpensive oil is likely to result in significant price rises for many common basics; food and transport being among the most obvious. With Maribyrnong being home to some of Victoria's most disadvantaged communities, this issue is of significant concern. Home Care and Meals on Wheels in particular may experience an increased demand for their service while at the same time incurring higher costs, for food and transport.



Dependence on oil based transport is a major vulnerability

All service areas highlighted Peak Oil as a major threat to how staff travel to work

The prospect of a short term cut in oil supply would present a major disruption to community mobility

Storage and Inventory:

Multiple service areas responded to the prospect of a short term oil supply crisis with the need for the storage of essential goods, such as food for vulnerable populations and fuel for essential services.

Climate Change

This report recognises that many of the initiatives intended to respond to Peak Oil are consistent with Council's commitment to respond to climate change. Increasing the use of walking, cycling and public transport, as well as the purchase of low emission vehicles, will assist Council meet its target of reducing fuel consumption by 3% per annum and become carbon neutral by 2015.

New Technology

Technology offers a range of opportunities to respond to Peak Oil. New vehicle technology will enable increased fuel efficiency of the Council fleet and improved communication technology will increase the effectiveness of staff working from home. Greater use of the online format for Council resources will reduce the need for both community and staff travel.

Service Delivery Model Changes

Council staff from a variety of service areas responded to the challenge of Peak Oil with recommendations focused on fundamental changes in the way services can be delivered. For instance, in the area of Waste Management, in order to cut fuel consumption, it may be necessary to reduce waste volumes and therefore lower the demand for the service. Practical suggestions from staff included collecting waste at the end of each street rather than outside each door and the provision of worm farms/composting facilities to households.

Communication

A change in price and availability of fuel presents important new communication challenges for Council. Under scenario one, the communication strategy is essentially one of emergency management. Effectively communicating to the community what is happening and why will be vital, if panic buying and public frustration are to be minimised. In scenario two (a long term decline in oil production), the communication task should focus on education regarding the future oil availability and lifestyle measures that people can take to reduce dependence on oil and therefore boost community resilience.

A drying up of inexpensive oil is likely to result in significant price rises for many common basics

Increasing the use of walking, cycling and public transport, as well as the purchase of low emission vehicles, will assist Council meet its target of reducing fuel consumption by 3% per annum and become carbon neutral by 2015

Little has been done at a government level to plan for less oil in the future



Key Recommendations

Staff Travel to Work:

- Introduce car pooling software
- Telecommuting: Develop and implement a comprehensive set of measures to facilitate staff with applicable roles to work from home
- Encourage sustainable transport use amongst staff, beyond current practices
- Introduce appropriate financial incentives to encourage a shift away from unnecessary car use
- Collaborate with other councils to investigate sharing office space (when staff live closer to a council other than the one they are employed at)
- Develop video conferencing facilities

Community Mobility and Access:

- Increase the proportion of the budget dedicated to sustainable transport to improve the transport network's ability to encourage oil efficient forms of mobility
- Increase Council's activities to encourage mixed use development, to reduce travel distances and increase access by walking, cycling and public transport
- Advocate to State and Federal government for greater investment in sustainable transport modes

Disadvantaged Communities:

- Introduce measures to increase the efficiency and reduce the travel demands for Meals on Wheels and Home Care. This may include combining services, reducing delivery frequency (such as with the introduction of frozen or long life meals) and bicycle travel
- Improve low cost transport opportunities, including a significant boost to bicycle infrastructure, particularly in pockets of disadvantage and link these to public transport and other major destinations

Storage and Inventory:

- Stock long life food and other essentials for those dependent on Council services in the event of a short term, severe cut to fuel availability
- Create a fuel storage facility to maintain critical vehicle operations in the event of a short cut in fuel supplies.

Communication:

- Distribute information on Peak Oil and convey what Council is doing to adapt its operations and services in preparation for a reduction in fuel supplies

Maribyrnong City Council's commitment to comprehensively tackle Peak Oil is prudent, demonstrates foresight and is warranted. Governments that move ahead of the oil depletion curve will create more resilient, liveable communities. They will find themselves less exposed to temporary disruptions in oil supply as well as less vulnerable to the inevitable long term decline in global oil production. Delaying action until the need is obvious will not allow sufficient time for a smooth transition, putting business continuity and community wellbeing at risk. This Peak Oil Contingency Plan is an important step along the path to a post Peak Oil economy and society.

2 The Project - Maribyrnong City Council Peak Oil Contingency Plan

2.1 Introduction

Concern is mounting over the world's future oil supply. A number of local governments have begun taking introductory measures to assess their vulnerability to future oil supply constraints. Maribyrnong is part of this group of progressive councils, having developed a Peak Oil Policy and Action Plan. Maribyrnong's previous commitment to the challenges of Peak Oil include both reducing oil consumption by 3% per annum and the commissioning of this Peak Oil Contingency Plan.

Oil is a critical ingredient in a wide range of activities performed by Council, as well as a necessary input into the everyday lives of the people of Maribyrnong. Collecting waste and recycling, delivering meals to vulnerable populations and staff travel are just a few of the essential activities Council performs everyday with the aid of oil based fuels. The wider community is dependent on oil for such essentials as the delivery of food and personal transport. Yet despite this dependence, little has been done at a government level to plan for less oil in the future.

2.2 Project Objectives

The aim of Maribyrnong's Peak Oil Contingency Plan is to maximise Council's business continuity ability in the face of either a short term supply crisis or a long term, gradual depletion in petroleum resources. The key objectives of this project are to:

- **Reduce the adverse impacts of higher fuel prices and/or supply limitations on Council operations and the Maribyrnong community**
- **Engage with Council staff to determine service delivery objectives under two Peak Oil scenarios; a short term, significant supply disruption and a long term, steady decline**
- **Conduct a risk assessment of Council's vulnerability to both Peak Oil scenarios, with a focus on ten representative service areas and provide recommendations to mitigate against these vulnerabilities**
- **Develop trigger points that can act as pre-emptive indicators of change in the oil supply/price situation**

It is important to recognise that while this Plan has significantly advanced Council's preparation for future oil supply disruptions, it is not a detailed blueprint or operations manual for each of Council's service areas. Further work is required to extend the oil saving recommendations made in this report to develop comprehensive operational guidelines for each service area. These procedural documents would detail precisely how each response would be implemented into Council's operations.

Collecting waste and recycling, delivering meals to vulnerable populations and staff travel are just a few of the essential activities Council performs everyday with the aid of oil based fuels

Further work is required to extend the oil saving recommendations made in this report to develop comprehensive operational guidelines for each service area

2.3 Project Process

The following key activities were undertaken to meet the project objectives:

1. **Background research on Council and local community demographics and activities, with a particular focus on areas of exposure to fuel supply issues**
2. **Identification of ten representative Council service areas, with reference to fuel use and criticality to business continuity**
3. **Development of two Peak Oil scenarios, used to assist Council to identify and respond to threats posed by two different fuel shortage examples**
4. **Planning and facilitation of staff Workshop to enable Council staff to develop their thinking in preparation for a fuel supply shortage**
5. **Development of risk profiles to provide a clear picture of threats and responses to both Peak Oil scenarios**
6. **Preparation and delivery of the final Peak Oil Contingency Plan Report to Council**

In partnership with Council, a Steering Committee was established in March 2009 and met three times between April and June 2009. This committee was composed of key Council staff with responsibilities for sustainability, emergency/risk management, transport and fleet vehicles. This committee provided essential information and key contacts to develop a detailed picture of Council operations and project direction.

2.4 About This Report

This report has been prepared by the Institute for Sensible Transport to present the findings from the contingency planning project. The Executive Summary (1) presents the key findings and recommendations contained in this report. This section (2), outlines the project objectives and process. The next section (3) provides concise contextual material, focusing on introductory Peak Oil information; examples of local government responses to Peak Oil; and key profiling information on Maribyrnong Council and community. Section 4 presents detail on the project activities undertaken, in order to produce the Representative Service Area Risk Profiles (5). Section 6 presents a discussion on the issue of trigger points. Finally, sections 7 and 8 outline the key themes, recommendations and conclusions resulting from the project.

Context – Peak Oil & Oil Vulnerability

3.1 Peak Oil

Peak Oil describes the period of maximum global oil production. Beyond this oil production peak, the world experiences continuing declines in the quantity of oil produced each year.

The United States Department of Energy commissioned a team of risk management experts to assess the threat posed by Peak Oil (Hirsch et al, 2005). They concluded ‘...the problem of peaking of world conventional oil production is unlike any yet faced by modern industrial society’ (p. 7). They found 20 years of intense forward planning is required to negate the economic and social impact of reduced oil supply.

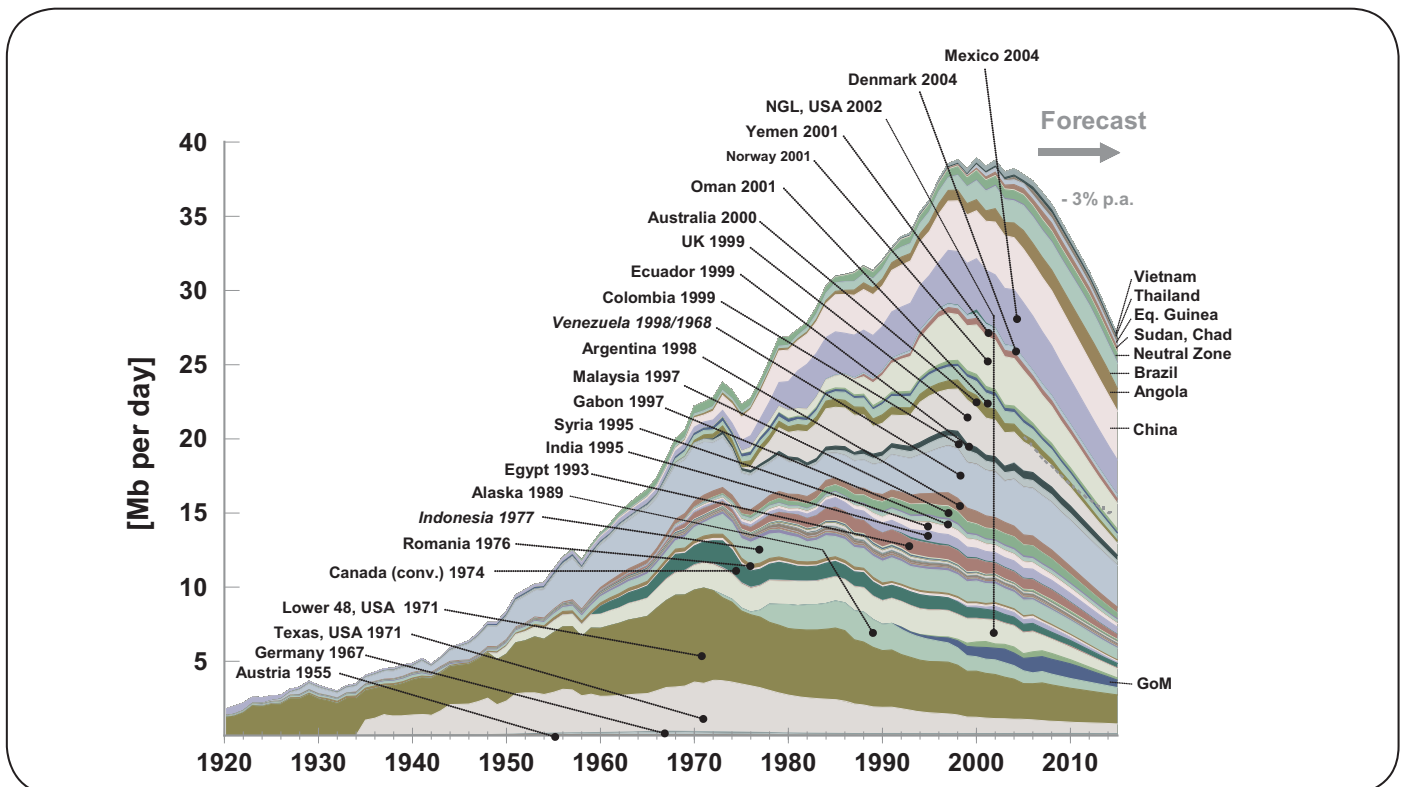
Hirsch (2005), in a radio interview following the release of the report comments: “This problem [Peak Oil] is truly frightening. This problem is like nothing I have seen in my lifetime and the more you think about it and the more you look at the numbers, the more uneasy any observer gets.”

An increasing number of prominent experts argue that the world has failed to find oil in sufficient quantities to balance with consumption (Skrebowski, 2008; Campbell, 2005; Simmons, 2005; Hartmann, 2004; Shah, 2004; Leggett, 2005; Strahan, 2007; Klare, 2004; Deffeyes, 2005; Heinberg, 2006). In fact, they argue the world is approaching, or has in fact reached, Peak Oil.

Peak oil can occur in a particular country, as it did in the United States in 1970 and Australia in 2000/01, as well as for a whole region or indeed the globe. The graph below shows the countries that have entered and are now past their peak in oil production (Peak Oil):

“The problem of peaking of world conventional oil production is unlike any yet faced by modern industrial society”
 (Hirsch et al, 2005, p. 7)

“This problem [Peak Oil] is truly frightening. This problem is like nothing I have seen in my lifetime and the more you think about it and the more you look at the numbers, the more uneasy any observer gets.”
 Hirsch, radio interview (2005)



Countries past their peak in oil production Source: Energy Watch Group, 2007

The International Energy Agency (IEA) is becoming increasingly concerned over long term oil supply limitations, as indicated in the following extracts (2007):

“Despite four years of high oil prices, this report sees increasing market tightness beyond 2010”

“Oil looks extremely tight in five years time”

An indication of the IEAs concern and the urgency in which they treat this issue is demonstrated in the following passage from Fatih Birol, the agency’s Chief Economist (2nd March 2008):

“We should not cling to crude down to the last drop – we should leave oil before it leaves us. That means new approaches must be found soon....The really important thing is that even though we are not yet running out of oil, we are running out of time.”

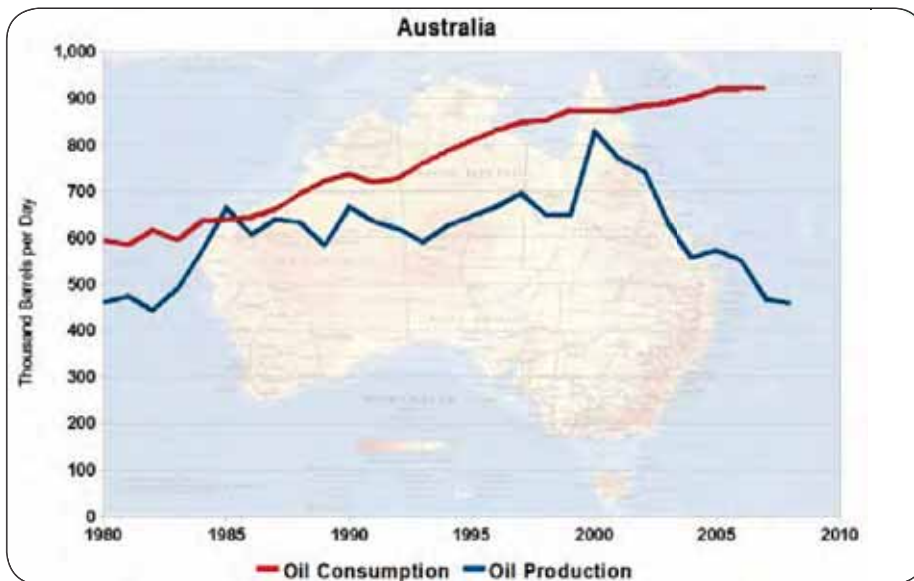
Major oil companies too are beginning to express doubt over the capacity of world oil production, as highlighted recently by Shell Chief Executive, Jeroen van der Veer (25th January 2008):

“After 2015 supplies of easy-to-access oil and gas will no longer keep up with demand”



The Australian supply situation

Australian oil production peaked in 2000/01 (Geoscience Australia, 2006), resulting in greater dependence on imports – often from unstable regions of the world.



Australia's lagging oil production and rising consumption

Source: Phil Hart and Geoscience Australia

Some 53% of Australian oil consumption is from domestic production (Australian Bureau of Agricultural and Resource Economics, 2008). By 2020, this is expected to drop to 27% (Australian Petroleum Production and Exploration Association, 2007).



Source: The Age, 18th April, 2009

“With only about a decade of known oil resources remaining at today’s production rates, Australia is looking down the barrel of a \$25b trade deficit in petroleum products by 2015”

*The Hon Martin Ferguson
AM MP 2008 APPEA Conference,
7th April 2008*

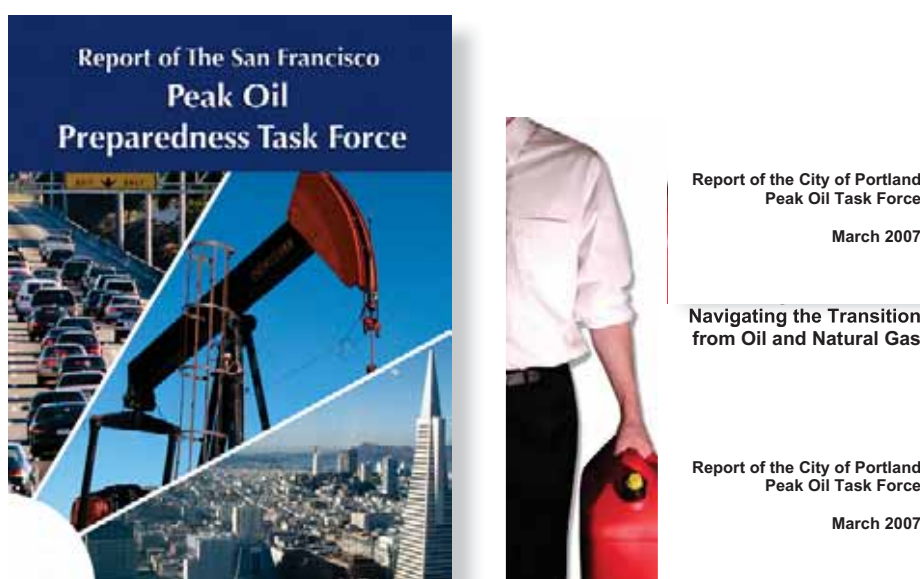
The Australian Senate (2007, p. 30) highlighted Peak Oil as a significant national issue, arguing:

“...the possibility of a peak of conventional oil production before 2030 should be a matter of concern...In view of the enormous changes that will be needed to move to a less oil dependent future, Australia should be planning for it now.”

3.2 Responding to Peak Oil - Current Examples

Peak oil presents complex and confronting challenges for governments at all levels. There is a rapidly increasing acceptance of the inevitability of Peak Oil, yet very little rigorous proactive planning to deal with its potential consequences. However several progressive governance regions are putting time and resources into proactive response.

Internationally, a number of regions have developed plans in response to the risk posed by Peak Oil. Most notably, San Francisco, California has developed a Peak Oil report developed by the Peak Oil Preparedness Task Force in 2009. Before San Francisco, Portland, Oregon produced Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas in 2007.



City councils are beginning to prepare for less oil

These reports found Peak Oil to present a major challenge to the United States economy and society. The future, they found, is likely to see less, but more expensive oil, with significant impacts on councils, communities and businesses. Both reports concluded that the urgent implementation of measures to reduce oil dependence is required to create resilience in the face of lower petroleum production.

This report is different from the above two documents in several important ways. Firstly, it is the third major document Maribyrnong has prepared on Peak Oil and therefore contains less introductory and general information on Peak Oil. Secondly, it focuses primarily on Council operations and seeks to minimise the impact Peak Oil may have on Council's ability to conduct its core business. Both the San Francisco and Portland documents were principally concerned with generalised community impacts associated with the peaking of global oil supplies.

Maribyrnong City Council is ahead of most jurisdictions on addressing and minimising the impacts of Peak Oil

The urgent implementation of measures to reduce oil dependence is required to create resilience in the face of lower petroleum production

In Australia, Maribyrnong City Council is ahead of most jurisdictions on addressing and minimising the impacts of Peak Oil. In 2008, Council adopted a *Peak Oil Policy* which seeks to 'address and minimise the impact of Peak Oil on Council Operations and the Maribyrnong community' (p. 2). Subsequently, Maribyrnong City Council developed a more detailed *Peak Oil Action Plan* which identified specific areas within Council where further work was required to identify appropriate response measures. This Peak Oil Contingency Plan is one of those measures identified by the *Peak Oil Action Plan*.

A number of regions have developed plans in response to the risk posed by Peak Oil

Peak Oil Policy - Key Points:

- **Council acknowledges that Peak Oil is a serious risk to Council and Community**
- **Council commits to the Oil Depletion Protocol with a commitment to a 3% reduction in oil use per year in Council's operations starting from the 2008/09 financial year**
- **Council will set a target of 1.5% increase per year of Eco-buy purchasing of green products**
- **Council commits to develop an annual action plan that directly address both the long term transition (gradual 3% decline in oil supply per year) and the oil shocks scenarios**

At the time of writing, no other Victorian municipality has developed a detailed Peak Oil Policy and associated Action Plan. Moreover, through the commissioning of this report, Maribyrnong has to our knowledge, become the first municipality in Australia to assess its vulnerability to oil supply limitations and develop measures to boost its resilience to these emerging oil supply challenges – specific to representative service areas of Council.

Although Maribyrnong is currently the only Australian municipality to have developed several major policy documents on Peak Oil, a number of councils have taken some introductory action, including Brisbane City Council (2007), Coffs Harbour City Council (2008) and Darebin City Council which have highlighted it as an issue of significant concern, as illustrated in this passage by then Darebin Mayor, Cr Peter Stephenson (2008):

"Addressing the impact of Peak Oil is crucial not just for our own community but for the whole world. Our current lifestyles are very dependent on petroleum products - for transport, food production and many products that we take for granted. While the world may well be a much better place when we are less dependent on oil it is how we make the transition that is critical. We need to plan now to have adequate alternatives in place and to make sure that the disadvantaged members of society aren't the hardest hit."



Peak Oil Policy



Peak Oil Action Plan

3.3 Maribyrnong Council and Community Profile

Maribyrnong City Council, like all Australian municipalities is dependent on oil to carry out a wide range of services required by the community. Everything from rubbish collection, road maintenance, meals on wheels, information technology and staff travel are dependent on oil.

Similarly, oil is a vital input into everyday life in the Maribyrnong community. Oil is relied upon to produce and bring goods to market, for passenger transport and manufacturing.

Many of the vulnerabilities to oil supply limitations, either at the Council operational level or wider community impacts have emerged as key themes in this report. Multiple areas of Council as well as existing literature on Peak Oil have identified issues of common concern. These themes and associated recommendations are explored in Section 7 of the report and identified below:

- **Staff Travel to Work**
- **Community Mobility and Access**
- **Food Security**
- **Disadvantaged Communities**
- **Storage and Inventory**
- **Climate Change**
- **New Technology**
- **Service Delivery Model Change**
- **Communication and Education**

Everything from rubbish collection, road maintenance, meals on wheels, information technology and staff travel are dependent on oil

The developed world has become highly dependent on petroleum products and the Maribyrnong community is no different



Many of Council's core services are fuel dependent

The developed world has become highly dependent on petroleum products and the Maribyrnong community is no different in this regard. Our food and other products we consume everyday often travel thousands of kilometres from where they are produced to the point of purchase. Moreover, petroleum dependent forms of transport are widespread – placing our transport system and habits in a vulnerable position should any disruption in supply and/or a rapid increase in price occur.

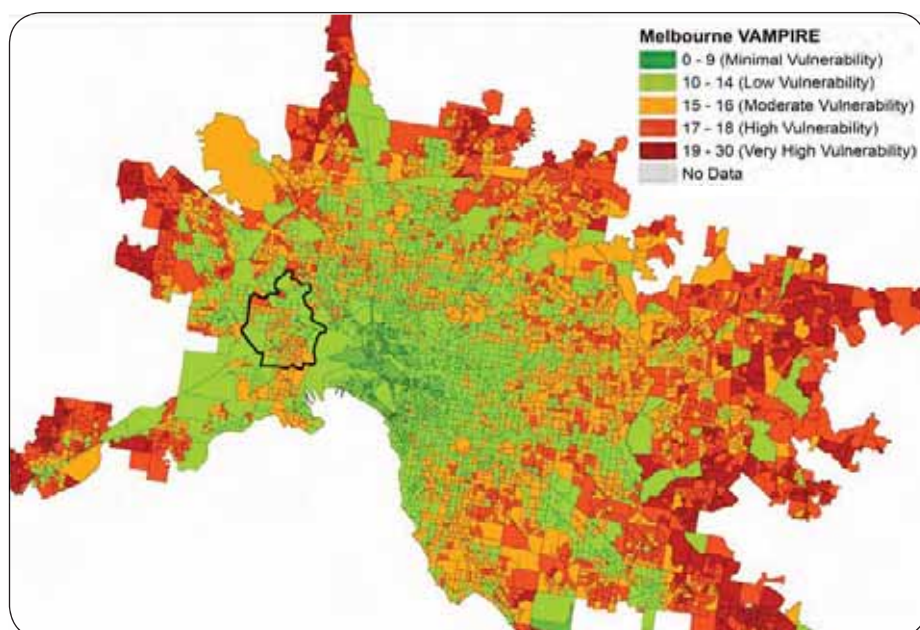


This section provides an introduction to the transport and demographic context of Peak Oil for the Maribyrnong community. Many of the issues will be explored in greater detail in the themes and recommendations section of this report – particularly ‘Community Mobility and Access’, ‘Food Security’, and ‘Disadvantaged Communities’

The City of Maribyrnong, like other municipalities in Melbourne, is highly car dependent, with around 65% of all trips to work undertaken in the private automobile, almost all of which are completed in single occupant vehicles. Average vehicle occupancy in Melbourne at peak hour is 1.08 people per vehicle (Vicroads, 2009), which highlights part of the current inefficiency in the way oil is currently used, as well as the potential to more efficiently use existing vehicle capacity.

Transport patterns in Maribyrnong, whilst slightly less oil dependent than other areas of Melbourne are still highly vulnerable

The rise in petrol prices over the last four years led urban researchers Drs Jago Dodson and Neil Sipe from Griffith University to assess its impact on the household level. By focusing on income, car use and ownership as well as residential mortgages, they have been able to locate areas vulnerable to high fuel prices. A map of this vulnerability is illustrated below, with darker shades indicating areas of very high vulnerability. Maribyrnong (outlined), as a relatively inner city area, is not among the most vulnerable areas relative to the outer suburbs, but still far from resilient.



Mapping Oil Vulnerability in Maribyrnong and Melbourne

Source: Adapted from Dodson & Sipe, 2008.

Transport patterns in Maribyrnong, whilst slightly less oil dependent than other areas of Melbourne are still highly vulnerable to each of the scenarios outlined in the Peak Oil Policy, due to the following reasons:

Peak Oil is likely to impact most heavily on those experiencing socio-economic disadvantage

- Limited spare public transport capacity, particularly on the rail network at peak times. Even a relatively small shift (in proportional terms) from car to public transport would push the public transport system beyond its limits. For instance, a 5% reduction in car use towards public transport in the event of an oil price spike would produce around a 50% increase in public transport patronage (Litman, 2009). Currently levels of service provision would be unable to absorb this increase
- A number of areas within Maribyrnong lack good access to public transport, namely the suburbs of Maidstone, Kingsville and Maribyrnong
- A lack of continuous, integrated bicycles lanes and paths



Little spare capacity exists on the public transport system during the peak

Disadvantage in the City of Maribyrnong

Peak Oil is likely to impact most heavily on those experiencing socio-economic disadvantage and this was a continuous theme threaded throughout Maribyrnong's (2008) Peak Oil Policy. The reason for this is that many products will experience a significant price rise, linked to the likely substantial increases in the price of oil. A more detailed discussion on Peak Oil and its relationship to disadvantage in Maribyrnong is contained within the Disadvantaged Communities theme in Section 8.

For additional Peak Oil background information and general impacts on the Maribyrnong community, see the Peak Oil Policy (Maribyrnong City Council, 2008a)

The Process - Maribyrnong City Council Peak Oil Contingency Planning

4.1 Identifying Representative Service Areas

The scope of this report was limited to a sample of ten representative service areas, broadly representing the scope of Council operations.

The following factors were considered in selecting the ten representative service areas:

- Fuel use: service areas that have a high fuel usage are naturally more vulnerable to supply shortages and rising price
- Number of staff and annual budget were used to identify services representing a large component of Council operations
- Criticality: although difficult to measure, an effort was made to include some of the most critical internal and external services
- Representation: acknowledging the selection of only ten service areas leaves out many other important components of Council, an effort was made to select service areas that provide a degree of transferability to other areas of Council. In this way, the key learning's to arise from this report can be applied to other service areas, in an effort to broaden Councils response to Peak Oil. Indeed, in order to gain maximum value from this report, it is suggested the findings be applied across Council operations and feed into other strategies and plans

The project team, in conjunction with the Steering Committee, applied these factors to Council service areas to determine the ten representative service areas to focus on (see table below). The first eight represent discrete services, covering both externally focused areas (such as Waste Management and Home Care) and internally focused services necessary to ensure the continued functioning of Council (such as Fleet Management and Information Technology). The final two service areas have a broader strategic focus. They were selected in recognition of the essential role Council has in providing strategic planning and special project development on behalf of the community, and focus on the role of Council planning and projects in reducing future impact of oil supply disruptions on the community.

In order to gain maximum value from this report, it is suggested the findings be applied across Council operations and feed into other strategies and plans

4.2 Workshop Scenarios

The Workshop – An overview

Council staff were grouped according to service area and were presented with a brief introduction to Peak Oil. Two possible scenarios were presented, the first involving a short term oil shortage, in which only 25% of the regular fuel supply is available for up to six weeks. The second scenario put Council staff in the year 2025, in which there has been a gradual decline in world oil production since 2009, resulting in 40% less oil than current consumption. The detail of the scenarios, as presented in the workshops, is outlined below. Council staff in the ten representative service areas were asked to identify threats posed by each of these scenarios to their key responsibilities and what responses they could take to become more resilient to oil supply reductions.

Each group, divided into the ten representative service areas were required to:

The Ten Representative Service Areas
Waste Management
Infrastructure and Road Maintenance
Fleet Management
Meals on Wheels
Home Care
Maternal and Child Health
Customer Service and Communications
Information Technology
Strategic Planning – Transport
Strategic Planning – Food Security

- **Identify their key responsibilities/key performance indicators**
- **Outline what inputs they require to enable them to carry out their tasks/responsibilities**
- **Estimate their fuel use during the course of a regular week**
- **Document the threats posed by both Peak Oil scenarios to their Council responsibilities and what responses they could initiated to mitigate against those threats.**
- **Prioritise two key threats and responses to each scenario for their service area**



Council staff developing ideas at the Peak Oil Workshop

The post-workshop phase of the project involved an analysis of the information gathered during the workshop and consultation with the Steering Committee and additional Council staff, to clarify and expand on this information. This was then integrated into a risk management framework to develop risk profiles for each service area. These profiles enabled the development of recommendations for action, to provide business continuity based on the two Peak Oil scenarios that have been modeled. Several key themes have also been identified, where similar issues or response measures were recorded across multiple service delivery areas (discussed in Section 7).

Scenario One: Short-term Disruption

Intent

This first scenario is intended to explore how a disruptive local event of a limited duration could impact the ability of Maribyrnong City Council to continue the provision of services to the community.

Background

Crude oil produced in Bass Strait arrives onshore at Longford in East Gippsland and is then pumped via pipeline to Long Island Point facility on Westernport Bay near Hastings. Crude oil is then distributed via the Westernport-Altona-Geelong (WAG) pipeline to refineries in Altona and Geelong.



Source: BHP Billiton, 2008

One can envisage a scenario where a disruption at some point in this chain of pipelines and infrastructure stops the flow of stabilised crude oil from Long Island Point to the Altona and Geelong refineries. Victoria's fuel supplies could be sharply curtailed for an extended period; either until the pipelines and facilities are returned to normal operation or increased direct shipments of oil and refined fuel products start arriving from further afield.

Trucking fuel from interstate is not practical and would only have limited impact. It would take well over a thousand tankers per day to replace Victoria's oil supply, while only a small fraction of that number would be available. Needing to complete a 1000km round trip, they could only make one delivery per day which would represent a small fraction of total current use.

Such major disruptions are rare, but not unprecedented. Victoria has already experienced the Longford Gas Plant explosion in 1998 which shut down gas supplies for two weeks and the Varanus Island Gas Plant explosion in Western Australia in 2008 which also had a severe impact. In 2005, there was a major explosion and fire at the Buncefield Oil Depot in the U.K. which has a similar function to the Long Island Point facility.

While major disruptions to oil and petrol supplies have been comparatively rare in the past, as oil production peaks and infrastructure gets older, the likelihood and potential impact of disruptions increases. A decline in global oil production would also result in the world's refining capacity being reduced. Australia's refineries are small and have relatively high operating costs. They could be amongst the first to close as global oil production declines, further increasing our exposure to local and international disruptions.

It is not even necessary for infrastructure to fail for there to be a severe disruption. In 2000, the UK experienced a fuel crisis with a relatively benign cause. After just a few days of fuel price protests and refinery blockades, less than 5% of fuel was being supplied and 90% of all petrol stations were empty. Panic buying was widespread and supermarkets were running out of food and implementing rationing.

Therefore, the detail of this scenario is not important. In a world of declining oil supplies, a number of plausible local and international scenarios could lead to a major disruption. A worst case scenario has been chosen, as it is easier to adapt measures identified to a less severe scenario than the other way round.

Scenario One Details

Victoria is reduced to 25% of normal fuel supplies for a period of six weeks. Panic buying makes the situation tense and confused and long queues form around any service station which has supplies. The State Government has declared a Fuel Emergency, but is struggling to implement practical steps to direct fuel where most needed. Fuel supplies are being made available to bus operators and some critical industrial/commercial users are receiving reduced allocations, but retail supplies are chaotic. Some service stations have been set aside solely for the provision of fuel to emergency services but otherwise the Government is relying on ineffective rationing measures. Streets and freeways are relatively quiet except for the lengthy queues waiting around service stations.



A lack of fuel may cut traffic levels

Scenario Two: Long-term Decline

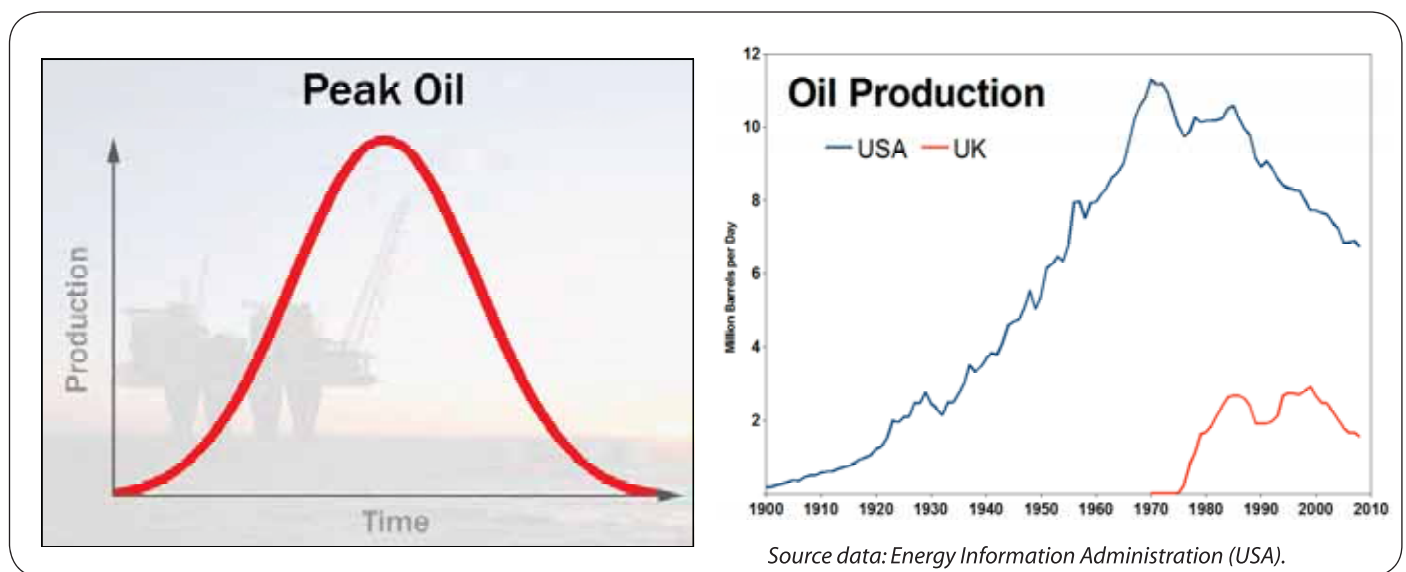
Intent

The second scenario is intended to explore how service delivery models would be impacted by a steady decline in available oil supplies over an extended period of time (15 – 20 years).

Background

While there is debate about the nature and timing of Peak Oil, the world's oil resources are finite and production and consumption of oil must one day reach a maximum before declining over many decades, as illustrated below. This resource lifecycle of increasing production followed by decline has already been observed in many countries, including the USA and UK shown below.

Given the growing level of concern about availability of future oil supplies, it is prudent to consider how a scenario of declining oil supplies would affect current service delivery models



Some commentators argue that higher prices will promote development and application of new technology to increase recovery from existing fields and allow exploration and production in new areas. Other analysts argue that oil discovery peaked more than forty years ago, that existing reserves appear to be overstated in key Organisation of Petroleum Exporting Countries (OPEC) members and that the easy gains in terms of applying new technology to increase recovery from existing fields have already been achieved (Skrebowski & Hart, 2007). There are a broad range of possible decline scenarios, from steep declines of up to 8% per year to more moderate declines of just 1-2% per year.

This report makes no attempt to resolve the debate over the timing of Peak Oil. Given the growing level of concern about availability of future oil supplies, it is prudent to consider how a scenario of declining oil supplies would affect current service delivery models. Identified contingency measures can then be prioritised for action on the basis of their relative costs and benefits. Emissions reduction targets and a desire for greater energy security provide independent drivers to prepare for a long-term decline scenario.

Scenario Two Details

World oil production begins to decline from the reference financial year 2008-09. While the global decline rate may be more moderate, emerging economies have a greater demand for oil, and Australia is forced to reduce its oil consumption at an average rate of 3% per year. This is consistent with Maribyrnong City Council's existing policy to reduce fuel use by 3% per annum (Maribyrnong City Council, 2008). At this rate, fuel use is reduced to 60% of current levels by 2025, just over fifteen years away.

4.3 Risk Assessment Process

Under scenario one, a short-term, severe disruption to local fuel supplies, risks have been assessed in an emergency response and business continuity context. The impact of the scenario on each service area has been assessed in a manner consistent with the Maribyrnong City Council Risk Management Policy, which is based on the Australian Standard 4360 for Risk Management.

The consequence table below describes how the ratings 1-5 have been applied.

Consequence Rating	Descriptor	Consequence Description
1	Insignificant	No harm to human health
		Service delivery not affected
2	Minor	Potential harm to human health
		Services impacted but short-term solutions available
		Minor increase in operational costs
3	Moderate	Harm to human health
		Only non-core services interrupted
		25% non-critical staff not available
		Significant increase in operational costs
4	Major	Severe harm to human health requiring hospitalisation
		Disruption to a core service
		No disruption to essential services
		50% non-critical staff not available
		Some critical staff not available
		Major increase in operational costs
		Major public transport delays
5	Catastrophic	Possible or actual human fatalities
		Core services severely disrupted
		Essential services disrupted
		Most non-critical staff not available
		Critical staff attendance disrupted
		Operational costs affect financial plan, line of credit required
		Major public transport failures

The expectation was that responses to events under scenario one would be managed under the existing Emergency Response Management Plan.

Under scenario two, a long-term steady decline in oil production, the risks have been assessed in terms of their impact on the current delivery model for each service area. The ratings also reflect how hard each service area will have to work to meet the current policy target of a 3% decline per annum in fuel consumption.

The ratings table below describes how the ratings 1 - 5 have been applied to scenario two.

Rating	Descriptor	Consequence Description
1	Insignificant	No changes to service delivery model required
2	Minor	Only minor changes to service delivery model required
		Fuel reduction target can be easily met
3	Moderate	The impact on current service delivery model is moderate
		Service delivery can be adapted relatively easily.
		Minor increase in operational costs.
4	Major	The impact on the current service delivery model is very high
		Adaptation is possible but will require significant time and resources
		Significant increase in operational costs
5	Extreme	The current service delivery model is not viable
		Unsustainable increase in operational costs

Summary Risk Analysis/Assessment

For each of the ten representative service areas, the relative consequence ratings for scenario one and impact ratings for scenario two are summarised in the tables below:

Scenario One: Short-term Disruption

Service Area	Consequence Rating
Meals on Wheels	5
Waste Management	4
Fleet Management	4
Home Care	4
Customer Service and Communications	4
Information Technology	4
Maternal and Child Health	3
Infrastructure and Road Maintenance	2
Strategic Planning – Transport	2
Strategic Planning – Food Security	2

Scenario Two: Long-term Decline

Service Area	Consequence Rating
Waste Management	5
Infrastructure and Road Maintenance	5
Meals on Wheels	5
Fleet Management	4
Home Care	3
Maternal and Child Health	3
Customer Service and Communications	3
Information Technology	3
Strategic Planning – Transport	3
Strategic Planning – Food Security	2

A number of key service areas, such as Waste Management and Meals on Wheels, are highly vulnerable under both scenarios.

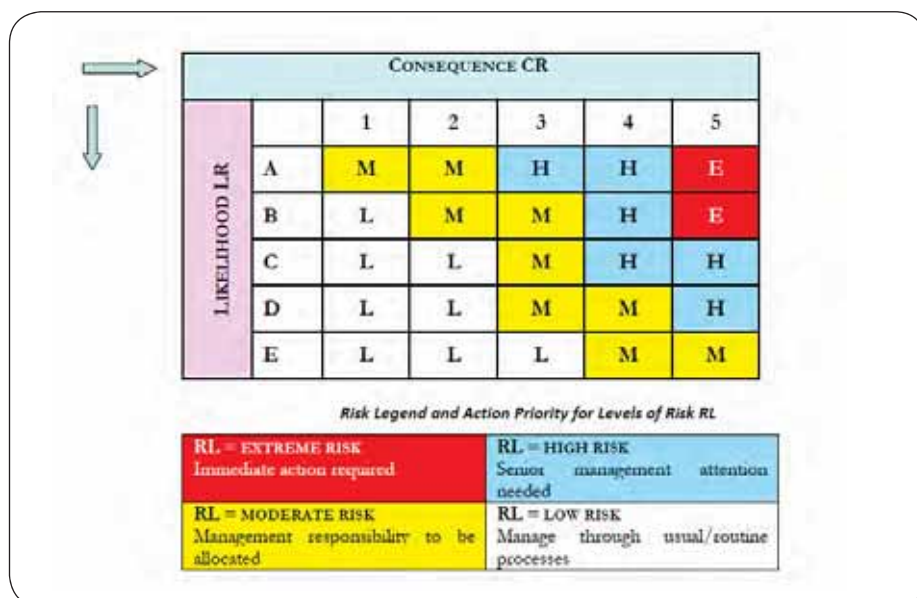
The assessment shows Infrastructure and Road Maintenance and Maternal and Child Health are able to 'ride out' the short-term disruption (scenario one) with lower consequences for the community. Their services can be curtailed for a short period of time and restored relatively quickly once the situation returns to normal.

In the long-term decline scenario, Home Care, Customer Service and Communications and Information Technology were seen as having a greater ability to adapt. In contrast, Waste Management, Infrastructure Maintenance and Meals on Wheels are seen as much harder to adapt. The current service delivery model for these areas is considered unsustainable under a scenario of declining oil availability.

The relatively low rating for the two strategic planning areas (transport and food security) is due to the focus of this report being on Council's internal operations. There is little doubt transport and food security are two of the largest challenges posed by oil depletion and this will be addressed in greater detail when Council conducts its community peak oil contingency plan in the future. Food security is discussed in Appendix Three.

In scenario planning, it is standard practice not to assign probabilities to any of the scenarios identified. However, considering a range of likelihoods for the two scenarios allows these outcomes to be considered in relation to Maribyrnong City Council's existing risk management framework.

Risk Assessment Matrix (Risk Levels RL, for CR and LR combinations)



While scenario one is not 'almost certain' or even 'likely', it could be considered 'unlikely' rather than 'rare'. Combined with a consequence rating of 5 in some service areas, this yields a risk rating of High, which warrants action and resources to reduce the overall level of risk.

Scenario two could be considered possible, likely or almost certain depending on whose assessment is taken. Combined with consequence ratings of 5 in several service areas, this yields a risk rating of High or even Extreme.

The following pages contain the detailed risk profiles for each service area, listing specific threats and response measures identified for each of the ten service areas under both scenarios.

The response tables below also identify a priority rating of L, M or H (Low, Medium or High). This grades each response in terms of how easily the measure could be implemented and what level of effectiveness it has in terms on boosting resilience to fuel shortages.

A considerable level of human and financial resources should be applied to reducing these risk levels to a more acceptable level.

5 Representative Service Area Risk Profiles

Service Area: Waste Management

- **Budget: \$2,992,470**
- **Number of Employees: 4 (This is a contracted service – actual number of employees required to carry out waste management is significantly higher)**

Scenario One: Short-term Disruption – Risk Assessment

Threat Description	Consequence Rating
Severely curtailed service	4
Accumulation and dumping of waste	4
Odour and visual amenity worsen	4
Public health risks increasing	4
Loss of community confidence in council ability to maintain order	4

Waste Management Scenario One

Response Measures	Priority
Prioritise waste services to direct scarce resources to areas of greatest need	H
Reduce frequency of collections to minimise fuel use	H
Centralised collection points to reduce the travel required for waste/ recycling collection - such as the end of each residential street	H
Baiting and spraying program to minimise rodent activity and disease	L
Deodorising program to reduce noticeable impact of any service/collection reduction	L
Prevention of waste build up	M
Community advice and education on the scarce fuel situation and the impact this has on service levels	H
Alternative work arrangements for those staff that do not need to be onsite, to minimise transport task	H

Waste Management Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Costs of transportation, disposal and processing all increasing	5
Service price for community increases	5
New political drivers not accepted by community (eg pay per weight, reduced packaging)	5
Customer dissatisfaction	5



Waste Management Scenario Two

Response Measures	Priority
Changing waste prioritisation between waste, recycling, hard waste collection	M
Waste minimisation/reduction methods include: Composting, worm farming, reduced packaging, reduce frequency of service	H
Education on waste reduction including charges relative to other states	H
Promote a widespread attitude change as well as legislation to alter the way the community views waste/recycling	M
Encourage pricing structures and incentives that reduce demand (pay per weight)	L
Using neighbours bin for underutilised service (such as single occupant residences) to reduce demand for service	H
Centralised collection points to reduce the travel required for waste/ recycling collection > such as the end of each residential street	H
Promote domestic animals – chickens and rabbits; in an effort to reduce waste collection needs	L

Service Area: Infrastructure and Road Maintenance

- **Budget: \$4,714,552**
- **Number of Employees: 27**

Performance Indicators

- **Satisfaction levels with road maintenance and repairs – data available from annual community survey – target = 60% satisfaction level per annum**
- **60% of road maintenance requests dealt with in timeframe (target date)**
- **Proactive inspection in accordance to RMP, asset protection work orders (Maribyrnong City Council, 2009)**

Infrastructure and Road Maintenance Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Staff unable to travel to work	2
Increasing number of defects leads to higher public risk	2
Maintenance contractors unable to carry out majority of work	2

Infrastructure and Road Maintenance Scenario One

Response Measures	Priority
Implement a 'make-safe' strategy. Erect barriers and/or complete temporary repairs until fuel supply situation enables complete repair	H
Consider increased inventory of critical materials or short-term alternatives	H
Develop web portal and other working from home tools to enable staff to co-ordinate necessary maintenance activities remotely	L
Rationalise fleet and develop a multi-function vehicle able to carry out most critical repairs	L
Cross council job-sharing to enable remote staff to support local councils and vice-versa	M

Infrastructure and Road Maintenance Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Road surfacing materials become increasingly scarce and expensive	5
Reduced level of service leads to deteriorating infrastructure	5
Limited availability of new materials and resources	5
Lack of expertise in new construction techniques	5
Can't compete in tight market against larger construction companies	5

NB: Traffic related deterioration can be expected to decline in rough proportion to changes in traffic levels. However, buildings which suffer mostly from environmental and weather related degradation mechanisms will continue to deteriorate at current rates.



Infrastructure and Road Maintenance Scenario Two

Response Measures	Priority
Revise Road Management Plan, to develop a new hierarchy of road use patterns. Allocate some roads specifically to cycling/walking and/or light/compact vehicles only	H
Revise Asset Management Plan for buildings and other infrastructure	H
Develop new road inspection techniques and use smaller vehicles/ motorcycles etc.	H
Promote research and development into new treatment techniques to extend lifetime of existing infrastructure and new less oil intensive surfacing materials	M
Require greater interaction between other authorities (water/gas etc). Activities from different authorities need to be planned together to reduce resurfacing requirement. (No longer acceptable to excavate their assets in isolation and expect council to resurface each time).	M
Require greater use of boring/tunnelling techniques for installation of new services to reduce road resurfacing requirements.	M
Shift from bitumen to concrete for road construction. More time consuming and expensive but longer lifetime so less overall resource use.	L
Educate community about why levels of service may change (council costs/ rates etc)	H
Manage demand more carefully. Restrict heavy vehicles to smaller number of routes to reduce overall rate of degradation	H
When particular roads have degraded, postpone major repairs by restricting to lower speeds and local traffic only	H
Consider road user charges/user pays to reflect increasing cost of road use.	L
Consider greater use of Maribyrnong River for heavy/bulk freight to reduce wear on roads.	L

Service Area: Fleet Management

- **Budget: \$1,106,668**
- **Number of Employees: 3**

Performance Indicators

- **Reduction in fuel usage in vehicles (target 0.75% per quarter)**
- **% of fleet maintained in accordance to the SAP maintenance plan (100% every 6 months)**
- **% of fleet with SAP maintenance plans – 100% distributed across 24 months)**
- **Level of customer satisfaction (internal users) target 80% satisfaction**
- **Procurement, allocation and maintenance of fleet**
- **Provide fleet resources for Council services**
- **Maintain fleet items (Maribyrnong City Council, 2009)**

Fleet Management Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Severely reduced capacity for services reliant on council fleet	4
Reduced availability of supplies for servicing (parts and contractors)	4

Fleet Management Scenario One

Response Measures	Priority
Minimise fuel use by using fleet vehicles as a last resort: Alternatives include public transport, cycling, walking and car pooling	H
Use of community buses to pick up staff	L
Work from home where possible, using tele and video conferencing	H
Local Council workplace exchange when staff live closer to another municipal office	M
Local billeting of staff that live too far to use alternative modes of transport with staff that live closer to work	L
Consider short term local accommodation (eg. Hotels)	L
Rationalising and redeployment of vehicle fleet to critical services	H

Fleet Management Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Higher fuel prices feeds directly in to cost of council services	4
Technology/production not able to keep up with pace of change. Limited availability of new/better vehicles	4
Reduction in number of fleet vehicles and size, reduced availability	4

Fleet Management Scenario Two

Response Measures	Priority
Reduced the size of fleet and use it sparingly	H
Purchase fuel efficient vehicles	H
Diversity fuel sources (LPG/Biodiesel/CNG/electric) 5 – 10 yr fuel security	H
Early implementation of long term contract for supply of alternative fuels (eg/ biodiesel)	H
Policy to employ local staff in order to help ensure they will be able to get to work without oil intensive modes of transport	H
Purchase a fleet of scooters/motor bikes and bicycles to provide alternative transport options	H
Introduce fuel efficiency requirements in Council tender evaluation criteria	H
Provide incentives for staff to minimise the need for car use, such as free or subsidised yearly public transport passes, free or subsidised bicycle purchase for work use	H
Advocacy role to State and Fed Govt to encourage investment in policies that increase opportunities to lower fuel use	H



Service Area: Meals on Wheels

- **Budget: \$328,720**
- **Number of Employees: 4 (a contracted service)**

Performance Indicators

- **Deliver meals – Mon. – Fri.(for 7 days p/wk)**
- **Production of 80,000 meals per year (Maribyrnong City Council, 2009)**

Meals on Wheels Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Large number of staff unable to travel to work	5
Disruption to contractor preparation of packaged meals and delivery to local despatch centre	5
Limited availability of workforce and vehicles	5
Unable to meet current delivery schedules	5

NB: Panic buying of food supplies is likely to increase the number of people needing help, at the same time that the ability to provide the service is being severely restricted.

Meals on Wheels Meals on Wheels Scenario One

Response Measures	Priority
Community education/crisis management to help the community understand the nature of the problem, how the service will change and what they can do to cope	H
Set up temporary kitchens to ensure those most at need are fed	M
Seek support from the State Government for additional food supplies and delivery mechanisms	H
Seek alternative providers/suppliers that have a more local basis, thereby reducing the vulnerabilities associated with transport	H
Delivery of frozen meals where possible - to reduce the frequency of delivery	H
Reprioritise other services and direct surplus fuel to food delivery	L
Deliver food by load bearing bicycles and electric bikes (possibly with trailers attached)	H
Prioritise clients: Some may cope without an emergency response	H
Plan to deal with new requests as result of crisis for those that have been unable to cope with the oil shock	H
Call for food donations from community	H
Use the media to encourage neighbours to help each other - especially those considered vulnerable	H
Inter-Council working group to pool resources	M
Use of other available staff across Council or call for volunteers	M
Develop a fuel inventory to make essential trips	L

Meals on Wheels Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Transport resources required to deliver service under the current model are not sustainable	5
Community anger at declining standard of service and stricter criteria for eligibility	5

Meals on Wheels Scenario Two

Response Measures	Priority
Change framework of service, including:	
a) Conduct community education campaign including measures to enhance independence	H
b) Reduce meal delivery demand	H
c) Introduce communal dining room service	L
d) Weekly deliveries (fresh, chilled and frozen) less drivers/vehicles required	H
e) Consolidation/combining of services for Home Care/Meals on Wheels	H
Promote community engagement - neighbours looking out for each other	H
Phone in monitoring services when required (client monitoring is currently done by Meals on Wheels drivers) to reduce driving	H
Use of local/seasonal produce for meals to reduce costs - change to menus and community expectations	M
Review/redefine service and eligibility as food security becomes an increasing issue for whole community, expect increased demand for service	H



Peak Oil will place increased pressure on Council to provide meals to vulnerable populations

Service Area: Home Care

- **Budget: \$277,564**
- **Number of Employees: 10 F/T, 85 P/T**

Performance Indicators

- Provide 9471 hours of home care per annum
- Strengthen the existing provision of health care, activity and support programs (Maribyrnong City Council, 2009).

Home Care Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Majority of staff unable to travel to work	4
Increased vulnerability of elderly (less family contact, restricted access to shops, prescriptions and other medical services)	4
Service cut severely	4
Increased stress on carers	4

Home Care Scenario One

Response Measures	Priority
Introduce car pooling software to assist staff getting to work	H
Encourage use of bike fleet to make local trips previously done with motor vehicle - including electric and three wheeled bikes as an alternative to car use	H
Promote work from home initiatives among appropriate staff (may only be a day or two per week)	H
Advertise for volunteers and neighbours to assist and provide encouragement/incentives	L
Prioritise clients to ensure those with greatest need are seen first	H
Localise services and combine services where possible to minimise the transport task	H
Increase the flexibility of delivery times to reduce unnecessary fuel use	H
Introduce fuel storage facilities for essential services	L

Home Care Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Unable to provide staff to homes under current model (but alternative models possible)	3
Greater vulnerability of elderly in the community	3



Home Care Scenario Two

Response Measures	Priority
Group housing/extended families to widen the base of community support and reduce workload on home care services	L
Employ suitable local people to carry out home care duties to those that live close by	M
Conduct necessary home care duties by foot, bicycle or public transport	H
Conduct volunteer campaigns to boost the number of local volunteers	M
Promote active living – strengthen training etc...increase resilience to enable greater levels of independence in the community	M
Teach IT to older adults and people with a disability so they may undertake activities online that they used to have to travel for	M
Make better use of sustainable transport to get to work	H
Promote investment in research and technologies (Robots, Hybrid cars)	L
Plan rosters based on geography/proximity to reduce transport task	H

Service Area: Maternal and Child Health

- **Budget: \$1,073,265**
- **Number of Employees: 34**

Performance Indicators

- **1400 consultations per month**
- **400 immunisations per month (Maribyrnong City Council, 2009).**

Maternal and Child Health Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Staff unable to travel to work	3
Difficult to arrange transport for home visits	3
Families restricted in ability to access service locations	3
Vulnerable families facing increased stress	3
Reduced access to vaccines and sterilisation equipment	3
Difficulty accessing and supporting CALD (Culturally and Linguistically Diverse) families	3
•Severely curtailed service	3

Notes: Council health services are dependent on skilled staff and consequently tend to have a higher than average proportion of employees travelling long distances to work.

Maternal and Child Health Scenario One

Response Measures	Priority
Reduced work week to reduce travel requirements	M
Increase use of bike fleets for work related travel	H
Introduce car pooling software for staff commuting	H
Increase the provision of advice by phone and email and video links - access to interpreter service	H
Prioritise clients to ensure those with the greatest need are seen first	H
Information on Council website and hardcopy information packs - Use of local media to reduce the need for clients to make face-to-face visits	H
Community education to explain how the current situation changes the service and what measures they can take to minimise adverse health impacts. Ensure this occurs within culturally and linguistically diverse groups.	H
Increased refrigeration and bulk order of immunisations and formulas etc	H
Maximise the use/efficiency of Council owned hybrid cars	M

Maternal and Child Health Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Reduced capacity to access goods and transport	3
Difficult for staff to adapt to new way of working	3
Reduction in number of home visits	3
Community (families) unhappy with perceived declining standard of service	3

Maternal and Child Health Scenario Two

Response Measures	Priority
Employ more staff who live locally to minimise the transport task associated with commuting	M
Adapt and move service centres to reduce community travel requirements to maternal and child health centres	M
Increased use of technology to keep in contact with service users (e.g. video links)	H
Develop communication material for the community to increased use of public transport, walking and cycling to travel to health centres	H
Education/PR campaign – ongoing importance of changes to services, to ensure community understand the rationale behind changes to service delivery	H



Service Area: Customer Service and Communications

- **Budget: \$1,729,465**
- **Number of Employees: 25**

Performance Indicators

- **Proactively issue regular weekly media releases on Council programs**
- **Website usage statistics (110,000 per month)**
- **Provide relevant, up to date information on Council services and programs**
- **Increased community awareness of Council and community information in its most up to date, reliable form/24hrs website access to Council information**
- **Customer service calls – target 60% resolved at first point of call monthly**
- **Customer service counter enquiries target 3,500 per month**
- **Customer service requests monthly statistics – target 1,400 requests per month**
- **Phone contacts 6900 per month (Maribyrnong City Council, 2009)**

Customer Service and Communications Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Some staff unable to travel to work	4
Increased number of inquiries/faults not logged, flow on impact to other core business activities	4
Increased information demand (phone, email, web)	4
Normal official payments, process and approvals disrupted (cash flow disruptions)	4
Reduced number of events and level of community engagement	4



Customer Service and Communications Scenario One

Response Measures	Priority
Consider flexible hours and/or days for appropriate staff to minimise complications associated with staff commuting	H
Investigate Cross Council partnerships (eg/ resources, office access) to minimise the transport task	L
Introduce car pool software (organisational) Intranet	H
Ensure targeted communications to vulnerable groups is prepared in advance (services eg. Aged), providing appropriate information regarding the fuel shortage and what it means for them	H
Anticipate surge in calls from community and have measures in place to put on additional staff if required	M
Regular updates - via a range of mediums, including the on hold message (while telephone customers are on hold), website, community centres (posters via email) and radio (local), Culturally and Linguistically Diverse peer facilitators (call registered contacts in this area to inform them of the message)	H
May need to adjust opening hours, possibly lengthen them, so people can arrive outside peak public transport hours	L
Set up other sites as info hubs, such as at police stations and libraries to help ensure everyone in the community has access to information	L
Info sharing network > key contact person in each dept who is responsible for managing the oil shortage situation	H
Be prepared to reschedule previously arranged events/activities that maybe adversely affected by the fuel shortage > prioritise the essential	H
Shift to an online focus > the community capacity to uptake online information needs to be enhanced prior to a fuel shortage event	M
Avoid isolating the most vulnerable by developing communication messages/mediums that are accessible to those without online access, as these groups have the great need for service but the least capacity to access online info	H

Customer Service and Communications Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Difficulty adapting to new service and changing roles (eg online customer service operator)	3
Declining availability of traditional formats (mail, newspapers) and requirement to adapt to greater online focus (changed formats, ownership, frequency and audience)	3
Changes in staff availability	3
Reduction in face-to-face local events and engagement (eg neighbourhood meetings moving online, impacts on sense of community and connectedness)	3
Changes forced on governance structures (eg large multi-member wards back to smaller single member wards)	3

Customer Service and Communications Scenario Two

Response Measures	Priority
Online services planning and resourcing (already have draft plan) > cost and training (staff and community) > access to technology must be enhanced so as many people as possible can effectively receive digital information, thereby avoid unnecessary travel and resource use	H
Promote remote access to Council, for both staff and the community	H
Investigate cross council exchange arrangements, to minimise travel requirements	H
Information planning for future formats (online, SMS, newspapers)	H
Boost tele/video conferencing and webcasting facilities to enable more meetings/forums to take place remotely	H
Consider the venue for events > utilise sites on public transport routes, with very good walking and cycling access	H
Avoid isolating the most vulnerable by developing communication messages/mediums that are accessible to those without online access, as these groups have the great need for service but the least capacity to access online info	H



Service Area: Information Technology

- **Budget: \$1,485,766**
- **Number of Employees: 5**

Performance Indicators

- **Provision of a service desk – 99% of time staff available for full support 9am – 5pm, Monday – Friday, limited support 7:30am – 8:30am and 5:00pm – 5:30pm. Out of hours support by arrangement**
- **Internal customers – 80% of all calls resolved within 24 hours**
- **Implementing Disaster Recovery Plan – target 100% implemented per annum**
- **Internal customer – target 80% satisfaction level per annum**
- **Availability of software applications – target 99% of non-downtime**
- **Availability of IT system – target 99% of non-downtime**
- **Mail opened and sorted – target 100% of mail opened, date stamped and sorted by category within time - weekly**
- **100% of mail is registered on EDRMS within time frame - weekly**
- **Mail distributed 100% of mail is delivered to established departmental delivery points on time – weekly**
- **95% of requests for file – facilitate delivery of files from Council offsite storage provider – weekly**
- **Process freedom of information requests - target 100% of requests dealt within 45 days from payment of statutory processing fee for request**
- **Process Information Privacy requests – target 100% of requests dealt within 10 days for receiving request (Maribyrnong City Council, 2009)**



Information Technology Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Reduced staff availability	4
Basic office supplies running out (eg/ printer paper and toner)	4
Mail delivery disrupted/slow	4
Possible interruption to communications/phone systems and/or electricity supply	4

Information Technology Scenario One

Response Measures	Priority
Increase work from home capacity including increased IT security capability/ requirements to enable work from home situations	H
Investigate licensing upgrades required for more staff working from home, in a cost effective manner	H
Introduce user friendly car pooling software (Intranet)	H
Increase stock of consumables to enable business continuity in cases of reduced IT supply delivery	H
Provide/facilitate more online services/support to enable greater remote access to Council (for staff and community)	H
Adjust server capacity to enable greater online access	H
Cross Council partnerships to facilitate working from other office locations closer to home	L

Information Technology Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Increased demand on IT for provision of services (eg video conferencing)	3
Lead time for supply of products and services increased	3
Increased cost of equipment and supplies	3
Skills shortage unable to cope with changing requirements	3
Forced shift to greater reliance on remote support	3

Information Technology Scenario Two

Response Measures	Priority
Build team skills to address/consider future impact in all system developments	M
Long term planning – to be less dependent on IT consumables that have short lifespan/high oil inputs	M
Cooperate with other Councils to develop industry wide solutions and support networks	M
Introduce technology/skills development to reduce demand on face-to-face support	H
Electronic capture/storage/retrieval of all forms of data for distribution. Need to shift away from paper based records management. This will assist staff working from home to have access to all information required to work effectively	H
Video conferencing to enable homes and other remote locations to become virtual offices	H
Increase the use of sustainable transport among staff, to reduce reliance on oil dependant transport modes	H

Service Area: Strategic Planning - Transport

- **Budget: \$1,270,963**
- **Number of Employees: 8**

Performance Indicators

- **Customer service request response target of 90% within prescribed time**
- **Increase cycling – journey to work ABS Census data (target 3% usage)**
- **Promote the use of public transport (use of Census data as measure – 23% usage in 2011)**
- **Reduce number of truck volumes – conducted annually (target 95,000 or less)**
- **Increase in annual cycling counts (5% increase per annum)**
- **Traffic management – community's overall satisfaction level from the annual community survey (65% satisfaction) – derived from MCC Annual Community Survey**
- **% completed component of the scheduled capital works design program (reported quarterly – target 25% completed every quarter = accumulated each quarter)**
- **Transport planning advice provided in timely manner - 80% of referrals responded within 15 working days (Maribyrnong City Council, 2009).**

Strategic Planning - Transport Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Inadequate public transport for community	2
Buses/trams over capacity	2
Fuel queues causing road blockages	2
Staff difficulty getting to work	2

Strategic Planning - Transport Scenario One

Response Measures	Priority
Car pool/work from home/alternative transport. Develop communication/IT systems in advance to enable staff to work from home	H
Alter rosters to reduce staff travel requirements: work fewer, longer shifts, travel to work in non-peak times, take leave	H
Work with Communications unit to develop educational/informational resources to the community on alternative ways to access daily life (using non-oil based transport)	H
Develop fuel rationing procedure to ensure fuel is used sparingly and only by essential services that have little suitable alternative	H
Works Centre Resources required – staff to distribute signs informing residents of special arrangements (eg alternative transport, rationing....)	L
Work with the Victorian Department of Transport to coordinate transport services	M
Develop fuel inventory to maintain essential services during fuel shortage period	L

Strategic Planning - Transport Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Reduced access to good and services, schools and other activities within the community	3
High demand for new or upgraded infrastructure to deal with alternative transport modes (cycling, walking and public transport)	3
Change in type and size of vehicles on roads (cyclists and small efficient vehicles vs trucks and buses, less medium and large size passenger vehicles)	3
Reduced income from parking	3

Strategic planning - Transport Scenario Two

Response Measures	Priority
Avoid/reduce hrs/days @ work (flexible hours, working at home, alternative transport – car pool, walk, cycle, public transport)	H
Promote urban planning that reduces the transport task, such as mixed use development, with services close to people who need them	M
Advocate to State and Commonwealth for significant improvements to non oil based transport service provision; reliable, frequency and integrated public transport, as well as boost to walking and cycling infrastructure	H
Review Council Fleet policy to ensure it is in line with Council policy to reduce oil consumption by 3% annually. Consider vehicle engine size, fuel type, and number of vehicles/availability to whom. Consider the inclusion of bicycle fleet upgrade for short/medium trips	H
Better integration/coordination of fleet use to minimise fuel consumption	H
Encourage (and advocate for) the development of more local employment opportunities to minimise the need for extended travel by residents for commuting purposes	L
Advocate to State and Commonwealth for metro rail freight	M
Advocate to State and Commonwealth for freight logistics and supply efficiency improvements	M
Begin plan for new, local sustainable transport works as part of a long term program to radically reduce oil consumption in community	H
Develop priority parking program/policy for bicycles, car sharing and small, efficient vehicles	H
Network planning – road space reallocation to cater for high quality bicycle and walking routes and transit lanes	H
Consider the development of recharge power points for electric vehicles using renewable energy	L

Service Area: Strategic Planning – Food Security

- **Budget: \$70,000 (externally funded)**
- **Number of Employees: 1 (P/T)**

Performance Indicators

- **Plan to assist communities to have access to healthy food**
- **Support local growing – community gardens, public edible plantings**
- **Support local food delivery/purchase options**
- **Map food outlets and zone within walking distance**
- **Help raise skills in community in food preparation and food growing – workshops facilities for food prep – community kitchens – (for isolated people)**
- **Cafe meals vouchers**
- **Emergency relief (Information provided at Peak Oil Workshop, 27th April, 2009).**

Strategic Planning - Food Security Scenario One: Short-term Disruption - Risk Assessment

Threat Description	Consequence Rating
Panic buying	2
Disrupted delivery/distribution to shops	2
Residents restricted in ability to purchase food	2

NB: It is estimated that 66% of people in the community live in a 'food desert'. Adithama et al (2006) define 'food desert' as areas beyond 500 metres of a food and vegetable outlet.

Based on experiences in other countries, food security can become a critical issue very quickly under these types of scenarios.

Strategic Planning - Food Security Scenario One

Response Measures	Priority
Develop program for staff to travel via public transport, walking, cycling, car pooling	H
Pre-purchase bicycles, tricycles and other non-motorised forms of transport for staff and/or community members to make deliveries to designated collection points for vulnerable populations from centralised locations such as the Footscray market	M
Develop maps highlighting locations of food collection points for vulnerable populations and addition communication tools to increase community awareness	M
Advocate to Government to prioritise the use of fuel for food delivery into city	M
Encourage Council and higher levels of government to boost the existing bicycle network to prioritise oil free forms of transport/mobility	M
Advocate to the State Government to reduce panic food buying	H
Investigate the distribution of seeds of Asian vegetables for home growing	M
Start longer term planning and training for edible gardens - developing skills and potential locations	H
Introduce food producing plants in public places, in advance of short term fuel shortage	M

Strategic Planning - Food Security Scenario Two: Long-term Decline - Risk Assessment

Threat to Service Delivery Model	Consequence Rating
Growing gap in access to health/affordable food for people in Maribyrnong	2
Gradual decline in previous oil based supply model (fertiliser, pesticides, harvesting and distribution) for all agriculture/food production	2
Reduced capacity for community to access food at large shopping centres	2
Reduced availability of international products (especially fresh/air transported produce)	2
Declining viability of major shopping centre precincts that lack good public and active transport connections	2

Strategic Planning - Food Security Scenario Two

Response Measures	Priority
Begin planning food production/urban orchard areas, utilising existing land, such as around sporting fields/golf courses	H
Integrate food production considerations into the Planning Scheme with protected rights to sunlight, soil and water	H
Turn existing/underused car parks and some sections of local streets into public/City owned and managed food gardens	H
Develop "governance" issues around public/City edible gardens	H
Council facilitate a network of "backyard-edible" gardens – seed sources, skills, knowledge, tools, education rainwater/stormwater (planning role) around 'permaculture' non fert./non pesticide based growing, growing healthy soils and harvesting	H
Council facilitates local food distribution networks, eg. Market places for people to resell excess food production	H
Encourage commercial market gardeners back into the City - to produce for local consumption	H



Public fruit trees will increase community food security

6 Trigger Points

The identification of trigger points may be a useful way to anticipate disruptions to oil supplies in advance. Although this is inherently difficult, developing some guiding indicators may help Council give the green-light to measures aimed at reducing demand/need for fuel.

Scenario One: Short-term Disruption

In many cases, disruptive scenarios will arrive with little warning. However, it is still possible to identify several factors which increase the vulnerability of the local and/or international oil production supply chain. These factors therefore give some leading indication of increasing likelihood or severity of disruptive events:

- Have there been any changes to the local oil and fuel supply chain? For example, further consolidation of the local refining industry would significantly increase the risk of disruption. It is suggested the following sites be monitored on a quarterly basis:
 - www.appea.com.au/ - Australian Petroleum Production and Exploration Association
 - www.aaa.asn.au – Australian Automobile Association
 - www.accc.gov.au – Australian Competition and Consumer Commission
- What is the prevailing level of community anger around fuel prices? This gives an indication of the likelihood of strikes or protest actions that affect local supply networks. To monitor community attitudes on fuel prices, it is recommended the following sites be monitored when prices reach historically high levels:
 - www.aaa.asn.au – Australian Automobile Association
 - www.racv.com.au – Royal Automobile Club of Victoria
 - www.heraldsun.com.au – Herald Sun newspaper
 - www.theage.com.au – The Age newspaper
 - www.abs.gov.au – ABS (assess transport cost as part of Consumer Price Index)
- What is the level of global spare capacity? Is there any spare capacity outside OPEC? Spare capacity greatly increases the ease with which disruptions in one area can be offset by increased production in another. The International Energy Agency (IEA) defines spare capacity as that extra capacity level that can be reached within 30 days and sustained for 90 days. It does not mean it could be sustained indefinitely.

As is often the case with oil supply data, doubt surrounds OPEC oil reserves and capacity. One should exercise caution when interpreting these figures. For instance, many observers do not accept that OPEC spare capacity really increased from 2005 to 2007. Nevertheless, taking IEA figures at face value, the risk of global supply disruptions is reduced when OPEC spare capacity is greater than 6mb/d, is medium between 4-6mb/d, is high between 2-4mb/d and is extreme when spare capacity is less than 2mb/d.

Moreover, the risk is further increased when spare capacity is concentrated in one region (the Middle East) or more importantly in just one country (Saudi Arabia) as the source of the disruption could be in that country (or even the entire region) and then there is no alternative available. Therefore, if one accepts the IEA figures, at the current time the risk of global disruption could be said to be lower than it has been over the last five years. However, that situation could be eroded in a relatively short period of time.

To monitor movements, it is recommended the following sites be monitored quarterly:

 - www.eia.doe.gov/ - Energy Information Agency (US Government)
 - <http://omrpublic.iea.org/> - International Energy Agency - Oil Market Report (monthly)
 - www.opec.org/home/ - Organisation of Petroleum Exporting Countries



- What percentage of Australia's total oil consumption is imported? Is Australia's access to oil being eroded at a faster rate than the global depletion rate because of stronger demand from Asian economies? To monitor movements, it is recommended the following sites be monitored quarterly:
 - www.abare.gov.au/ - Australian Bureau of Agricultural and Resource Economics
 - www.appea.com.au/ - Australian Petroleum Production and Exploration Association
 - <http://www.ga.gov.au/> - Geoscience Australia
- How many disruptions have occurred recently in other countries/states?
- How diverse are the fuel requirements of Council's and major contractor's vehicle fleet? The greater the mix of fuel vehicle types, the lower the overall vulnerability.
- Are there any disruptions to Australia's oil production infrastructure? Are shutdowns in one area increasing the dependence on infrastructure in other regions?
- What proportion of staff have no alternative to a motor vehicle to get to work?

Scenario Two: Long-term Decline

Although the decline scenario unfolds over an extended period of time, the challenge of developing and delivering the required responses to vehicles and transport infrastructure will be unprecedented.

The broader Melbourne and Victorian community is experiencing the effects of water shortages and restrictions because declining availability of water was not well anticipated. The scale of the oil depletion challenge is greater again. It is therefore critical to begin adapting to a future of declining oil availability well before the oil drought hits.

Those governments that move ahead of the oil depletion curve will create more resilient and liveable communities than those that delay action until the need is obvious. In seeking the optimum policy balance between early action and upfront expenditure, there are three questions that need to be assessed:

Those governments that move ahead of the oil depletion curve will create more resilient and liveable communities than those that delay action until the need is obvious

Q1 Is Council's fuel consumption reduction target right? Does it need to be increased or decreased?

- How does annual world oil production compare to 3% decline from 2008 base year?
- How does Australia's annual consumption compare to 3% decline from 2008 base year?
- Is the proportion of Council budget spent on fuel increasing or decreasing?
- Is the cost of bitumen for road surfacing having an increasing impact on total budget.
- Does the target need to be reassessed in the context of changing climate change policies?

Q2 How is Council performing against current fuel consumption target?

- How are Council as a whole and individual service areas tracking against current target?
- What proportion of staff require a vehicle to get to work?

Q3 What is the level of community vulnerability to oil declines?

- What is level of vulnerability in VAMPIRE (Dodson & Sipe, 2008) type studies across Maribyrnong?
- What is the trend in traffic levels?
- How is the food supply chain evolving?

Council's existing target of a 3% per annum reduction in fuel use is ambitious when viewed with an assumption of 'business as usual'. However, given the level of concern around future oil supplies voiced by authoritative and informed analysts, and the independent climate change drivers, this target is prudent, demonstrates foresight and is warranted

7 Emerging Themes and Recommendations

Several important key themes have emerged through the development of this Peak Oil Contingency Plan. The Peak Oil Workshop in particular highlighted some key concepts that were shared by multiple service areas of Council. Given the level of consistency, in terms of common threats and responses across many service areas, concerning both Peak Oil scenarios, it is useful to explore these themes and the recommendations that flow from them together.

The key themes are:

- **Staff Travel to Work**
- **Community Mobility and Access**
- **Food Security**
- **Disadvantaged Communities**
- **Storage and Inventory**
- **Climate Change**
- **New Technology**
- **Service Delivery Model Change**
- **Communication**

Whilst the recommendations directly related to the following themes are presented below, it is important to recognise that a number of recommendations sit outside the themes and these have been presented in the previous risk assessment tables.

The recommendations found in this section have been assigned either a High, Medium or Low rating, based on an assessment of their ability to achieve fuel savings and their ease and practicality of implementation.

A strong consistency was also found between many of the themes and recommendations explored below, with existing Council policy. Maximum value will be gained from this Contingency Plan by applying the key learnings to existing Council policies and practices. The Peak Oil Contingency Plan seeks to minimise vulnerability to future oil supply issues, whether in the form of a short term oil supply shock or a longer term, sustained depletion. This was found to be consistent with the following Council policy documents:

- **Integrated Transport Strategy**

The Integrated Transport Strategy (2001) seeks to:

Plan, facilitate and implement a transport system for Maribyrnong which is based on the principles of sustainability; quality urban form and amenity; and builds on the benefits of our inner City location with good access to public transport (p. 2).

The aim of reducing the environmental impact of transport is broadly consistent with the strategy of reducing oil vulnerability

Maximum value will be gained from this Contingency Plan by applying the key learnings to existing Council policies and practices

Moreover, the Strategy identifies the objective “of improving access to the social, cultural and economic life in Maribyrnong whilst minimising the financial, human and environmental costs of that access” (p.2). Reducing the environmental impact of transport is stated as an overarching goal of the Strategy.

Peak Oil, whilst not mentioned in the Strategy, has significant potential to impact on Council meeting the above goals. It threatens the affordability of the most common mode of transport – oil dependent automobiles. The aim of reducing the environmental impact of transport is broadly consistent with the strategy of reducing oil vulnerability.

- Crisis Management & Disaster Recovery Plan

The aim of the Crisis Management & Disaster Recovery Plan (2008b) is to:

Provide guidance for the restoration (recovery) of Council's operations as quickly as possible from any disaster (business interruption event), and minimise its effects to our operations and levels of customer service in the provision of services to the community (p. 8).

This Peak Oil Contingency Plan specifically supports the Crisis Management & Disaster Recovery Plan through the measures recommended as part of scenario one, the short term cut in oil supply. The implementation of these recommendations will assist Council continue core business with substantially less oil and these initiatives have been outlined in the risk assessment tables above and the key themes below.

A critical issue to Council's success in responding to Peak Oil is the ability to take key learning from this contingency planning process and apply them to existing policies and operations. Should this be achieved, many oil use efficiencies will be infused into Council's quality control, evaluation and strategic planning functions – across all business areas.

Staff Travel to Work

Staff travel is vital for Council's effective operation. Peak Oil, under any scenario poses significant pressure on the ability of Council staff to travel to work. During the Workshop, each service area working group identified current staff travel as being highly vulnerable to both Peak Oil scenarios and this was confirmed by our analysis of journey to work data. As such, staff travel to work is a major theme in the Peak Oil Contingency Plan.

As the table below identifies, Council staff are heavily dependent on private motor vehicles for their journey to work and this is the mode of transport most vulnerable to high fuel prices/lack of supply. The survey carried out by Council in May 2004 asked staff of their mode of travel to work for five days during a one week period. Included in the graph below is the declared goal Council would like to achieve in relation to staff travel by 2009, as outlined in the Green Travel Plan. These figures have been compared to the latest staff travel survey, completed in 2009.

Council staff are heavily dependent on private motor vehicles for their journey to work and this is the mode of transport most vulnerable to high fuel prices/lack of supply.

Peak Oil, under any scenario poses significant pressure on the ability of Council staff to travel to work

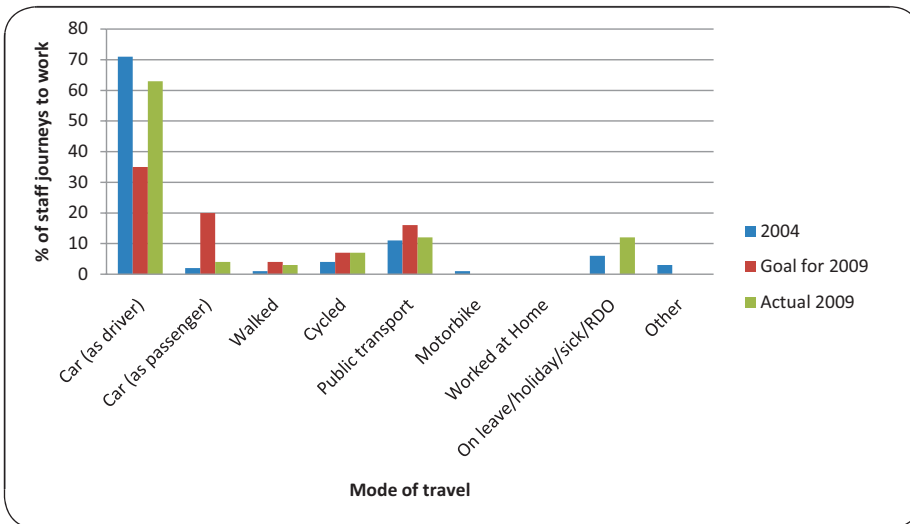
The City of Maribyrnong Green Travel Plan sets a number of targets for staff travel, as highlighted below:

The Green Travel Plan aims to reduce single car occupants to 65% by 2007 and to 50% by 2009. Therefore by 2007, 35% of Maribyrnong City Council staff will commute via public transport, cycle, walk, telecommute or car pool, and by 2009 over half of all staff will commute in a more sustainable manner.

The specific targets for Maribyrnong City Council over a four year timeframe (2005-09) :

- Promoting car pooling; to decrease the percentage of staff driving to work alone to 50%;
- To increase the percentage of staff carpooling to work to 20%;
- To increase the percentage of staff travelling to work by public transport to 16%;
- To increase the percentage of staff cycling to work to 8%; and
- Increase the percentage of staff walking to work to 5%.

Excerpt from Green Travel Plan, City of Maribyrnong, 2006



Staff Travel Patterns and Goals

Source: Maribyrnong City Council, 2006 & 2009

The above graph is noteworthy for the following reasons:

- The general trend is in a sustainable direction (reduced proportion of car trips, as driver), although progress is slower than that set out in goals for 2009.
- High levels of car use overall, but also in comparison to the Maribyrnong community average (documented below)
- Low levels of car passenger occupancy overall, but also in comparison to the Maribyrnong community average (documented below)
- No staff members reported working from home
- Walking and cycling are up significantly, albeit from a very low base. Cycling is the only mode to have met its 2009 target.

It should be noted that in 2009, 30% of all staff travelling to work by car do so with a passenger for all or part of the journey.

The 2006 staff survey also found that some 16.7% of staff currently driving to work alone live within 5km of the Town Hall, which is a comfortable cycling distance. Moreover, 16.5% of staff expressed an interest in car pooling. Given that almost 80% of staff arrive at approximately the same time each day and 71.8% leave between 5:00pm and 6:00pm (Maribyrnong City Council, 2006), a car pooling initiative appears to have reasonable potential.

The Council Green Travel Plan puts forward a number of initiatives aimed at reducing single occupant vehicle travel, including:

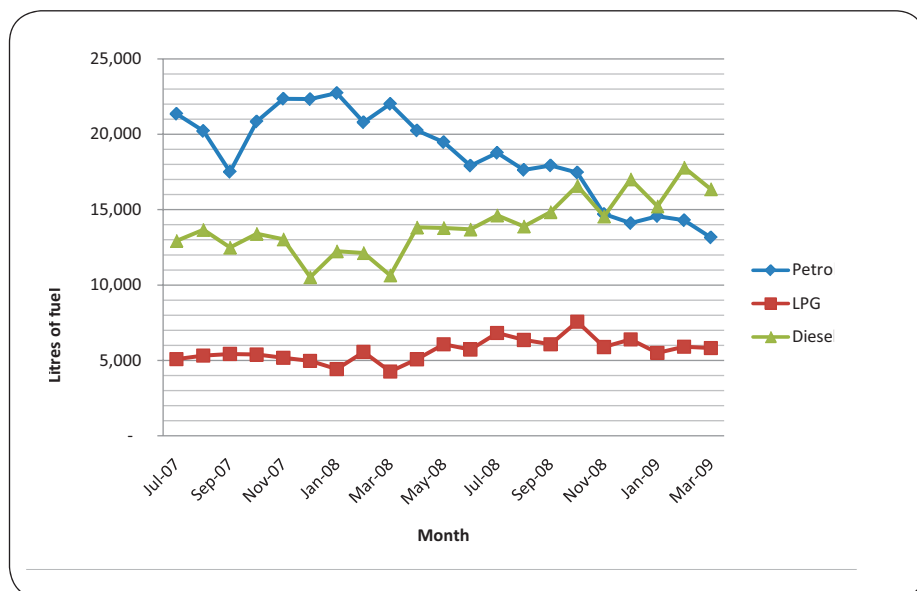
It is prudent to inject greater effort in changing the way staff travel to/from work

- **Facilitate and promote car pooling**
- **Provide bicycle and walking facilities**
- **Encourage public transport**
- **Fleet management initiatives**
- **Provide sustainable transport information and events**

Source: City of Maribyrnong, 2006

Given the continued importance of creating more sustainable staff travel patterns, as well as the emerging threat posed by possible fuel supply disruptions, it is prudent to inject greater effort in changing the way staff travel to/from work.

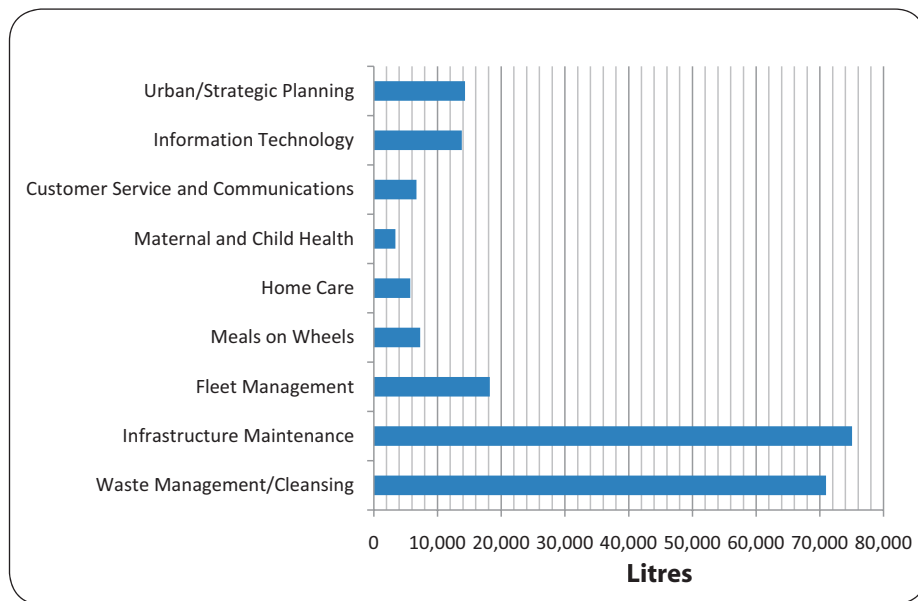
In terms of fuel consumption, for Maribyrnong City Council overall, some progress has been made in the area of petrol consumption, consistent with reduction targets. This reduction is ostensibly due to the purchase of four rather than six cylinder cars for the Council fleet. It should be noted that the reduction target of 3% per annum is for all oil and natural gas consumption and as the following graph illustrates, diesel consumption has risen over the last 21 months to March 2009 and LPG consumption has remained at approximately the same level.



Council fuel use by fuel type

Source: Data supplied by Maribyrnong City Council, 2009

A broader assessment of Council fuel use, for general purposes, is illustrated below:

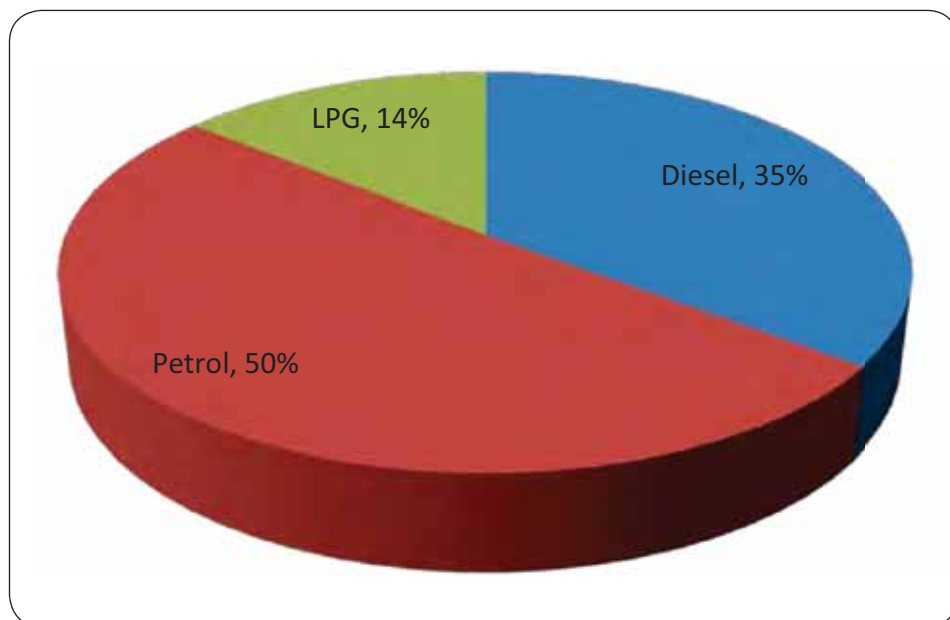


Council fuel use by selected service areas

Source: Compiled using data supplied by Maribyrnong City Council.

NB: Estimate for Garbage Collection (External Contractor) is 2,400,000 litres of fuel

While the above graph provides some indicative information on which service areas have the greatest exposure to fuel supply disruptions, it is important to note not all fuel use has been recorded. In particular, fuel used by external agencies, such as contractors is not included. Kerbside waste and recycling collection is one such area and is estimated to consume over three million litres of fuel per year.



Council Fuel Use Type

Source: Compiled using data supplied by Maribyrnong City Council, 2009

A key recommendation

Trialing a Scenario One Response - Running Council on 25% of Current Oil Consumption

A wide variety of recommendations are made in the section below, many stemming from Council staff at the Peak Oil Workshop. Given that it will be difficult to enact many of these initiatives in a rapid timeframe, the following four recommendations are made to enhance Council's preparedness for an oil shortage:

Business Continuity	
1. A "desk top" trial be implemented for one week employing a range of initiatives, to model how Council could run its core operations on 25% of the fuel currently consumed	High
2. Following the success of recommendation one, an actual trial should be implemented in an attempt to run Council's core operations on 25% of the fuel currently used.	High
3. Develop a quarterly Peak Oil Trigger Index made up of elements outlined in the "Triggers" section of this report.	High
4. Collaborate with other councils to investigate the possibility of sharing office space to reduce travel distances (when staff live closer to a council other than the one they are employed).	High

The purpose of running such a trial is to provide practical experience on what areas prove difficult, where additional oil conserving measures may lie and what could be done differently/more effectively in the future. In short, Council will be more experienced and better prepared to maintain core business continuity in the event of an oil supply shock.

It is important to note that further work is required to extend the oil saving recommendations made in this report. Comprehensive operational guidelines need to be developed for each representative service area. These procedural documents would detail precisely how each response would be implemented into Council's operations.



Running Council on 25% of normal fuel consumption may result in very different ways of doing business

Recommendations

Staff Travel to Work	Priority
5. Introduce car pooling software for Council staff	High
6. Develop a comprehensive <i>work from home</i> policy and action plan to increase the proportion of staff working from home (a Council working paper has recently been completed)	Medium
7. Encourage staff to cycle to work through improvements to end of trip facilities, bicycle routes, incentives and promotional events/activities.	High
8. Investigate upgrading, promoting and maintaining the staff bicycle fleet, including the purchase of load bearing and electric bicycles	High
9. Investigate incentives to encourage staff to reduce car use.	High
10. Assess targets stated in Council's <i>Green Travel Plan</i> to reduce car use and manage travel mode resources accordingly	Medium
11. Develop video conferencing facilities, training and procedures in order to reduce physical travel.	Medium



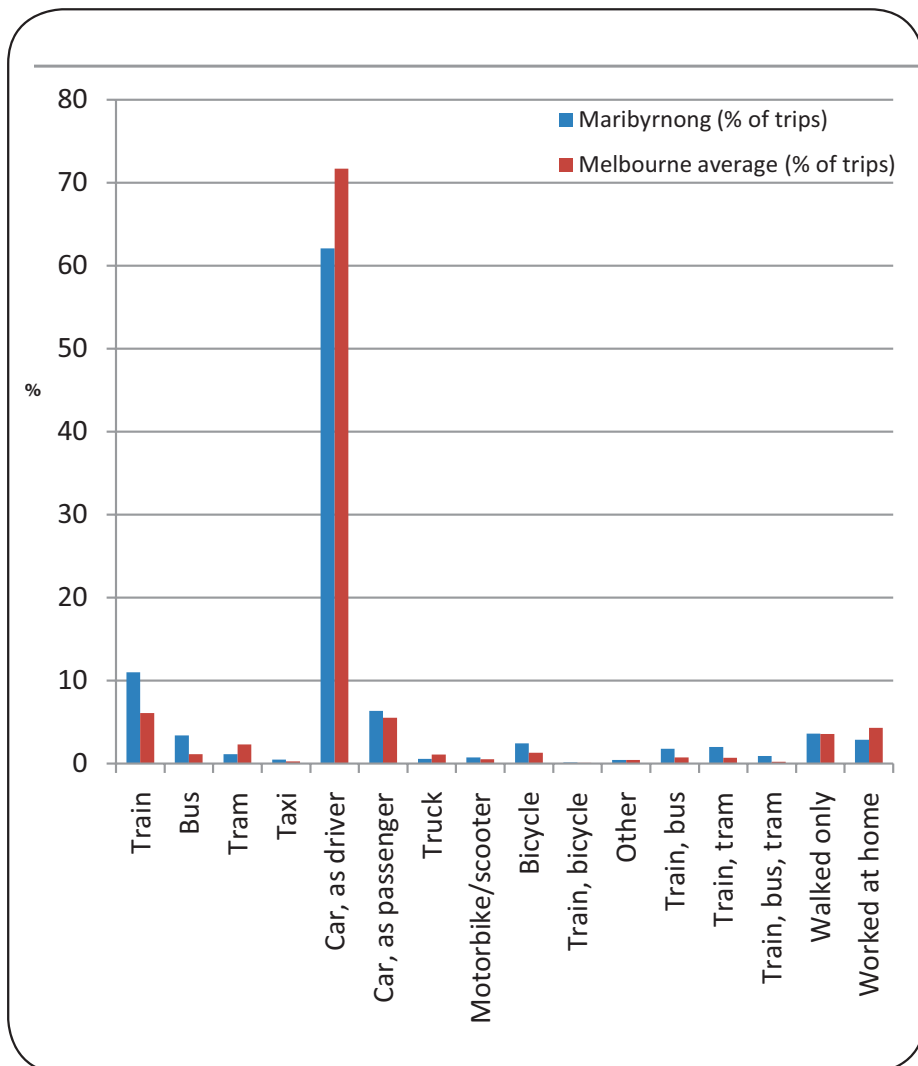
Working from home – achieving business continuity without travel

Community Mobility and Access

The impacts of Peak Oil on the Maribyrnong community emerged as a major theme in the Workshop and this is most apparent when looking at the issue of transport.

Commuting transport patterns in Maribyrnong are somewhat different to the Melbourne Statistical District average, namely there is less use of the car, more public transport and greater levels of cycling. The table below captures the differences in more detail:

Although Maribyrnong residents travel more sustainably to work than the Melbourne average, there is still a high level of dependency on the private car

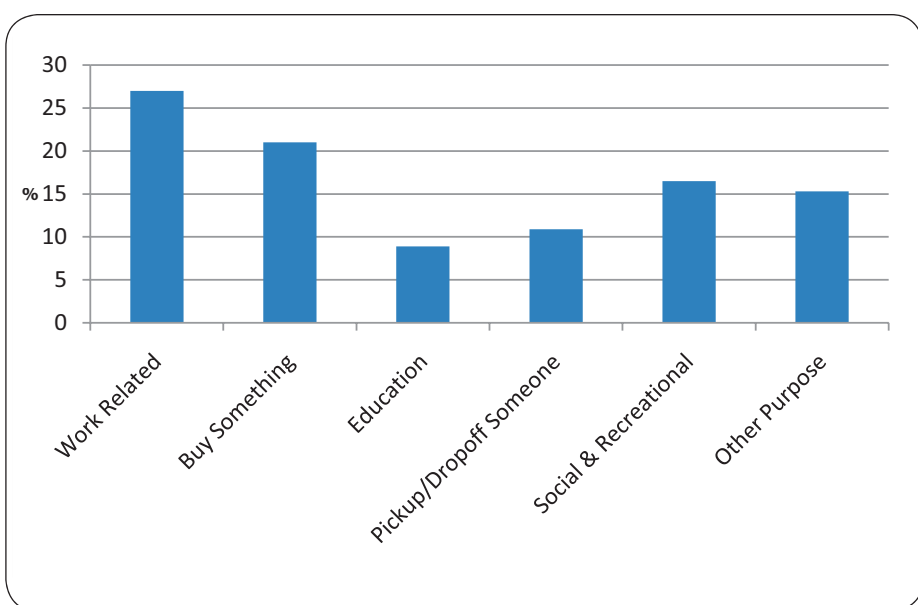


Maribyrnong's commuting patterns compared to the Melbourne average

Source: ABS Census, 2006

Although Maribyrnong residents travel more sustainably to work than the Melbourne average, there is still a high level of dependency on the private car.

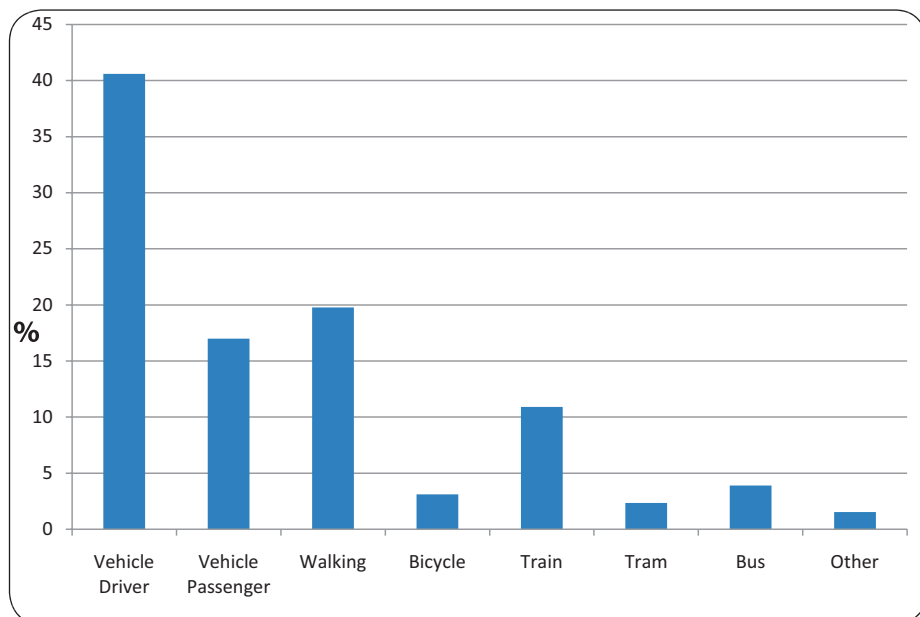
It is important to note however that while the journey to work data is important, it only makes up around one quarter of total trips, as demonstrated in the graph below that outlines the proportion of journeys made for different purposes:



Journey Purpose in Maribyrnong

Source: Department of Transport (2007)

A more comprehensive picture of weekday transport patterns in Maribyrnong can be found in new figures from the Victorian Department of Transport, in which all travel has been taken into account. The graph below outlines the percentage breakdown between different modes of transport:



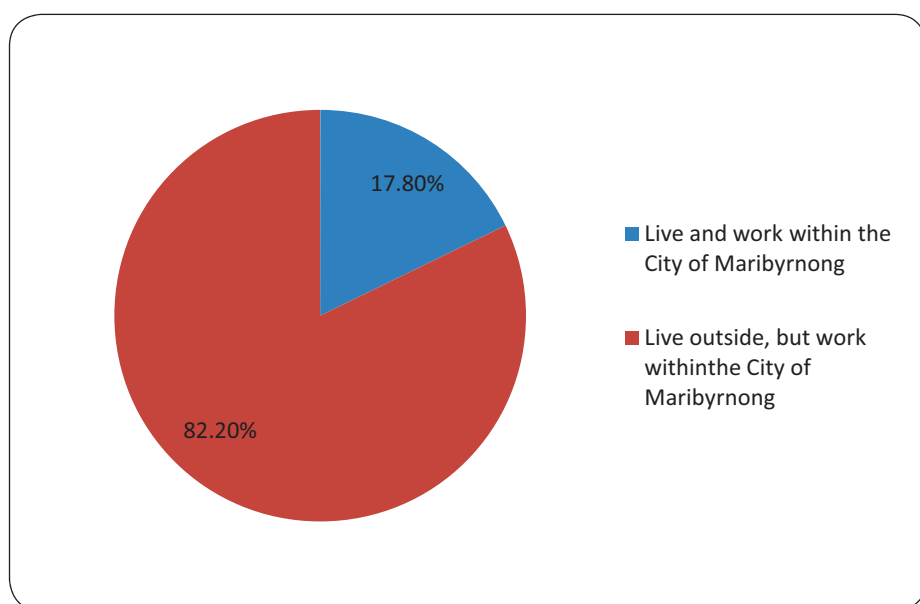
A little under one-fifth of those employed in Maribyrnong are also residents of the municipality

Weekday Travel Modes in Maribyrnong

Source: Department of Transport (2007)

The clearest contrast between the graph above and the commuting only graph is the significantly lower level of single occupant car use when looking at all weekday travel (as opposed to purely commuting travel).

Another interesting method of assessing transport patterns in Maribyrnong is to analyse where those who work in Maribyrnong come from. As the following chart depicts, a little under one-fifth of those employed in Maribyrnong are also residents of the municipality.



Some 52.9% of workers in the City of Maribyrnong are residents either of the municipality or an adjoining council area

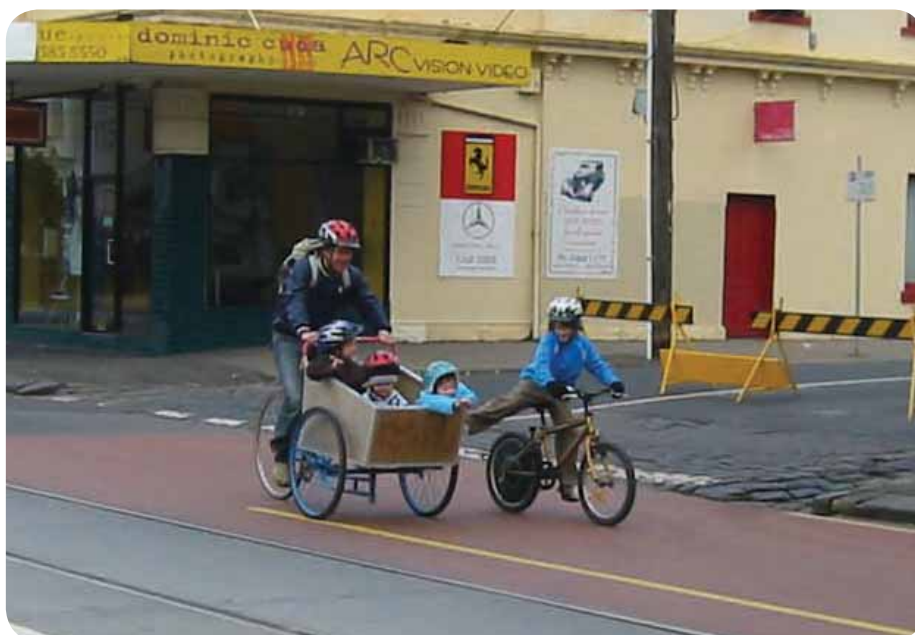
Where do workers in the City of Maribyrnong come from?

Source: Australian Bureau of Statistics, Journey to work, unpublished data, 2006.

The chart above shows most workers in Maribyrnong do not live in Maribyrnong. Whilst this presents challenges under an oil scarcity situation, it is important to recognise a significant proportion come from adjoining municipalities. In fact, some 52.9% of workers in the City of Maribyrnong are residents either of the municipality or an adjoining council area.

Rank	Municipality	Number	%
1	Maribyrnong	5,214	17.8
2	Brimbank	5,094	17.4
3	Moonee Valley	2,606	8.9
4	Hobsons Bay	2,564	8.8
5	Wyndham	2,555	8.7
6	Melton	1,842	6.3
7	Moreland	1,194	4.1
8	Hume	1,163	4
9	Darebin	593	2
10	Melbourne	517	1.8
	Other areas	5,903	20.2
	Total workers in the City of Maribyrnong	29,245	100

The top municipalities in which Maribyrnong workers come from
 Source: Australian Bureau of Statistics, Journey to work, unpublished data, 2006.



Current transport patterns in Maribyrnong, particularly for work purposes, is highly vulnerable to either a short term severe cut in fuel supply or a sustained, gradual reduction in oil output

Different forms of mobility will be required in response to oil depletion

With the above facts in mind, it is clear that current transport patterns in Maribyrnong, particularly for work purposes, is highly vulnerable to either a short term severe cut in fuel supply or a sustained, gradual reduction in oil output.

Recommendations

The following recommendations to reduce staff dependency on oil based modes of transport have been developed, based in part on suggestions made by Council staff during the Workshop. Each recommendation has been assigned either High, Medium or Low rating, based on an assessment of their ability to achieve fuel use savings and their ease of implementation.

Community Mobility and Access	Priority
12. Consider a long term increase in the proportion of Council's budget dedicated to sustainable transport, including infrastructure, promotion and marketing.	High
13. Assess the road network's ability to comfortably carry cyclists and pedestrians and further investigate increased road space allocation to walking and cycling.	High
14. Continue to evaluate car parking requirements for new developments to ensure consistency with oil and greenhouse gas reduction targets	High
15. Further encourage mixed use development, integrated into the public and active transport system to reduce reliance on motor vehicle transport	High
16. Advocate to State and Federal government for greater investment in active (walking and cycling) transport	High
17. Advocate to State and Federal government for greater investment in public transport provision and level of service to cater for significantly higher demand, including: Segregating tram and bus routes where possible Provision of additional light rail, especially to the areas of Maribyrnong that lack quality public transport, such as Maidstone and Braybrook.	High
18. Consider the following issues to be included under the Municipal Strategic Statement during its next review: Assessment of all new significant residential developments in light of risks associated with oil and petroleum shortages. This should focus on (not exhaustive): Opportunities for designing an environment that actively reduces car use Lowering or waiving car parking requirements Separating housing and parking costs Connecting with bicycle and shared path infrastructure networks to create active transport integration with major destinations.	High



European style integration between rail and the built form can reduce car dependency (Nice, France)

Food Security

The peak in global oil production poses a threat to food security (Abraham, 2006; Larsen, 2008) and it is for this reason that food security was identified as a representative service area for the purposes of this report. A number of other services areas flagged food security as an issue of community vulnerability, particularly Home Care and Meals on Wheels.

Food security issues arising from Peak Oil are likely to primarily impact on the community rather than directly on Council's core business operations. As this plan focuses largely on Council operations, food security is covered in Appendix Three. A detailed analysis of food security issues related to Peak Oil will be covered when Council undertakes its community peak oil contingency plan.

Disadvantaged Communities

The prospect of short or long term reductions in oil supply (scenario one and two) pose a particular threat to disadvantaged communities. The availability of cheap and abundant oil supplies have helped to provide lower priced food, transport and the general production of goods. A significant rise in the price of oil will therefore increase the cost of many daily necessities and disadvantaged communities have emerged as a key theme, repeated by a number of different groups at the Peak Oil Workshop.

Meals on Wheels and Home Care in particular may see increase demand on their services as a consequence of oil supply disruptions. Moreover, the transport demands of low income populations may differ radically under petrol prices double or triple their current level. Disadvantaged communities, as previously highlighted, are particularly susceptible to the prospect of food insecurity caused by either scenario one or two.



The availability of cheap and abundant oil supplies have helped provide lower priced food, transport and the general production of goods. A significant rise in the price of oil will therefore increase the cost of many daily necessities

The transport demands of low income populations may differ radically under petrol prices double or triple their current level

Higher priced food caused by Peak Oil will impact disproportionately on low income communities

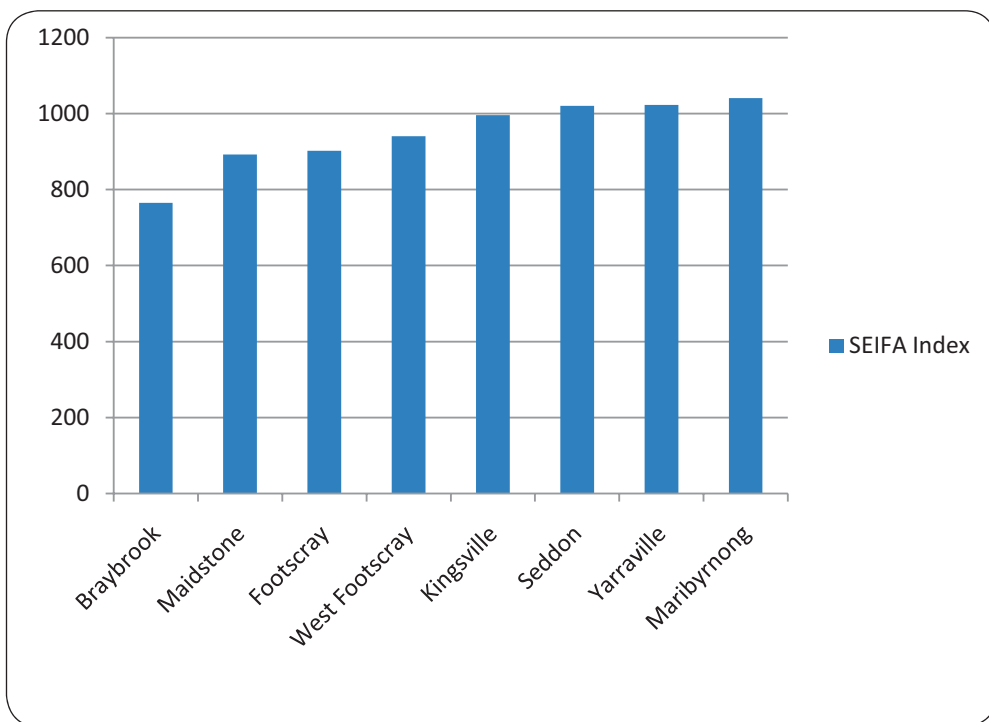
Economic and social disadvantage is measured in this report with the use of the social-economic indexes for areas (SEIFA). This index uses inputs such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage. The lower the number, the higher the level of disadvantage. The table below identifies the SEIFA rating for Melbourne local government areas:

Greater Dandenong (C)	893.9
Brimbank (C)	930.5
Maribyrnong (C)	948.5
Hume (C)	965.2
Darebin (C)	971.6
Whittlesea (C)	978.4
Moreland (C)	987.1
Frankston (C)	996.5
Hobsons Bay (C)	997.8
Melton (S)	1009.8
Casey (C)	1012.3
Moonee Valley (C)	1015.6
Yarra (C)	1019.5
Wyndham (C)	1021.8
Mornington Peninsula (S)	1026.2
Cardinia (S)	1027.2
Kingston (C)	1030.4
Yarra Ranges (S)	1038.8
Maroondah (C)	1045.9
Banyule (C)	1047.4
Melbourne (C)	1049.2
Knox (C)	1049.6
Monash (C)	1052.9
Whitehorse (C)	1055.2
Port Phillip (C)	1064.6
Glen Eira (C)	1071.2
Manningham (C)	1081.3
Stonnington (C)	1087.7
Bayside (C)	1095.8
Nilumbik (S)	1104.4
Boroondara (C)	1104.5

Socio-economic conditions across Melbourne

Source: Australian Bureau of Statistics, 2006 Socio-Economic Indexes for Areas (SEIFA).

The above table clearly puts the City of Maribyrnong among the most disadvantaged municipalities in Melbourne. Within the City itself, a number of suburbs stand out for their particularly low SEIFA rating, most notably Braybrook, Maidstone and Footscray, as shown in the graph below:



Within the City itself, a number of suburbs stand out for their particularly low economic and social disadvantage rating, most notably Braybrook, Maidstone and Footscray

Economic and social disadvantage by suburb within the City of Maribyrnong

Source: Australian Bureau of Statistics, 2006 Socio-Economic Indexes for Areas (SEIFA).

The concern within these numbers is that many of the areas experiencing the highest levels of disadvantage have the poorest access to public transport (Maribyrnong City Council, 2001). This puts communities in these areas at greater levels of vulnerability to Peak Oil, due to the increased costs likely to result, not just of transport fuel, but for any product with significant petroleum inputs.

Recommendations

Disadvantaged Communities	Priority
<p>19. Investigate and introduce measures to increase the service efficiency of Meals on Wheels and Home Care. This may include:</p> <ul style="list-style-type: none"> Combining the delivery of home care services with meals where appropriate Increasing the use of frozen or longer life meals where possible, to reduce delivery frequency Increasing the use of bicycles, including specific load bearing pedal powered vehicles for home visits and deliveries Investigate the promotion of programs for residents to get to know their neighbours, in order to build networks to enable local residents to deliver basic home care services to elderly and disabled residents in crisis situations 	High
<p>20. In line with the existing Maribyrnong Strategic Bicycle Strategy, increase non-motorised transport opportunities, especially in areas of disadvantage:</p> <ul style="list-style-type: none"> Developing a connected, integrated network of walking and cycling paths – linking major destinations, transport hubs and residential areas Where possible, provide bicycle lanes on all new roads and road resurfacing projects Advocate to the State and Commonwealth Government for greater investment in walking and cycling investment 	High
<p>21. Advocating for extensions to the public transport network and service levels in Maribyrnong and surrounding municipalities, with particular emphasis on disadvantaged communities.</p>	High

Storage and Inventory

In the event of scenario one (short term, severe reduction in fuel availability), a number of representative service areas suggested the development of an inventory of essential supplies may increase the prospects of business continuity. Council currently holds very little in the way of essential inventories. While inventories hold minimal benefit in a long term, sustained decline in oil production (scenario two), they are useful in situations of short term, significant supply disruptions (scenario one).

Opportunities exist within the following areas to create an inventory, to assist in maintaining critical services in the event of an oil supply disruption.

Recommendations

Storage and Inventory	Priority
22. Meals on Wheels and Home Care: Long life food and other essentials to distribute to vulnerable populations in a situation in which food delivery is disrupted.	High
23. Waste management - A fuel inventory (storage) be established, to continue waste and recycling services, possibly at reduced service frequency, during a short term short of fuel supplies.	Medium
24. Information Technology – An inventory of key consumables to maintain essential office functions, such as printer toner and paper, to be used in the event of delivery disruption.	Medium

Climate Change

This report recognises that many of the initiatives that respond to the challenges posed by Peak Oil are synergistic with Council's commitment to reduce greenhouse gas emissions. The policy of reducing oil consumption by 3% per annum assists Council achieve the objectives stated in its *Becoming Carbon Neutral Corporate Action Plan* and the commitment to become a carbon neutral organisation by 2015. Moreover, many of the recommendations made by Council staff during the Peak Oil Workshop add strength to Council's ability to combat climate change. Furthermore, specific recommendations such as the purchase of fuel efficient cars and bicycle fleet enhancements are consistent with Council Green Purchasing Policy, adopted in 2005. Meeting greenhouse gas reduction targets and fuel use goals will be a challenging task. By tackling both issues together, Council stands a greater chance of successfully meeting these ambitious, but vitally important objectives.



Responding to the challenge of oil depletion can assist Council in meeting its climate change objectives

Many of the recommendations made by Council staff during the Peak Oil Workshop add strength to Council's ability to combat climate change

New Technology

New technological developments offer a significant opportunity to assist Council in responding to oil depletion. Digital innovations make it practical and effective for staff to work from home, video conference and car pool. Providing more information online allows both staff and wider community to access information remotely, reducing the need for physical travel. Increasing the proportion of electric vehicles in the fleet (including electric bicycles) will reduce Council's reliance on oil fueled transport. Road resurfacing innovation may lower the dependence on oil based products, which are currently major inputs for road maintenance.



Digital technology offers the potential to reduce fuel use

These promising technological opportunities must be offered with a cautionary note. Oil is an energy dense, highly versatile, relatively inexpensive resource. Where technology significantly reduces energy consumption, as in the case of facilitating car pooling or working from home, it should be welcomed. However, placing faith in the ability of technology to maintain a business as usual approach should be avoided. Such faith may prove economically unfeasible, come too late or not at all and delay off-the-shelf solutions that can be implemented in a shorter timeframe, at reduced cost. Therefore, while technology offers considerable opportunity to boost Maribyrnong's resilience to Peak Oil, it should not be seen as a panacea.

Digital innovations make it practical and effective for staff to work from home, video conference and car pool

While technology offers considerable opportunity to boost Maribyrnong's resilience to Peak Oil, it should not be seen as a panacea

Service Delivery Model Changes

Oil acts as a fundamental input for many services provided by Council. It follows therefore that restricted supply in the future poses challenges for the delivery of many core Council services. In order to meet this challenge it may be necessary to make fundamental changes to the service, even questioning the need to deliver it in the same manner as its current form.

Adapting the model of service delivery, in order to use fuel more efficiently will help maintain the essential activities and reduce unnecessary fuel use. An example of such a change, in the area of Home Care would be to increase the capacity of the local community to undertake basic home care duties by appointing an appropriate and willing member of the neighbourhood. Another notable example would be the introduction of domestic chickens in order to reduce the fuel demands of Waste Management and provide a food source for households.

The response measure tables in Section 5 detail examples of service delivery model changes throughout all the ten service areas.

Communication

Communication and education on Peak Oil, how it will impact on the community and what measures can be undertaken to minimise adverse impacts is essential. It is clear that the communications role is distinctly different depending on whether the oil supply issue is of a short term, acute nature (scenario one) or a long term decline in global oil output (scenario two). When presented with scenario one in the Workshop, most participants highlighted the need to effectively outline the nature of the problem and how services will change to function with significantly reduced fuel supply. It is essentially an Emergency Management response. The importance of communication by Council cannot be overstated, as it will assist in preventing community anger, panic buying and general confusion. Measures to boost customer service capacity during this period were recommended to assist in dealing with an expected increase in inquiries. Increasing the provision of online information and service capacity was also considered an important preemptive measure.

The role of communication and education in scenario two takes on a different role, focusing less on acute, emergency issues and more on long term adaptation and resilience building.



Household chickens can help reduce the demand on waste collection services and increase food security

The importance of communication by Council cannot be overstated, as it will assist in preventing community anger, panic buying and general confusion

Recommendations

Communication	Priority
25. Prepare and distribute Peak Oil background information and why it is prudent to prepare in advance – for a public audience.	High
26. Outline what Council is doing to adapt its services in preparation for scarcer, more expensive fuel.	High
27. Describe what communities can do to reduce their vulnerability to future oil constraints and boost their level of resilience, include specific information on transport and food security.	High

Food Security (NB: These recommendations are to be assessed as part of the future community peak oil contingency plan and as such have not been prioritised)

28. Lobby State Government to develop a plan/strategy to protect vulnerable populations to food shortages in the event of scenario one (short term oil crisis) situation, including measures to protect against:

Panic buying

Food shortages to vulnerable populations

29. In consultation with the State Government work out strategies to ensure food distribution to vulnerable populations in the event of a fuel crisis.

30. Develop a long term strategy to significantly boost the capacity of Maribyrnong to produce food locally, including:

Planning food production/urban orchard areas, utilising existing land, such as around sporting fields, underused car parks and unused rights of way.

Introduce food producing plants in public places, in advance of short term fuel shortage

Integrate food production considerations into the Planning Scheme with protected rights to sunlight, soil and water

Preserve existing, appropriate Council own land for food producing opportunities

Develop "governance" issues around public/City edible gardens

Council facilitate a network of "backyard-edible" gardens – seed sources, skills, knowledge, tools, education rainwater/stormwater (planning role) around 'permaculture' non fertilizer./non pesticide based growing, growing healthy soils and harvesting

Encourage commercial market gardeners to Maribyrnong

Start longer term planning and training for edible gardens - developing skills and potential locations

Develop a website where those with food producing trees (excess produce) can place it on a website to enable others to use excess produce. See the following sites for examples of what is being practiced locally and abroad:

www.veryediblegardens.com

www.seddonorganiccollective.collectivex.com/

www.ethical.org.au/foodcoop/

www.permablitz.net/

www.eatthesuburbs.org/edap-primer/

www.foodconnect.com.au/

www.transitiontowns.org

www.fallenfruit.org/maps.html

www.growsheffield.com/

31. Encourage the establishment of a food awareness project: Run a demonstration, temporary growing site in a prominent location to promote local food growing. Provide an information hub on site, for the general public and school groups and provide seeds of edible plants, information on Peak Oil and food gardening tips. This could be combined with a sustainable transport hub, promoting the use of alternative transport options.

8 Conclusions

Peak Oil has now emerged as a critical issue facing governments at every level across the globe. Local government has begun to take the lead on this issue, with a handful of city municipalities developing policies and strategies to plan for a future of more expensive, less plentiful oil supplies.

Maribyrnong City Council is among a small group of proactive councils preparing for the post peak environment. Maribyrnong, through the development of this Peak Oil Contingency Plan has become a leader in Peak Oil preparedness.

This report is unique in that it has analysed Council operations and identified ten representative service areas that stand out for their level of exposure to future oil supply constraints. Applying two different scenarios to each area, with the close involvement of Council staff, this Plan has been able to highlight particular threats posed by both a short term, severe cut in fuel supply as well as a long term, sustained reduction in global oil output. These threats have been itemised for each of the ten service areas. In addition, Council staff have played an integral role in the development of practical responses to the challenges presented by these Peak Oil scenarios. These responses have been prioritised, using a risk management approach, thereby acting as a guide to assist in implementing actions to prepare Council operations and the Maribyrnong community in the event of either scenario.

A number of key themes emerged in the development of this Plan, in which multiple service areas produced consistent responses. This positive development offers the opportunity to implement synergistic initiatives, simultaneously acting to the advantage of several service areas. The Plan also highlights a level of consistency with current Council policies. For instance, implementing the recommendations of this Plan will assist Council achieve its commitment to reduce oil consumption by 3% annually, its objectives to combat climate change and the aims of the Crisis Management and Disaster Recovery Plan.

The challenge to effectively respond to Peak Oil is an immense task. It will require the commitment of all levels of government, the business sector and the wider community. This Peak Oil Contingency Plan is a small but important step in the transition to a post peak society.

Maribyrnong City Council is among a small group of proactive councils preparing for the post peak environment. Maribyrnong, through the development of this Peak Oil Contingency Plan has become a leader in Peak Oil preparedness

This Plan has been able to highlight particular threats posed by both a short term, severe cut in fuel supply as well as a long term, sustained reduction in global oil output

Appendix One

Condensed Recommendations

A wide variety of recommendations have been made in this report (summarized in the tables below). Many of the recommendations stemmed directly from Council staff at the Peak Oil Workshop.

These recommendations are of a general nature. They will inform an annual action plan which is a requirement of Council's Peak Oil Policy. This action plan will specify resources, timeframe, responsible officer and any subtasks that are required in order for the recommendation to be implementer. Financial resources allocated to the actions in the annual action plan are subject to councils budgetary processes.

Recommendation Number	Recommendation	Priority
	Business Continuity	
1	A "desk top" trial be implemented for one week employing a range of initiatives, to model how Council could run its core operations on 25% of the fuel currently consumed	High
2	Following the success of recommendation one, an actual trial should be implemented in an attempt to run Council's core operations on 25% of the fuel currently used.	High
3	Develop a quarterly Peak Oil Trigger Index made up of elements outlined in the "Triggers" section of this report.	High
4	Collaborate with other councils to investigate the possibility of sharing office space to reduce travel distances (when staff live closer to a council other than the one they are employed).	High
	Staff Travel to Work	
5	Introduce car pooling software for Council staff	High
6	Develop a comprehensive <i>work from home</i> policy and action plan to increase the proportion of staff working from home (a Council working paper has recently been completed)	Medium
7	Encourage staff to cycle to work through improvements to end of trip facilities, bicycle routes, incentives and promotional events/activities.	High
8	Investigate upgrading, promoting and maintaining the staff bicycle fleet, including the purchase of load bearing and electric bicycles	High
9	Investigate incentives to encourage staff to reduce car use.	High
10	Assess targets stated in Council's <i>Green Travel Plan</i> to reduce car use and manage travel mode resources accordingly	Medium
11	Develop video conferencing facilities, training and procedures in order to reduce physical travel.	Medium
	Community Mobility and Access	
12	Consider a long term increase in the proportion of Council's budget dedicated to sustainable transport, including infrastructure, promotion and marketing.	High
13	Assess the road network's ability to comfortably carry cyclists and pedestrians and further investigate increased road space allocation to walking and cycling.	High
14	Continue to evaluate car parking requirements for new developments to ensure consistency with oil and greenhouse gas reduction targets	High

15	Further encourage mixed use development, integrated into the public and active transport system to reduce reliance on motor vehicle transport	High
16	Advocate to State and Federal government for greater investment in active (walking and cycling) transport	High
17	Advocate to State and Federal government for greater investment in public transport provision and level of service to cater for significantly higher demand, including: Segregating tram and bus routes where possible Provision of additional light rail, especially to the areas of Maribyrnong that lack quality public transport, such as Maidstone and Braybrook.	High
18	Consider the following issues to be included under the Municipal Strategic Statement during its next review: Assessment of all new significant residential developments in light of risks associated with oil and petroleum shortages. This should focus on (not exhaustive): Opportunities for designing an environment that actively reduces car use Lowering or waiving car parking requirements Separating housing and parking costs Connecting with bicycle and shared path infrastructure networks to create active transport integration with major destinations.	High
Disadvantaged Communities		
19	Investigate and introduce measures to increase the service efficiency of Meals on Wheels and Home Care. This may include: Combining the delivery of home care services with meals where appropriate Increasing the use of frozen or longer life meals where possible, to reduce delivery frequency Increasing the use of bicycles, including specific load bearing pedal powered vehicles for home visits and deliveries Investigate the promotion of programs for residents to get to know their neighbours, in order to build networks to enable local residents to deliver basic home care services to elderly and disabled residents in crisis situations	High
20	In line with the existing Maribyrnong Strategic Bicycle Strategy, increase non-motorised transport opportunities, especially in areas of disadvantage: Developing a connected, integrated network of walking and cycling paths – linking major destinations, transport hubs and residential areas Where possible, provide bicycle lanes on all new roads and road resurfacing projects Advocate to the State and Commonwealth Government for greater investment in walking and cycling investment	High
21	Advocating for extensions to the public transport network and service levels in Maribyrnong and surrounding municipalities, with particular emphasis on disadvantaged communities.	High

Storage and Inventory		
22	Meals on Wheels and Home Care: Long life food and other essentials to be distributed to vulnerable populations in a situation in which food delivery is disrupted.	High
23	Waste management – Investigate the establishment of a fuel inventory (storage), in order to continue waste and recycling services, possibly at reduced service frequency, during a short term shortage of fuel supplies.	Medium
24	Information Technology – Build up stores of key consumables to maintain essential office functions, such as printer toner and paper, to be used in the event of delivery disruption.	Medium
Communication		
25	Prepare and distribute Peak Oil background information and why it is prudent to prepare in advance – for a public audience.	High
26	Outline to residents activities performed by Council to adapt its services in preparation for scarcer, more expensive fuel	High
27	Describe what communities can do to reduce their vulnerability to future oil constraints and boost their level of resilience, include specific information on transport and food security.	High
Food Security (NB: These recommendations are to be assessed as part of the future community peak oil contingency plan and as such have not been prioritised)		
28	Lobby State Government to develop a plan/strategy to protect vulnerable populations to food shortages in the event of scenario one (short term oil crisis) situation, including measures to protect against: Panic buying Food shortages to vulnerable populations	
29	In consultation with the State Government work out strategies to ensure food distribution to vulnerable populations in the event of a fuel crisis.	

30	<p>Develop a long term strategy to significantly boost the capacity of Maribyrnong to produce food locally, including:</p> <p>Planning food production/urban orchard areas, utilising existing land, such as around sporting fields, underused car parks and unused rights of way.</p> <p>Introduce food producing plants in public places, in advance of short term fuel shortage</p> <p>Integrate food production considerations into the Planning Scheme with protected rights to sunlight, soil and water</p> <p>Preserve existing, appropriate Council own land for food producing opportunities</p> <p>Develop “governance” issues around public/City edible gardens</p> <p>Council facilitate a network of “backyard-edible” gardens – seed sources, skills, knowledge, tools, education rainwater/ stormwater (planning role) around ‘permaculture’ non fertilizer./non pesticide based growing, growing healthy soils and harvesting</p> <p>Encourage commercial market gardeners to Maribyrnong</p> <p>Start longer term planning and training for edible gardens - developing skills and potential locations</p> <p>Develop a website where those with food producing trees (excess produce) can place it on a website to enable others to use excess produce. See the following sites for examples of what is being practiced locally and abroad:</p> <p>www.veryediblegardens.com</p> <p>www.seddonorganiccollective.collectivex.com/</p> <p>www.ethical.org.au/foodcoop/</p> <p>www.permablitz.net/</p> <p>www.eatthesuburbs.org/edap-primer/</p> <p>www.foodconnect.com.au/</p> <p>www.transitiontowns.org</p> <p>www.fallenfruit.org/maps.html</p> <p>www.growsheffield.com/</p>
31	<p>Encourage the establishment of a food awareness project: Run a demonstration, temporary growing site in a prominent location to promote local food growing. Provide an information hub on site, for the general public and school groups and provide seeds of edible plants, information on Peak Oil and food gardening tips. This could be combined with a sustainable transport hub, promoting the use of alternative transport options.</p>

Appendix Two

Council Fuel Use

Service Area	Annual Fuel Use (litres)
Infra Planning & Mgt	28,980
Mgmt & Admin	3,797
Transport & Develop.	3,719
Asset management	3,679
Comm Wellbeing Mgmt	1,973
Animal Management	4,689
Building Control	7,017
Environmental Health	5,739
Local Laws	8,750
Parking Management	20,007
Syringe Management	2,189
Urban Planning	7,971
Sustainable Dev Mgt	2,631
Traffic & L/Laws Mgt	3,618
Aged Comm Transport	5,053
Aged & Diversity	1,681
Hacc Property Maint.	5,711
Aged Mgt & Co-ord	5,577
Comm Trans & Support	1,228
Neighborhood C/Centres	2,018
Street Surfer Bus	2,296
Leisure Services	211
Rec West	1,957
Open Space	1,787
Library Services	4,887
MAC - Administration	4,177
Immunisation	3,380
Govern - Councillors	707
Council Support	2,806
Property	2,867
Accounting	6,765
Mgt Financial Plan	3,013
Revenue Services	4,441
Industrial Relations	2,109
Risk Mgt Cord.	3,801
Information Techn	13,789
Corp Servs Mgt	3,185
Office Of C E O	2,159

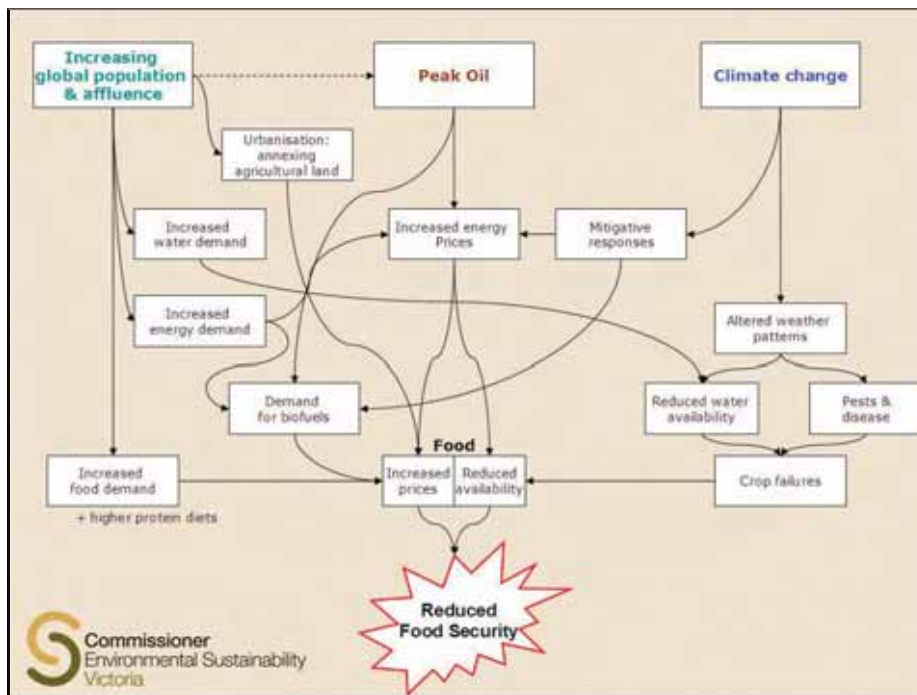
Asset management	2,087
Cemetery Operation	5,869
Street Weed Control	42,399
Road & Sign Maint	46,100
Building Maintenance	15,940
City Services Mgmt	3,108
Fleet Maintenance	4,002
Household Collection	9,601
Shop Clean & Maint	28,597
Conserv. & Water Mgt	10,476
H & High Usage Parks	6,869
Tree Maintenance	33,326
Sportsgrounds	19,355
Work Centre Mgmt	11,076
Playgrounds & Parks	7,235
Whitten Oval Maint.	377
Parks & Gardens Gen.	2,286
SES	1,395
Emergency Co-ordinator	3,098
Other	7,239
Parks & Gardens Gen.	11,566
TOTAL	462,364

NB: Waste collection and meals on wheels is a contracted service and this table does not include fuel used by contractors.

Appendix Three

Food Security

The food production, processing and distribution chain is heavily dependent on fossil fuel inputs, whether in the form of nitrogen based fertilizers, oil powered trucks for delivery, or car dependent retail locations (Abraham, 2006; Larsen, 2008; Kunstler, 2005). For this reason, as oil prices increase in line with reduced supply, food is likely to experience significant price rises and this will be amplified by the affects of climate change, as illustrated in the graphic below:



Source: Commissioner for Environmental Sustainability, 2009

Those on limited incomes will be impacted on first and addressing this issue before food shortages/price surges occur is a prudent, responsible measure Council can take to increase community resilience.

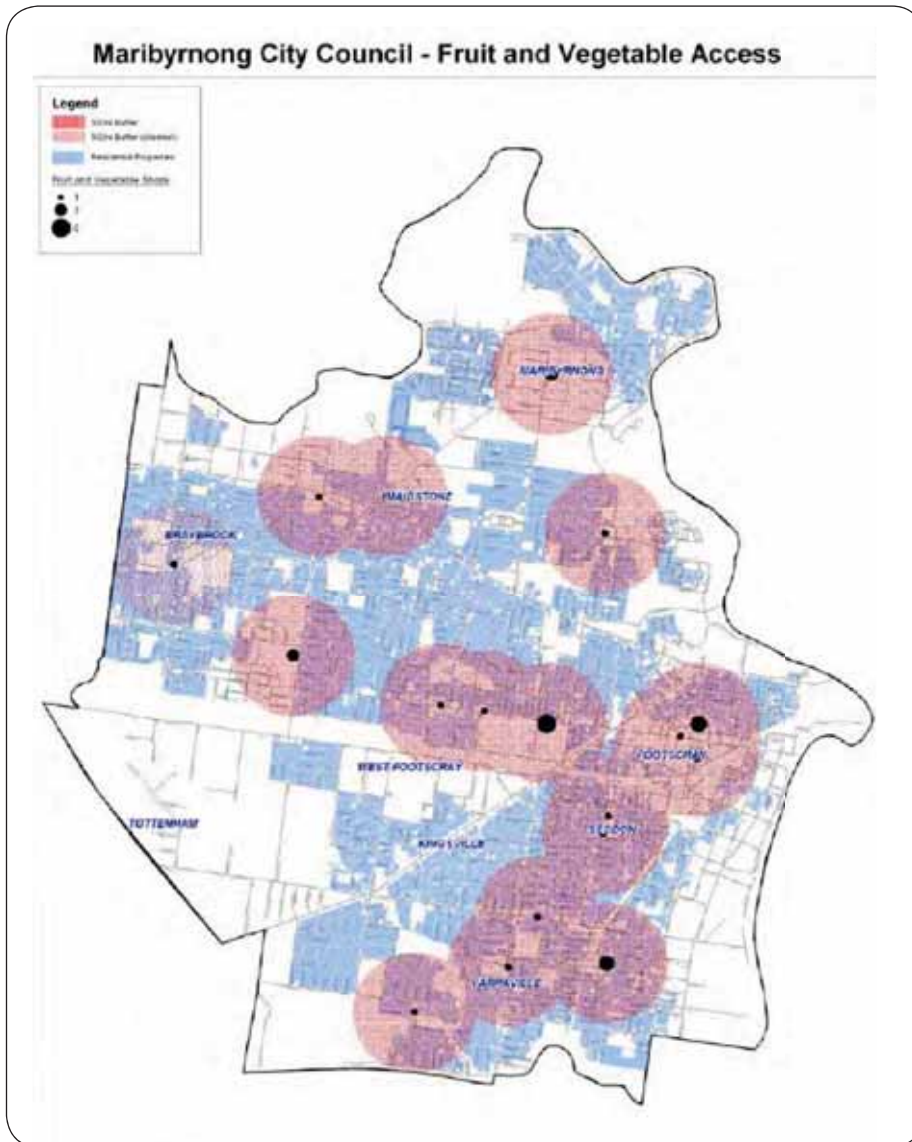
Food security can be described as 'the state in which all persons obtain nutritionally adequate, culturally acceptable, safe foods regularly through local, non-emergency sources' (Community Food Security Coalition, 1995).

The City of Maribyrnong has recognised the issue of food security and undertaken work to identify what contributes to food insecurity, what areas are at risk of food insecurity and what can be done to reduce the problem (Adithama et al, 2006).

Through this work, it was found that Maribyrnong has a number of characteristics that place it in an especially vulnerable position with regard to food security, each of which are amplified by the emergence of Peak Oil. These vulnerabilities include:

- High proportions of low income and socio-economic status residents, relative to the Melbourne average
- High proportions of residents from non-English speaking backgrounds – with around 40% of residents born overseas
- Higher rates of homelessness, drug and alcohol abuse and mental illness.

The map below identifies the areas within Maribyrnong that have access to fresh produce, as well as those areas that fall outside a 500 metre radius of a shop supplying fresh fruit and vegetables (considered a 'Food Desert' by the Community Development team who carried out the work).



Mapping 'food deserts' in Maribyrnong

Source: Adithama et al, 2006

An analysis of the above map showed that some 66% of the Maribyrnong population resides in a food desert (Mapping Maribyrnong, 2006). Specific areas include:

- **Braybrook, in the Ballarat/Churchill Ave area**
- **Maidstone, in the Ballarat/Mitchell Rd area**
- **West Footscray/Kingsville, in the Roberts/Geelong Rd area**

For a list of preliminary recommendations to increase community resilience in the face of food insecurity caused by Peak Oil, see Appendix One

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The challenge to effectively respond to Peak Oil is an immense task. It will require the commitment of all levels of government, the business sector and the wider community. Governments that move ahead of the oil depletion curve will create more resilient, liveable communities. They will find themselves less exposed to temporary disruptions in oil supply as well as less vulnerable to the inevitable long term decline in global oil production. Delaying action until the need is obvious will not allow sufficient time for a smooth transition, putting business continuity and community wellbeing at risk. This Peak Oil Contingency Plan is a small but important step in the transition to a post peak society.

