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Renewal is a world wide problem!

In this issue, I ask the question: Is the renewal problem now too big for us alone? And by 'us', I mean the traditional in-house asset management team.

There seems little doubt that this is now the case. If so, what can we do about it?

In terms of environmental sustainability, in this issue we look at the good examples being set in Canada, from Winnipeg's enthusiasm for resource conservation to the innovative (and profitable) solutions that Chilliwack in British Columbia has found to the management of its landfills. It is important to notice that this good work at the municipal coal face has been made possible by the:

- combined effort of many municipalities working as a group, and
- financial support at the federal and provincial levels

## Renewal: Is the job now too big for us alone?

These are valuable lessons for us all.

We look at Canada's "Green Municipal Fund" program and at the work of the Federation of Municipal Councils In tackling the issues of sustainability.

In this issue

	Page
58.	Is the job now too big for us?
59.	Canadian Experience
59.	Conserving Water—the key is in measuring all uses
60.	Landfill – turning a liability into a profitable asset
61.	Canada's "Green Municipal Fund"
62.	And yet still more – sustainability websites in Canada
64	What's the Big Idea—About Big Ideas?

Enjoy and Consider!

*Penny Burns*

Researched and written by Dr Penny Burns, AMQ International,. unless otherwise specified, Published fortnightly. Subscription, Comment, or Inquiries to

AMQ International  
PO Box 75 Salisbury South Australia  
Tel 618 8281 5795  
Email: [sam@amqi.com](mailto:sam@amqi.com) Website: [www.amqi.com](http://www.amqi.com)

## Renewal—Is the job now too big for us alone?

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### AGEING is NOT the problem

There is a tendency now to focus on the ageing of assets as if this were our major problem. But it isn't! In fact, it never was!

Our problem is now – as it always was – to ensure that our assets do the job that the community needs.

And there is good evidence to suggest that

*community needs are changing far more rapidly than the condition of assets is changing.*

### In addition

- A greater degree of complexity requires more integration between responsible agencies.
- More private sector involvement requires higher levels of strategic planning from all levels of government.
- As we 'go global', more issues impact on asset management.

### Twenty Years Ago

Addressing the South Australian Construction Minister's Industry Advisory Council In 1987, I said, only slightly tongue-in-cheek, that

"any smart young graduate fresh out of university could design on a green field site, but to design and plan for renewal on a constricted site *and to allow service to continue uninterrupted* – that required real talent, and considerable experience"

I went on to say that

'in twenty years' time, there will be far fewer green field site constructions and many more renewal projects'.

### Today

Well, the twenty years is now almost up!

### Are we equipped to deal with renewal?

Renewal is now universally regarded as a serious and difficult challenge. But there are serious questions over whether we have developed the experience we need to cope it. Take a look at any engineering, architecture, or planning journal, the bulk of the articles still deal with 'new' design, construction or planning.

### In 20 years the problem has become more complex

Twenty years ago most of us were simply thinking about how to get the funds to do what we had always done, renew largely in the same style, but with elements of upgrade.

We were *not* thinking about how to integrate asset renewal with environmental sustainability and reducing our ecological footprint

We were *not* thinking about how decisions within our agency impacted on our neighbours. There was little in the way of a collaborative approach to regional renewal. *And, by and large, we are still not.*

We were only just starting to think about how to integrate national issues such as disability access into our renewal planning.

But we were *not* thinking about the impact of wider world issues on our little patch. We might talk about global warming but we weren't planning for the consequences.

Today we also need to add the impacts of population ageing, rural population shifts, the rising price of oil and other basic resources as a result of rapid increases in world demand.

## From Canada

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"There were opportunities for energy savings everywhere the city [Winnipeg] looked, from city hall to fire stations, to community centres. But why stop with buildings? Why not energy-efficient traffic and street lights? And how about Christmas decorations? Light-emitting diodes (LED lighting) use about a tenth of the energy of conventional lighting.

But hey, why stop with energy? What about water efficiency (the buzzword is 'waterergy')? How about waterless urinals and low-flow plumbing? The city is in the grip of resource-saving enthusiasm. There has been a cultural shift in day-to-day operations. Everyone is looking for opportunities to save energy and resources."

US legislation requires American municipalities to carry out regular water balance audits. Similar legislation will eventually be introduced in Canada. When it is, Chilliwack will be ready.

Canada is doing much to improve sustainability through municipal infrastructure renewal. Their **Green Municipal Fund** Program (p.60) is a winner.

Here are a few examples of projects supported by the fund from an excellent article by Philippa Campsie in the March/April 2006 edition of "Renew Canada" a journal dedicated to renewal issues in Canada. ([www.renewcanada.net](http://www.renewcanada.net))

She reports that resource conservation is taking off in Canada.

### Conserving Water The Key is in Measuring All Usage

Reducing lost water makes more sense than increasing supply or getting end-users to use less water. For many nations, water loss management may represent the best source of untapped water resources. One of the first countries to come to grips with water losses was the United Kingdom. When the British water system was privatised in 1989, water companies needed to improve efficiency. Letting water dribble away into the soil from leaky pipes didn't make financial sense. Droughts in 1995 and 1996 added public indignation to financial pressures and the country's water companies began to pursue water-loss prevention aggressively.

However to manage water losses means know what is being lost. And that means measuring water loss. A difficulty here is that many legitimate uses of water may not be metered, such as fire fighting, street cleaning, flushing watermains, or supply water to municipal washrooms.

So when the City of Chilliwack in British Columbia decided to go after losses from water leakage underground, one of the first things was to metre all water use everywhere, which makes water auditing possible.

The city also tracked inflow and outflow volumes at its 14 reservoirs. It turned out that leakage from reservoirs equalled the annual production volume from one of the city's smaller water production wells. One reservoir was identified as a particular culprit, so the city embarked on repairs that included lining the entire reservoir with a huge high-density polyethylene liner with welded seams. That stopped the leaks almost completely.

The next steps call for a public education program in 2006 and the installation of water-loss metres in the distribution system in 2007. Bulk metres will measure the volumes of water going into each area of the city and indicate the worst leaks. The city can then establish priorities for repairs to pipes.

## Landfill: Turning a liability into an Asset

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Most cities have a landfill site, and every landfill produces methane and other unpleasant emissions. Dozens of GMF grants have been devoted to finding ways to deal with landfill gas: reducing it, flaring it, collecting it, using it to make power, converting it to heat.

(GMF = Green Municipal Funds , see page 61)

The City of London (Ontario) applied for a grant to explore several options at the same time for one of its landfill sites, and commissioned three studies. One estimated the amount of gas at the site and the cost of collecting it. Another studied the feasibility of using it to generate electricity. A third looked at areas of the site where the gas could not be collected, and options for covering the landfill to reduce methane emissions.

The first surprise was pleasant. Although a preliminary study had suggested that the gas might be difficult to collect, it turned out that there were many areas on the site where collection would be straightforward. So the city installed a gas collection and flaring system in 2004.

The second surprise was less welcome. The site is in a rural area, with somewhat unreliable energy supply. From time to time, there would be a flicker or surge in the power supply, which shut down the collection system. (According to the air quality manager for the city, "it always seemed to happen at 5 pm on a Friday".) The city is working out the bugs, but it took longer than expected to get the system operating reliably.

Another growing pain was dealing with the problem of leachate flooding the collection wells. The city is expanding the number of wells and using a new design to minimise the flooding problem.

When the system is running smoothly, it burns off about 600 cubic feet of methane per minute. The goal is to get the amount up to 800 cubic feet per minute. That could represent 80,000 tonnes of green house gas a year, the equivalent of one-fifth of the city's residents meeting the one-tonne challenge or taking 20,000 cars off the road.

The city makes money selling emission credits through Environment Canada's Pilot Emission Removals, Reductions and Learning (PERRL) Initiative, at \$2,96 a tonne. This money covers all the operating costs of the system, and most of the capital costs. When the program ends in December 2007, the city will be able to sell those credits to large industrial emitters, where they are currently estimated to fetch a price of \$10 a tonne.

The next step is to use the gas to generate energy. The city has completed feasibility studies which suggest that a two- or three- megawatt power plant could be operated at the site. At that point, the city will have several options: buy the electricity itself, sell the electricity on the spot market, sell the electricity to the province, sell the electricity to a single buyer, or sell the landfill gas rights to a power developer. With Ontario's proposed Standard Offer Contracts expected in 2006, small-scale renewable energy could be worth about \$0.133 a kilowatt hour. And the City of London will reap the benefits.

## Green Municipal Funds

What they are and what they do

To date, 522 GMF studies, field tests, plans and capital projects have been approved for funding of \$301 million, leveraging over \$1.9 billion of economic activity in communities across Canada.

The Green Municipal Funds (GMF) were established in 2000 with a \$125 million endowment from the Government of Canada and was doubled to \$250 million in the 2001-2002 federal budget.

The GMF is made up of two funds. The \$50 million Enabling Fund (GMED) provides grants for feasibility studies, field tests and pilots. The \$200 million Investment Fund (GMIF) provides low-interest loans to municipalities and their partners to finance environmental infrastructure pilots and projects.

### Eligible Green Municipal Fund projects are divided into categories:

#### What does the Fund see as priority areas?

Since its inception, the distribution of funds between the categories has substantially changed.

Overall the distribution has been

Energy 39.6%  
Water 37.2%  
Solid Waste Management 5.2%  
Sustainable Transportation 17.2%  
Integrated projects 0%

But in the 2004-2005 financial year, the bulk of the money, was going to Water projects (probably reflecting the greater awareness of water asset management problems since GASB 54 and the work of the EPA)

#### In 2004-2005

Water Projects had risen to 51.6% of the total.

Energy projects had fallen to 29.8%

And Sustainable Transport to 16.1%

Solid Waste Management was just 1.6%.

#### Energy

Energy-efficient building retrofits, renewable energy and community energy systems.

#### Water

Watershed management, water conservation and new approaches to potable water, wastewater and stormwater treatment.

#### Solid Waste

Waste diversion and landfill gas management.

#### Sustainable Transportation

Public transit, municipal fleets, integrated and alternative transportation systems and transportation demand management

#### Sustainable Community Planning

Integrated land use, transportation and energy planning, community and corporate greenhouse gas reduction plans, watershed management and brownfield redevelopment

#### Integrated Community Projects

Energy and environmental management projects that include projects from more than one category

## A Knowledge Network for Asset Managers: The Green Municipal Fund Approved Projects Database

[www.sustainablecommunities.ca/Search/Search/Search.aspx?lang=e](http://www.sustainablecommunities.ca/Search/Search/Search.aspx?lang=e)

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**\*Note:** if you are reading this in hardcopy, you may find it easier to access this database by opening up your online copy of SAM 189 at [www.amqi.com](http://www.amqi.com). All of the URLs listed in this issue, and all issues from 2006 on, are then only one click away. If you don't have a user name and password (or have forgotten it) write to me at [info@amqi.com](mailto:info@amqi.com) and we will arrange this for you.

Over 250 projects can be found in this searchable database. Complete with contact telephone numbers for follow up.

Not only does the GMF provide funds for feasibility studies and low interest loans for investment in innovative projects, but it maintains a most unique and valuable database.

Over 250 projects funded by the GMF are included in the database.

For each one a short summary is provided (see below) which gives date and contact details for follow up. The summary says why the project was initiated.

When the project is completed, a 2 page case study is attached to the summary giving the results of the study.

### GMEF 0684 - Innovative Public Transit System

GMF Category: Sustainable Transportation Services and Technologies

Municipality: City of Charlottetown Total Project Value: \$75,000.00

Population: 32,531 Grant Amount: \$37,500.00

Loan Amount: \$0.00

Project Contact: Donna Waddell, Director of Corporate Services (902) 566-5548

FY Approved: 2001 - 2002

The City of Charlottetown is the only capital city in the country without a public transportation system. Given its disproportionate number of seniors and aging baby boomers, pressure is rising to install such a system. The city is concerned that providing a public transit system will impose an impractical financial burden and will negatively affect an already stressed environment. This feasibility study will explore cost-effective and environmentally sympathetic public transit systems. Among the options the study will consider is using the existing taxi system. The study will also identify other organizations with which the city could form a partnership to deliver the service.

## A one stop shop to Sustainability Websites in Canada

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**The Natural Step** is an international organization that uses a science-based, systems Framework to help organizations and communities understand and move towards sustainability. The Natural Step engages in education and training, community outreach, advisory services and research. Founded in Sweden over a decade ago, The Natural Step has gained international recognition for its work, including The Blue Planet Prize and Global Green's Millennium Award for International Leadership. The Natural Step now has offices in ten countries: Australia, Brazil, Canada, Japan, Israel, New Zealand, South Africa, Sweden, the United Kingdom, and the United States.

Read more about the Canadian experience with the Natural Step at  
[www.naturalstep.ca](http://www.naturalstep.ca)

**Canada's Cities: Unleash Our Potential** : Cities are where most Canadians live and work and are the economic engines of the nation. This website, operated by the City of Toronto, encourages a new charter for Canada's largest cities. One of their goals is:

***Get governments working together.*** Tired of the endless bickering between different levels of government? So are we. It's time to give cities a seat at the table when Ottawa or the provinces are discussing matters that affect them like affordable housing, immigration and transit. It's only fair - and it would make the country work better.

Ed: I am not sure that they achieve this, but we all desire it, so if this is an issue for you, this site is worth exploring.

[www.canadascities.ca](http://www.canadascities.ca)

**Driven to Action: Stopping Sprawl in Your Community** : Offers guidance for citizens interested in reshaping urban areas. It includes a report on the problem of sprawl, as well as, a user-friendly tool kit designed to empower communities and help them stop sprawl.

Sprawl consumes large quantities of land, segregates houses from shops and workplaces, depends on cars, and has little regard for the natural environment. In some parts of Canada sprawl is the largest driver of greenhouse gas emissions. Of course, most Canadians do not personally build the houses, streets, schools, parks or water lines that make cities possible. But we can set the rules for building sustainable cities and help make the plans that determine how we get to work, school and shopping.

The David Suzuki Foundation's report, *Understanding Sprawl*, and toolkit encourages communities to reshape urban areas. We need more dense and compact cities, with better bike paths and pedestrian friendly walkways.

Ed: If you want to learn how to handle this, this is the website to go to. (Also useful if you want to learn how to redesign your cities to cope with rising oil prices!)

[www.davidsuzuki.org/Climate\\_Change/Sprawl.asp](http://www.davidsuzuki.org/Climate_Change/Sprawl.asp)

**Canadian Eco-Industrial Network** : Canadian Eco-Industrial Network is an association of public and private organizations designed to serve as an information clearinghouse for eco-industrial network developers and practitioners. Its newsletter Eco-Industrial Advantage and the workshop proceedings from GLOBE 2002 are available online. Ed: The newsletter consists of lots of examples of sustainability in practice.

[www.peck.ca/cein/main.html](http://www.peck.ca/cein/main.html)

### InfraGuide

The Canadian InfraGuide is a veritable treasure trove of research and good practice in a wide range of asset management issues. Its collection includes 4 Environmental Protocols but a lot of the other best practices are also relevant.

[www.infraguide.ca/bestPractices/PublishedBP\\_e.asp#dmip](http://www.infraguide.ca/bestPractices/PublishedBP_e.asp#dmip)

Ed: All of these best practices can be downloaded for free. But, in addition InfraGuide also supplies products which may be purchased—but you can view them first!

**Managing Infrastructure Assets Knowledge Product** : A unique and essential knowledge product that can be used by Canadian municipalities to save money by improving asset management.

[www.infraguide.ca/education/default\\_dyn.asp](http://www.infraguide.ca/education/default_dyn.asp)

### What's the Big Idea About *BIG IDEAS*?

Think about it—

Are you and your team the only ones in your organisation to have to deal on a daily basis with the operational consequences of past asset decisions?

Are you and your team the only ones in your organisation who have a mandate to think forward the lifetime of your assets to ensure that the decisions you make today will ensure future performance, reliability, and service delivery?

Is this not what life cycle analysis is all about?

And if so, are you and your team the natural group to consider and take into account in asset planning for new, renewal and maintenance, the consequences of the major changes that are now taking place in our economy—the impact of demographic change on the appropriate nature and location of assets; the impact of the rising price of oil on the nature and efficiency of assets; the impact of global climate change on everything to do with assets?

**If not you, then who?**