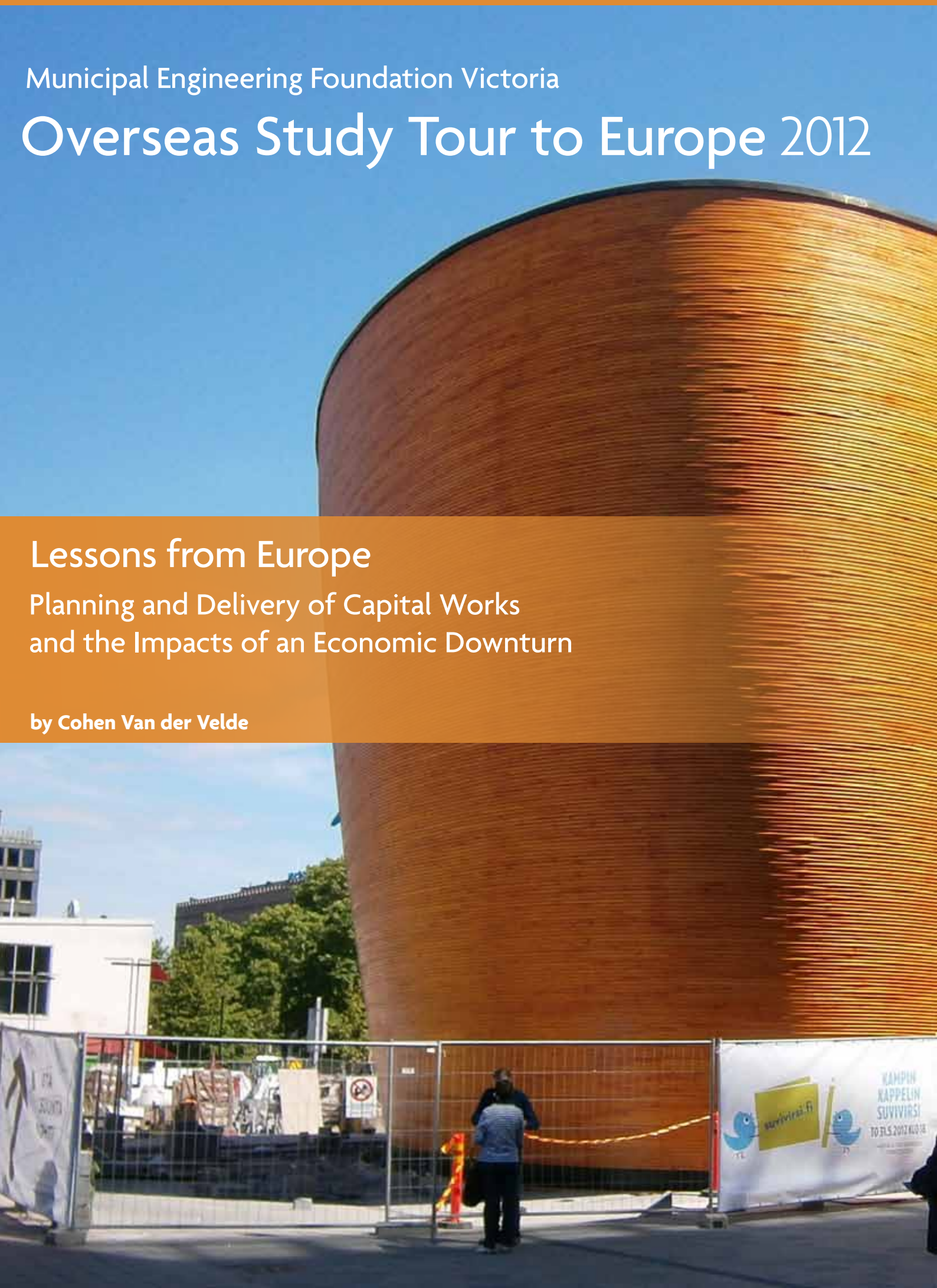
Municipal Engineering Foundation Victoria

Overseas Study Tour to Europe 2012



Lessons from Europe

Planning and Delivery of Capital Works and the Impacts of an Economic Downturn

by Cohen Van der Velde

Cohen Van der Velde is the Infrastructure Projects Manager for Bass Coast Shire Council, which is the fastest growing regional municipality in Victoria, Australia.

Cohen has a bachelor of Engineering (Civil) with Honours from the Swinburne University of Technology.

Cohen has over 8 years experience working as a civil engineer in local government. His previous related experience included experience in the building industry and the private consulting sector.

Cohen has held various positions with responsibility for infrastructure project delivery and project management, including urban and rural infrastructure design, construction management, contract management, delivery of special charge scheme projects and the management of an infrastructure delivery team.

Table of Contents

Executive Summary

The MEFV Overseas Study Tour to Europe 2012 is conducted to provide municipal engineers within Local Government exposure to the best practice and innovation within the public works sector across Europe. The purpose of my study was to undertake research into the planning and delivery of capital works and investigate the impacts that the economic downturn was having on European municipalities and their ability to plan and deliver public works infrastructure.

The focus of my study was adopted in response to a number of initiatives undertaken by my respective employer, Bass Coast Shire Council into the assessment and improvement of Bass Coast's financial sustainability, specifically in the areas of capital works planning and delivery.

Over the period of 31 May 2012 to 22 June 2012 the study tour group visited local authorities in Finland, Estonia, Sweden, Denmark, Switzerland and Austria. The tour also included attendance at the 2012 IFME Congress and visits to the MindLab in Copenhagen, Technical University of Munich, and the City of Vienna's Waste Incineration plant.

2012 IFME Congress

The 2012 IFME World Congress on Municipal engineering was hosted by Finland's Association of Municipal Engineers in Helsinki, Finland. The Congress was attended by more than 450 delegates. The Congress theme of Plan, Design, Construct and Maintain....For a Better Future was particularly relevant to my study topic.

Local Authorities Visited

The Finnish City of Helsinki was visited. The City of Helsinki is the capital of Finland and is undertaking a number of innovative approaches to the planning and delivery of public infrastructure.

In Estonia the study group met with representatives from the City of Tallinn. Tallinn is the capital of Estonia.

In Sweden the study group met with representatives from the City of Staffanstorp, a small rural municipality between the more major cities of Malmö and Lund. The visit to the City of Staffanstorp also included a tour of some of Malmö's development projects.

In Denmark the study tour group met with representatives from the cities of Copenhagen and Rudersdal. Copenhagen is the Capital of Denmark and the City is a world leader in their planning to mitigate their impact on climate changes and the effects it is having on the city. Rudersdal is a smaller municipality north of Copenhagen.

In Switzerland and Austria the study tour group met with the City of Zurich and the City of Austria, respectively. Both Cities showed exceptional planning and delivery of public works which resulted in highly liveable cities.

Key Findings and Recommendations

From the experiences that the study tour provided I was able to ascertain three key findings or principles that can be embedded into the frameworks and plans used by municipalities and public works engineers and practitioners. These three principles are:

- Improve Productivity,
- Enhance the Liveability of our Cities and Towns, and
- Demonstrate greater Leadership.

To integrate these three principles into the frameworks and methods for the planning and delivery of public works, a number of recommendations are outlined, that if ratified and achieved, will help municipalities to ensure improved productivity, enhanced liveability for our communities and demonstrate greater leadership.

Conclusion

To effectively plan and deliver public works, good quality business planning frameworks, service plans, asset management systems and plans, capital evaluation frameworks, project briefs and procurement models are required. The findings from the study tour showed that underpinning these planning and delivery tools with improved productivity, enhanced liveability from the public works infrastructure being delivered and demonstrating greater leadership will ensure that the impacts of an economic crisis can be mitigated.

1. Acknowledgements

For over 35 years the Municipal Engineering Foundation Victoria (MEFVic) has been providing opportunities for engineers working in local government within Victoria to enhance their technical and managerial skills. These opportunities include annual scholarship awards to research a study topic through an overseas study tour.

I acknowledge the support of the MEFVic and would like to express my gratitude to the Foundation's trustees, both past and present, for the opportunity to participate in the 2012 Overseas Study Tour of Europe. The experience of the study tour, the knowledge gained, as well as the relationships that have been formed – with both the study tour participants and the tour hosts across Europe – has provided a professional and personal development opportunity that I will be forever grateful for.

I would like to thank Bass Coast Shire Council and acknowledge their support, which included the opportunity to take the time away from work to plan and organise the tour, as well as attend the 22-day tour.

I would also like to thank the following European municipalities and organisations that hosted the study group.

- City of Tallinn, Estonia;
- City of Helsinki, Finland;
- City of Staffanstorp, Sweden;
- City of Copenhagen, Denmark;
- City of Rudersdal, Denmark;
- MindLab, Denmark;
- City of Zurich, Switzerland;
- Technical University of Munich; and
- City of Vienna, Austria.

The effort and quality of the presentations from each of the City's hosts, demonstrated a real pride and commitment to their work, as well as a commitment to the importance of sharing knowledge between colleagues.

In addition to the municipalities and organisations that hosted the study group, I would also like

to acknowledge and extend a thank you to the following individuals for their support, assistance and hospitality as part of the study tour.

- Ville Alatyppo and Dan-Henrik Langstrom of City of Helsinki
- Ingalill Hellberg and Göran Berggren of City Staffanstorp
- Chiara Fratini of University of Copenhagen
- Christian Bason of MindLab, Cross ministerial department of Danish Government's Ministry of Business and Growth, the Ministry of Taxation and the Ministry of Employment
- Bernhard Kuhn of City of Zurich

I would like to thank the other awardees that participated in the study tour, Oliver Vido, Manager Infrastructure Services Greater City Dandenong and Simon Thomas, General Manager City Works City of Stonnington. Their company during the tour, their professional experiences and the work that they had undertaken to organise visits to host municipalities and organisations, was a fantastic compliment to the experience that the tour offered.

Lastly, I would like to express my gratitude to MEFVic trustee and our study tour leader, Claudio Cullino. His guidance before, during and after the tour, along with his experience in municipal engineering, was also a fantastic compliment to the tour. Claudio's passion for the development and enhancement of engineers in Local Government is endless. It was very heartening and encouraging to see firsthand the way that Claudio, as a trustee, really lives the values of the foundation.

2. Introduction

2.1. Study Topic

Whilst Australia seems to have weathered the economic storm of the Global Financial Crisis (GFC), and to some degree the European debt crisis, some economists suggest that we are only just sitting within the eye of the storm.

So what impacts will the unprecedented GFC have on Local Government in Australia and Local Government's ability to deliver Capital Works, if we also experience an economic downturn.

Prior to the study tour, my objective was to gain insight into the way municipalities within Europe are coping with the impacts of an economic downturn and the measures that they have implemented to ensure that they are able to deliver on these plans.

Further to this, I sought to provide public works engineers and practitioners with an outline of the experiences that I have gained from the study tour. In sharing these experiences I hoped to provide some opportunities that can be explored by Local Government to ensure that our organisations are best placed to deal with the impacts of an economic downturn on the planning and delivery of capital works.

In this report I endeavour to demonstrate opportunities that are available to both Victorian and Australian Local Government organisations, based on the experiences and lessons over the course of the study tour.

2.2. Preface

Prior to the study tour, the intention and purpose of my study was to look at the specific measures that European municipalities had taken in the event of the global financial crisis (GFC) and the economic downturn, and how these have impacted on the planning and delivery of their public works programs.

However, over the course of the tour the intention of my study evolved proportionally to the amount that I was learning and was being exposed to. It became evident that the intention of my study would need to be revised and this is reflected in the following chapters of this report.

These reasons included the complexity of the economic situation and the varied exposure the countries and their municipalities had to the impacts of the crisis. It was also evident that the hosts for our study tour were often not fully exposed to the financial implications that the economic downturn was having on the municipality's public works programs. On top of this many of the individuals of the host municipalities could not provide specific data or evidence on these specific matters.

Another issue was that the organised study tour visits at different municipalities involved a range of different departments and divisions. These visits included presentations from a wide range of areas such as those responsible for public works delivery, urban planning, open-space design or transport planning. The differing service areas that we met with at each municipality sometimes meant that our study group had limited exposure in some cities to the staff specifically or directly involved in the planning and delivery of public works programs.

Whilst this may have been considered an issue in the development and exploration of my study topic, I welcomed the opportunity to explore beyond my study topic. The tour provided me with the opportunity to explore the vast array of 'best practice' that is occurring within European municipalities. This also sparked the need for me to delve deeper into the lessons from the tour, synthesise the experiences gained from the tour and undertake further research, to answer the topic.

As a result of this, the intent of this report has evolved from looking at the specific things that European municipalities are doing to minimise the impacts of an economic crisis on their works programs, to a report that highlights good ideas; practices that can be considered good, if not best practice; smart solutions and the need to improve the liveability of our communities through smart ways to plan and deliver for the infrastructure that achieves this.

This report therefore highlights a range of things, underpinned by some learned principles, that I believe could be integrated into the way in which we plan and deliver our public works programs to minimise our exposure to the affects of a financial or economic crisis.

This report is structured in a way which provides brief information about each of the cities or municipalities that we visited and shows the key observations that we were exposed to from each of the study tour interactions, including the IFME Congress. This report then discusses the relevance of these observations to the way in which public works engineers and practitioners plan and deliver for public works. Essentially, this report shows a range of opportunities for improvement that public works engineers and practitioners can use to better improve the way they plan and deliver the infrastructure that is required to provide the services that our communities need.

Whilst not directly spelt out over the study tour or through the study tour visits, I have been able to determine and define three ingredients or principles that need to occur in the planning and delivery of public works so we can better deliver on our plans, with or without the effects of an economic crisis. These principles are:

- Improve our Productivity;
- Enhance the Liveability of our Cities and Towns; and
- Demonstrate greater Leadership.

Throughout the study tour, an important lesson learnt was that the outcomes that public works engineers and practitioners are trying to achieve with the planning of public works can be improved by ensuring that the underlying principle in the planning of those works is to maximise the liveability for our citizens and our communities.

It is also necessary to ensure that the liveability of our cities and towns is maintained through times of economic downturn. This can be achieved by the more efficient and effective use of our resources – by focussing on improved productivity – in 'boom' times and also within times of economic downturn. It is an imperative that municipalities, particularly public works practitioners, effectively manage the assets and the infrastructure that supports the services that make our cities and towns liveable, so that in times of economic downturn, the impact of rising expenditure and diminishing revenue does not negatively affect the liveability for our communities.

By having well planned programs, public works delivery is able to be delayed, but not deferred. Thereby, continuing to optimise the preconstruction activities, maintaining productivity and staying within affordable parameters. This ensures that you can continue to deliver liveability for the community.

Further to this, it was evident that there are a number of issues at both a macro and micro level that Local Government in Australia needs to address. In order to address these issues it is vital that both the elected representatives, executive management and public works engineers and practitioners show leadership in addressing these issues, to ensure that our local government organisations can improve productivity and ensure that our communities can live, work and play in some of the most liveable cities and towns possible.

2.3. Background

The current economic downturn that is occurring throughout the developed world, particularly within Europe, has not yet been experienced to the same extent within Australia. Australia's economy is still the highest performing economy of the developed nations throughout the world, yet it is highly likely that there could be a significant reduction in the revenue that is available to both State and Federal Government's.

The Deputy Governor of the Reserve Bank of Australia, Mr Ric Battellino has sated that with few direct trade links to Europe, strong government finances, and a resilient banking system, Australia is well placed to withstand the impact of the crisis on the global economy, however the Australian economy will inevitably suffer "spill over" effects from the European government debt crisis. (AAP, 2011)

The magnitude of those "spill over" effects to the Australian economy is still unknown, as is the full extent of the effects of the sovereign debt crisis that is continuing to develop in Europe.

However it is known that the likelihood of the impacts to the Australian economy, as a consequence of the global downturn, will occur through higher borrowing costs for Australian banks and a slowdown in Asian economies, including both China and India, of which have strong trade links with Europe. (AAP, 2011)

Another concern of Australia's leading economists is that the Australian economy is two-paced. Some of the economy's sectors are experiencing poor performance, particularly the manufacturing and retail sectors; where as the mining sector is experiencing a continuing 'boom' and very rapid growth. Whilst the growth and economic prosperity in the mining sector is a huge factor in Australia's economic stability, it is concerning that the stability of the country's economy is reliant on the Chinese and the Indian economies' appetite for Australia's mineral resources, to satisfy the demands of those strong trade links with Europe.

It is expected that the amounts of funding accessible to Local Government, through grants available from State and Federal Government programs, will also be significantly reduced as the effects of the European debt crisis further impact the global economy and start to affect Australia's economy.

As outlined in the Victorian State Government's Treasurer, Hon. Kim Wells 2012-13 financial year budget speech, compared with the estimates made in late 2010, Victoria had lost an expected $6.1 billion

in GST revenue over the four years up until 2012-13. Much of this is due to slower consumption growth, but some is due to the reduction in Victoria's share of the GST. Revenue estimates from GST and stamp duty on land transfers have been reduced by $7.6 billion over four years. This represents an average of $1.9 billion a year, or around 7 per cent of Victoria's revenue from State taxes and GST. This is a bigger revenue hit than what occurred during the 2008 global financial crisis. (Wells, 2012)

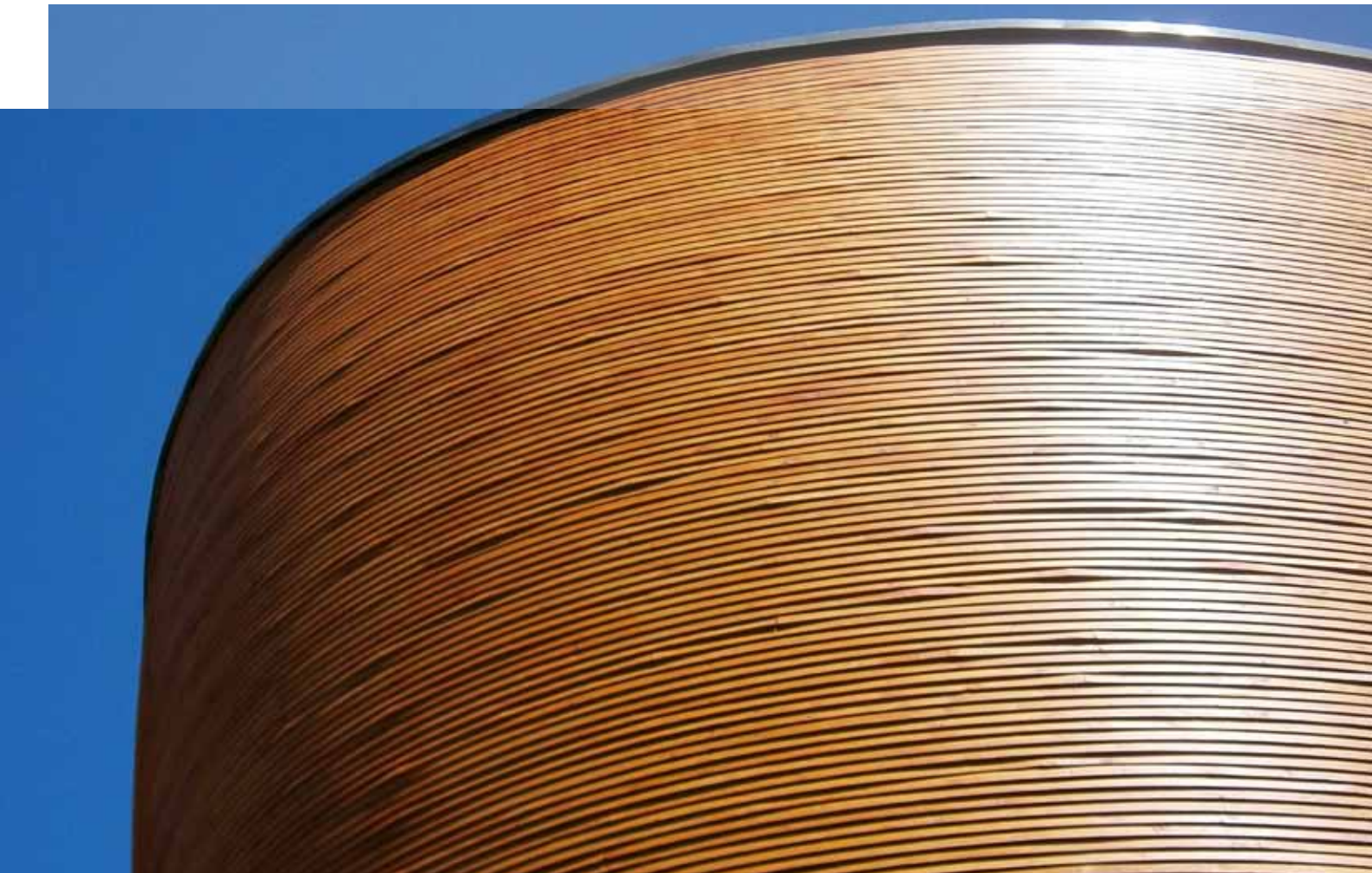
The impact of the reducing revenues at the State Government level, is starting to become evident and is also starting to have an impact on Local Government's access to grants funding.

The amount of funding available through State Government grants to Local Government has been significantly impacted for the 2012-13 financial year, due to a whole range of factors, including the soft economy and significant reduction in government revenues.

The amount of funding available to Bass Coast Shire Council for the 2012-13 financial year through the grants commission has been significantly reduced, as has been the amount of funding that has been available for a whole range of planned capital works projects, through specific funding programs.

Furthermore, additional pressure on Local Government funding has resulted from the $453 million shortfall in the Vision Super defined benefits superannuation scheme, whereby employers shoulder the investment risk not the employees (MAV, 2012). This has resulted in Victorian Local Government's being exposed to the risk from the market downturn due to the legal requirement to fund the shortfall for this type of superannuation scheme, hence a further drain on available funds.

The continuing threats to Local Government's revenue streams and their financial sustainability, from the global economic slow down, will inevitably have impacts on the municipalities that are managing, maintaining and delivering the infrastructure that is required to provide the services that the community needs



3. Study Tour Interactions

3.1. 2012 IFME World Congress on Municipal Engineering – Plan, Design, Construct and Maintain....For a better future.

3.1.1. About the Congress

The 2012 IFME World Congress on Municipal engineering was hosted by Finland's Association of Municipal Engineers in Helsinki, Finland. The Congress was attended by more than 450 delegates with a delegation of over 20 Australian and New Zealand Engineers.

The Congress theme of Plan, Design, Construct and Maintain....For a Better Future was particularly relevant to my study topic.

The conference sessions were held over a two and a half day period and included a half day technical tour in Helsinki. The congress package also included an additional two days of technical tours to Tallinn, Estonia and Stockholm, Sweden.

3.1.2. Congress Sessions

The conference included three keynote sessions with the technical sessions structured around seven key topics. The seven key topics included Urban Planning, Traffic Solutions, Energy Solutions, Municipal Design & Engineering, Construction & Renovation, Asset Management and separate group of sessions held by the Estonian Association of Municipal Engineers.

There were a number of sessions that provided a great insight into my study topic. These included:

- The impact of the economic crisis on municipalities in Europe – which way forward, by Carl Haglund (Finland's Member of the EU Parliament);
- Implementing Sustainable Asset Management (SIAM) as part of a National Program, by Roger Byrne;
- Integrating Asset Management and Strategic Planning – An Australian Experience, by Guy Creber; and
- UK Government's Highways Maintenance Efficiency Programme, by Matthew Lugg.

Further to these sessions a number of additional sessions were of personal interest and whilst not directly related to my area of study, were a real highlight of the congress.

- Mobility Management in Umeå, by Emma Ödling;
- Service Planning the missing link in Sustainable Asset Management, by Ross Goyne; and
- gNAMS: A Global NAMS Group for Municipal and Public Infrastructure Assets, by Chris Champion.

3.1.3. Congress Organised Tours

The Congress involved a number of technical tours within the City of Helsinki. The technical tour that I chose to attend was the Public Works themed tour and involved a bus trip around the City of Helsinki, show casing the developments and major projects that were occurring within the City. The tour also included a trip below ground into the subterranean tunnel system that had been constructed by the City.

A number of major development projects have been undertaken by the City. These include two precincts that are part of the waterfront redevelopment of the old harbour areas. The developments include residential areas, to cater for up to 16,000 residents and a number of commercial and open space areas, which include shopping strips, restaurants and cafes, parks and beach side boulevards.

The subterranean aspect of the tour involved a bus trip through the existing and newly constructed tunnel complex beneath the CBD area. The tunnel system is approximately 40m below ground level, and has been constructed through the solid granite subsoil beneath the city.

The tunnel system beneath Helsinki is an extensive network of service tunnels that provides, an arterial bypass route from one side of the CBD to the other for commuters. The tunnel system also provides access for commercial deliveries to the businesses that operate within the CBD. This ensures that no commercial traffic is using the road network above ground, keeping the CBD road network available to smaller vehicles and public transport, such as trams and buses. The tunnel system also provides four major depot sites for the Public Works Department to operate from, which is a major consideration when considering the harsh winters and need to clean streets from the snow and maintain urban mobility for the community.

The technical tours also included a tour over the Baltic Sea to the capital of Estonia, Tallinn. The tour involved a brief bus tour of the city and a cultural experience of traditional Estonian choir signing. The tour also included a walking tour of the UNESCO World Heritage listed Old Town of Tallinn.

The Congress finished with a tour to the City of Stockholm. The technical tour involved a bus tour around the new development sites of Stockholm and a walking sight seeing tour within the CBD area.

3.2. Finland

3.2.1. Municipalities and the Finnish political context

Finnish Municipalities are recognised within Finland's Constitution and are the fundamental administrative division of the country.

In addition to municipalities and the State (central government), there is also an intermediate level of government defined as Regions. There are 336 municipalities within Finland that make up the 19 regions. Regional Governments throughout Finland are governed by the member municipalities of the region.

Of the levels of government within Finland, municipalities account for approximately half of government spending. Municipal spending is financed from a range of sources, which includes income tax, state subsidies and other revenue. Within the Finnish Constitution, the Finnish Local Government has a right to levy taxes such as Local Income Tax, Property or Real Estate Taxes and take a share of the Corporate Tax Account, as well as the right to levy other taxes. Of these taxes, Income Tax accounts for around 70 per cent of the revenue generated by municipalities.

3.2.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

Finland, like most European country's that are members of the European Union's Eurozone, has been impacted by the effects of the global financial crisis and the European sovereign debt crisis.

The Finnish economy significantly relies on exports, with up to 45 per cent of the economy being generated from export. The global financial crisis, and the subsequent sovereign debt crisis in Europe, has had a particularly strong impact on countries which are dependent on export, as their economies become exposed to volatility in both export earnings and economic growth associated with economic shocks. This makes export dependent nations extremely vulnerable.

One of the major impacts of the global financial crisis in late 2008 was the impact that the credit squeeze had on all levels of government within Finland. As the crisis intensified, the access that municipalities had to finance diminished.

Fortunately, 'Municipality Finance' was established in 2001 when its predecessors, the old Municipality Finance and Municipal Housing Finance were merged to form a new company. The new 'Municipality Finance' was founded to ensure affordable financial services for the local government sector under all market conditions. This has given municipalities access to finance, when access to commercial loans ceased. Municipality Finance, which is predominately owned by municipalities is guaranteed by the central government's Municipal Guarantee Board which has given municipalities' access to credit.

However, the major impacts facing municipalities, is not necessarily having access to credit and declining revenue, but is the continuing upward expenditure trend, including the continuing cost increase of delivering public infrastructure.

3.2.3. More About Helsinki

Helsinki is the capital of Finland and is located in the south of Finland in the Uuismaa region. Helsinki is situated adjacent to the Gulf of Finland, which forms part of the Baltic Sea.

The City of Helsinki was founded in 1875 and is one of four municipalities, along with the City of Espoo, the City of Vantaa and the City of Kauniainen, that make up the Helsinki Metropolitan Region or as it is otherwise known the Finnish Capital Region. The whole of the region has a population of approximately 1.34 million inhabitants.

The City of Helsinki is centrally located within the region, has a population of approximately 580,000 citizens and covers an area of 716 sq.km, of which the sea accounts for 503 sq.km.

3.2.4. City of Helsinki – Observations

As part of the tour and organised interviews with municipalities, we met with representatives from the City of Helsinki's Public Works Department.

Attached in Appendix 1 are further details. The discussions and observations between our study tour group and the representatives of the Public Works Department are described in this section of the report.

ASSET MANAGEMENT

The City of Helsinki's Public Works Department recognises that it has a low level of asset management maturity. When compared to that of Australian and New Zealand municipalities, this is clearly evident. However, the Public Works Department is moving towards improving the management of their infrastructure by the adoption of an asset management system. The Public Works Department is currently undertaking vast data collection of the condition of assets for its major asset classes. The Public Works Department highlights that – whilst they have a low level of asset management maturity – they recognise effective asset management as a sound financial management practice regarding the management of the City's infrastructure.

Furthermore, Finland is participating in an international project to adopt best practice Asset Management in line with Australia's IPWEA's International Infrastructure Management Manual (IIMM).

CONSTRUCTION PERIOD & CLIMATE

One of the challenges for the City is the environment within which they operate. The construction period for the year is limited to the months between May and October. Due to the long winters and high snowfall, in the months of November to April the City's operations are dominated by the need for winter maintenance, such as snow and ice removal to ensure that the transport network can still function.

PRODUCTIVITY

The City of Helsinki places importance on the need for best practice, improved productivity and performance, more efficient co-operation between adjoining municipalities and local authorities, as a means of improving their capability to deal with the impacts of the economic crisis. This is a proactive approach, compared to some of the austerity measures, which have been introduced in other European countries that severely impact on the liveability for citizens.

The City of Helsinki's Public Works Department have introduced a number of improvements to their operations with the adoption of new technologies and social media, to improve communications with its citizens, resulting in better efficiency's in the delivery of public works.

One example of the use of new technologies by the Public Works Department has been to better enable their road maintenance crew to efficiently carry out works.

When works are scheduled to be undertaken in an area the Public Works Department installs temporary signage to alert residents that the parking conditions in these areas have changed to a 'no parking' zone during the period of the works. However, they were still experiencing a high number of vehicles parking in these areas causing significant delays and costs – by having to tow vehicles from the area so they can conduct their works.

The Public Works Department introduced a SMS based alert system, which they can use to inform residents in an area when they will be conducting works in an area and parking restrictions will be in place. The system cost the Department less than €20,000 or AUD $25,000 to implement and they estimate has saved them hundreds of thousands each year.

Another example of this is the use of 'Snap, Send, Solve' technology through a smart phone application. This application enables a customer to take a photo of an asset that requires maintenance, send the photo through to the municipality and the report/request is registered in their customer request system for action.

EMPLOYMENT STATUS

Finland, including the City of Helsinki appear not to be experiencing the same skills shortage in the engineering sector, as we are in Australia. The statistics are that:

- 66 per cent of students progress to a tertiary education, resulting in an adequate skills stock;
- Young engineers in Finland are having no problem finding jobs; almost all of them are employed immediately after graduating; and
- The unemployment rate for the country as a whole is 10 per cent, however the employment rate for engineers is over 96 per cent.

LOCAL GOVERNMENT AMALGAMATIONS

The central government is looking at the merger of municipalities through amalgamation. In the 1990's during a deep recession local government personnel was dramatically cut with numbers decreasing by about 10 per cent. The Finnish Municipal Association has been working with the Central Government to ensure that the amalgamation process does not include the mass retrenchment of staff, especially that of skilled personnel.

3.3. Estonia

3.3.1. Municipalities and the Estonian Political Context

Similar to Finland, Estonian Municipalities are recognised within Estonia's Constitution and are the fundamental administrative division of the country, responsible for the delivery of approximately 70 per cent of all government services.

Estonia is divided into 15 counties, which are the administrative subdivisions of the country. Each county has a regional governor that represents the central government at a regional level.

The 15 counties are further divided to make up the 226 municipalities. Municipalities are either defined as urban or rural municipalities, and are the lowest level of government. There are 33 urban and 193 rural municipalities.

Each municipality is self-governed and has both a representative body – the City Council – and an executive body – the City Government. The members of the City Council are democratically elected, where as the members of the City Government are appointed by the City Council.

Furthermore, a municipality can be further divided into districts. These districts within a single municipality are organised independently of each other, yet all are governed by the City Council and City Government.

Municipal revenue is generated from a number of sources, which is primarily from Personal Income Tax which accounts for over 50 per cent of the revenue spectrum for municipalities. Other revenue sources are Land Tax, Local Taxes, funding from State and EU funded projects and charges from products and services.

3.3.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

At the time of the CCRE CEMR report (2009) the financial and economic crisis was impacting smaller municipalities' ability to access credit from banks, mainly due to the rise in bank rates for loans. Further to this, the Estonian Local Government Association reported that there had been a view that banks lacked interest in financing small credits and due to the recession the banks did not trust the financial credibility of municipalities.

In 2009 the central government had tightened the loan measures for local municipalities, for example a bank that provided a loan to a municipality required a high international rating. Further to this local municipalities had been prohibited until 2011 to take out loans for investments unless it was approved by the Ministry of Finance and was only for financing co-financed projects from the EU.

Estonia's local governments were not initially affected by the financial and economic crisis in 2008 however after 2010 municipalities were impacted. The impacts included a drop in revenue from direct taxes such as income tax. In 2009, the income tax accrual to municipalities had dropped by 6 per cent over the annual average and was forecast to drop to a level around 13 per cent by the end of that year.

The impacts of the central government legislation were also considered a problem for municipalities. This included a reduction of local government revenue of €18.9 million or $23.5 million raised through income tax, which equated to between 11 to 12 per cent of a taxpayers gross income to stabilise the state budget.

Municipalities were further impacted as the central government reduced the grant-in-aid for local governments from the state budget through the negative supplementary budget by €41 million or $51 million.

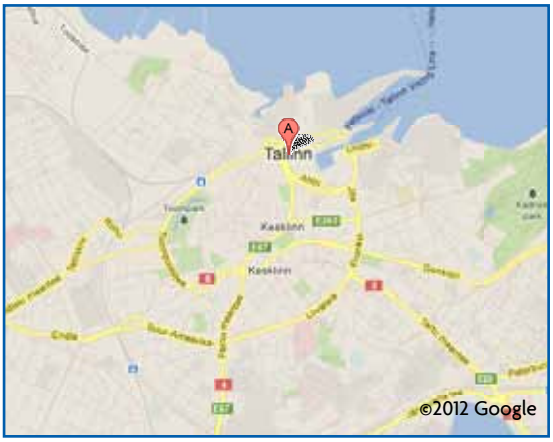
These losses in grants and tax accrual has had an impact to local government budgets by 16 per cent compared to the previous 2008 budget and were around the level of the 2007 budget.

At the time of the report (CCRE CEMR, 2009) the Estonian Association had started intensive negotiations with the central government to minimise further decreases to Local Government's income. Further to this the Association was investigating ways to complement the income base through local taxes, however they were faced with the complex situation of where citizen's incomes had been decreasing due to the crisis.

The Association and its member municipalities were also looking at cutting expenses through the rationalisation of services.

This rationalising of municipal services had been highlighted by the central government. The central government at the time of the report planned to reform local government, through involuntary amalgamations, by decreasing the number of municipalities by a factor of ten.

This amalgamation process is viewed by the Association with caution as the process may result in the skilled workforce, particularly younger professionals, migrating to larger cities within Estonia or possibly to central and northern Europe.



3.3.3. More About Tallinn

Tallinn is the capital and largest city in Estonia. Tallinn is located in the north of Estonia along the Gulf of Finland, and forms part of the Harju County.

The City of Tallinn is one of six urban municipalities that make up the 24 municipalities within the Harju County.

The City of Tallinn has a population of approximately 417,000 inhabitants and covers an area of 159 sq.km.

3.3.4. City of Tallinn Observations

The organised meeting with representatives from the City of Tallinn's Municipal Engineering Services Department and City Planning Department provided the study group with a broad overview of the City of Tallinn's public works. Attached in Appendix 2 are further details.

The discussions and observations between our study tour group and the representatives of the City of Tallinn are described in this section of the report.

LOCAL GOVERNMENT AMALGAMATION

Amalgamation of municipalities is certain – with the Central Government looking at reducing the number of municipalities.

ENGINEERING SKILLS SHORTAGE

The concerns for the City of Tallinn are the impact that the amalgamations will have on the skills required for the planning and delivery of public works. The City is concerned that the amalgamation process will result in a number of public works practitioners facing redundancy and that the redundancies will result in the migration of skills from Estonia, to other European and Baltic states.

RAPID URBANISATION

There is a significant challenge developing for the City of Tallinn, and Estonia. Whilst the overall population is decreasing in Estonia, the population in the City of Tallinn is increasing significantly resulting in the further urbanisation of the country, which has a vast rural area. This is putting significant pressure on the City to provide improved infrastructure to cater for this growth, in tough economic times.

3.4. Sweden

3.4.1. Municipalities and the Swedish Political Context

Sweden has a three tiered level of government, the central national, regional and local governments. This is further expanded by the increasing importance of the European level of government since Sweden joined the EU in 1995.

Sweden is divided into 21 regional counties, each with its own County Council. The County Councils are generally responsible for services that have a broader context than those services that can be delivered at a local level by municipalities, such as health care. The County Councils also have an executive body known as the county administrative boards. County Councils are able to levy income taxes to cover the costs of their operations.

Sweden is made up of 290 local municipalities, each with a democratically elected assembly or council. Swedish municipalities are obligated to provide certain basic services, within the Swedish constitution, some of which include housing, roads, water and waste water, schools, public welfare, aged care and child care.

Municipalities generate revenue through individual income tax and charges from products and services.

3.4.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

In 2008, the financial crisis had seriously impacted Swedish municipalities and regional county councils, as a number of municipalities were denied credit and had to postpone significant investment projects. Whilst the situation had improved slightly it was still posing difficult for municipalities to secure long term funding for investments.

Many Swedish municipalities had significant funds invested that were destined for pension liabilities. The stock market downturn in 2008 had impacted the book value of these funds which had put added pressure on the financial sustainability of these municipalities.

The main impact of the financial crisis stemmed from the weak development of tax revenue in Sweden. The projections of revenue before the financial crisis became evident and had resulted in the forecast tax revenue being revised downwards to a loss of 5 per cent.

At the time of the report (CCRE CEMR, 2009), the Swedish Local Government Association expected that the future year's budget forecasts for tax revenues looked even worse. As a result the Swedish Association expected a reduction in the numbers of employment at both the municipal and county levels.

In the face of declining revenue the Swedish Association has demanded that the Swedish central government raise the state grant to municipalities, which is granted by the Ministry of Finance.

3.4.3. About Staffanstorp

Staffanstorp municipality is generally a rural municipality with 5 urban areas. Staffanstorp municipality is located in the Skåne County in the South of Sweden between the larger cities of Malmö and Lund.

Of the five urban areas within the municipality the towns of Staffanstorp and Hjärup are the largest with a population of 14,808 and 4,265 inhabitants respectively.

Staffanstorp municipality has a total population of approximately 22,000 and covers an area of 108 sq.km.

3.4.4. City of Staffanstorp Observations

The organised meeting with representatives from the City of Staffanstorp's Municipal Planning Department and Geographical Information Systems (GIS) Team provided the study group with a broad overview of the City and its development projects. It also included a tour of a major railway duplication project within the municipality and a tour of some recent development projects in the neighbouring City of Malmö. Attached in Appendix 3 are further details.

The discussions and observations between our study tour group and the representatives of the City of Staffanstorp are described in this section of the report.

LAND USE PLANNING

A model for the sustainable development of areas which is used by the City of Staffanstorp, is different to the approach generally used in Australia. The model in Staffanstorp, along with much of Sweden is that the municipality will strategically purchase land for the purpose of future development. The municipality will then go through the appropriate planning process to ensure that the development is in line with the tenets of the Council Plan and will provide a better net result for the community. The municipality will then tender the development out for developers to then construct.

This method of delivery of land development ensures community outcomes. The municipality can ensure liveability, health and wellbeing is a primary focus for the outcomes of the development, not profits. This gives the municipality, and the community, more control in the way in which land is developed, such as maximising public open space, improving commercial space, having sustainable residential development density and it ensures that the infrastructure delivered is based on community needs, both now and into the future.

COMMUNITY ENGAGEMENT

City of Staffanstorp uses engagement in the development of their strategic development areas. The engagement is undertaken through a number of seminars, which include politicians and councillors, town meetings with focus groups which can include parent groups and organisations, sports and recreation groups. This engagement model however has the potential to influence decision making based on particular agendas of those focus groups.

PLANNING FOR LIVEABILITY

The City's plan 'Perspektiv 2038' is a specific vision document with very specific and clear objectives that are meaningful to everyday citizens. Unfortunately, and common to most Australian Council plans are objectives that have little relevance or understanding to many everyday citizens. The Objectives of 'Perspektiv 2038' clearly relate citizen's liveability and are quite easy for an everyday person to relate to.

The 2011 Victorian Auditor-General's Report Business Planning for Major Capital Works and Recurrent Services in Local Government highlights this along with the misalignment of financial plans with higher order Council plans, including operational, service and asset plans of some Local Government organisations.

COMMUNITY ENGAGEMENT WITH NEW TECHNOLOGY

The City of Staffanstorp uses web based GIS systems to stocktake the community's views on specific areas of their town's. The City has a web based mapping system, available through their web site, that citizens can access to plot places of interest that they consider are important. Citizens can provide comments on why these places of interest are important and what it means to them. This is a fantastic way that the municipality can use this information in the planning of Capital Works in a specific area or for the renewal and upgrade of those specific areas. This information can then better inform the Capital Evaluation process, as it is a more qualitative approach to community opinion, rather than quantitative approach.




3.5. Denmark

3.5.1. Municipalities and the Danish Political Context

Denmark has three levels of domestic government: national, regional and local.

Up until 2007, Denmark was divided into 275 municipalities at a local level and 14 counties as the second tier of government. In 2007, an administrative reform imposed by the Danish Government abolished the counties and replaced them with 5 regions.

Each region is governed by regional councils which are elected every four years. The regions provide responsibility for hospitals, regional development planning and regional transport planning.

Along with the changes at a regional level, the administrative reform in 2007 also included the amalgamation of 275 municipalities into 98 municipal authorities. Each has its own council and mayor. Elections for the municipal councils are also held every four years.

The municipal authorities perform a number of tasks in the local areas such as providing day-care centres, schools, care for the elderly, civil infrastructure and ensure cultural activities.

Municipalities are constitutionally recognised by the State.

3.5.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

The main areas of impact of the financial and economic crises for Denmark's municipalities and regional governments relates to:

- Short term investment plans;
- Long term budgets;
- Tax revenues/social allowances/unemployment benefit;
- Recruitment; and
- Regional Development.

At the time of the report (CCRE CEMR, 2009), the central government had undertaken a number of measures through economic stimulus, which had included a 100 billion Danish Kroner (DKK) or $16.7 billion 'Bank Package' to stimulate credit facilities for municipalities and regional governments.

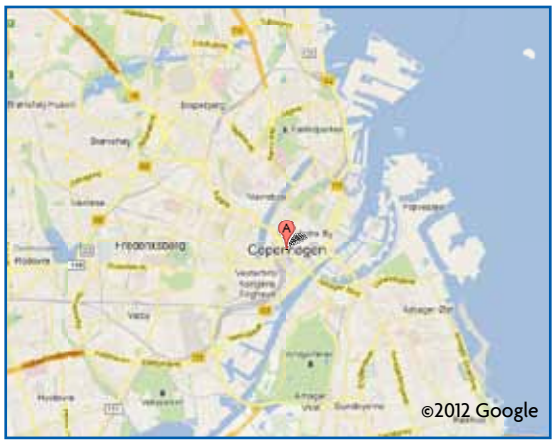
As part of the fiscal package, the Danish Government wanted to increase the level of municipal investments in 2009. The conditions for the short term investment were being negotiated at the time of the report.

The fiscal package included an investment in infrastructure, which included a commitment of 40 billion DKK or $6.7 billion over a period of 10 years for the building and upgrade of public hospitals.

The forecast employment growth, within the building sector, due to the investment in infrastructure was expected to create 3,000 jobs.

The measures taken by the government meant that the public spending levels had exceeded the limits contained within the national long term fiscal plan.

At the time of the report (CCRE CEMR, 2009), the Danish Association predicted that the economic downturn would lead to rising unemployment, more people depending on social allowances and unemployment benefits. It was expected that this would increase the expenditures for municipalities whilst the municipal tax revenue would be affected negatively by the crisis.



3.5.3. More About Copenhagen

Copenhagen is the capital City of Denmark. Copenhagen is spread across the islands of Zealand and Amager in the west of Denmark along the Øresund strait, within the Hovedstaden Region.

The City of Copenhagen is the largest municipality within Copenhagen.

The city of Copenhagen has a population of approximately 550,000 and covers an area of 89 sq.km. The Copenhagen greater metropolitan area has a population of some 2 million inhabitants.

3.5.4. City of Copenhagen Observations

The organised meeting with the City of Copenhagen included presentations by representatives from the City, covering general information about the city and the city's Plannning and Open Space Policy, the Green Mobility strategy and the Climate Change Adaption plan. Attached in Appendix 4 are further details.

The discussions and observations between our study tour group and the representatives of the City of Copenhagen are described in this section of the report.

OPEN SPACE FOR LIVEABILITY

The importance of adequate, good quality public open space is an underlying factor in the development of land in Copenhagen. This is primarily due to the fact that majority of development is high density, 5 to 6 storey type development and therefore the open space is essential to ensure liveability of the citizens in that area. The public open space requirements for this type of development for 28.5 per cent open space, which is 40 sq.m of open space required for every 100 sq.m of land for the purpose of dwellings.

The way in which public open space is activated is of specific note. The City tries to ensure that the public open space is activated with a recreational and commercial aspect. This promotes economic development opportunities for economic growth, along with liveability and health and well being.

URBAN DEVELOPMENT & LAND USE PLANNING

An underlying principle of urban development decisions is to "Focus on the Urban Life" before "focusing on the buildings, landmarks".

The City goes through a formalised evaluation for projects upon completion to ensure that the specific objectives of each project are met. Internationally recognised business frameworks, such as the Business Excellence framework, identify 'evaluation' as a specific component of good business practice. The formal evaluation of projects is a very specific measure, used by the City to ensure continuous improvement is engrained in the development of land.

CLIMATE CHANGE ADAPTION

The actions within the City's Climate Adaption Plan could pose significant costs. The plan's actions include the use of pilot areas to ensure that the ideas and decisions work in practice before they adopt a large scale approach. This is a great approach, as what is thought of as good by bureaucrats does not necessarily translate on the ground and can be quite different to the needs of the community.

IMPACTS OF THE ECONOMIC CRISIS

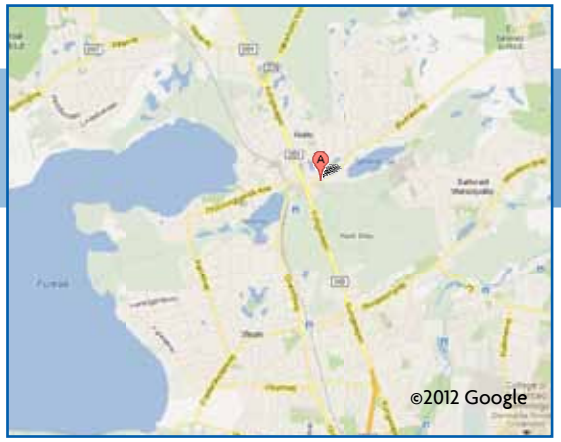
Whilst the CCRE CEMR reported that in 2009 the Danish Local Government Association predicted that the rising unemployment and social welfare costs would lead to increased expenditure whilst the municipal revenue would significantly decrease, my observations were that this was not significantly impacting on the City.

My observations were that the City was continuing with its planning and delivery of major developments and associated public works, and their policy drivers continued to ensure infrastructure project delivery.

3.5.5. About Rudersdal

Rudersdal Municipality is located 20 kilometres north of the capital of Denmark, Copenhagen. It is situated along the Furesø Lake, in the west of Denmark within the Hovedstaden Region.

Rudersdal Municipality has a population of approximately 54,000 and covers an area of 73 sq.km.



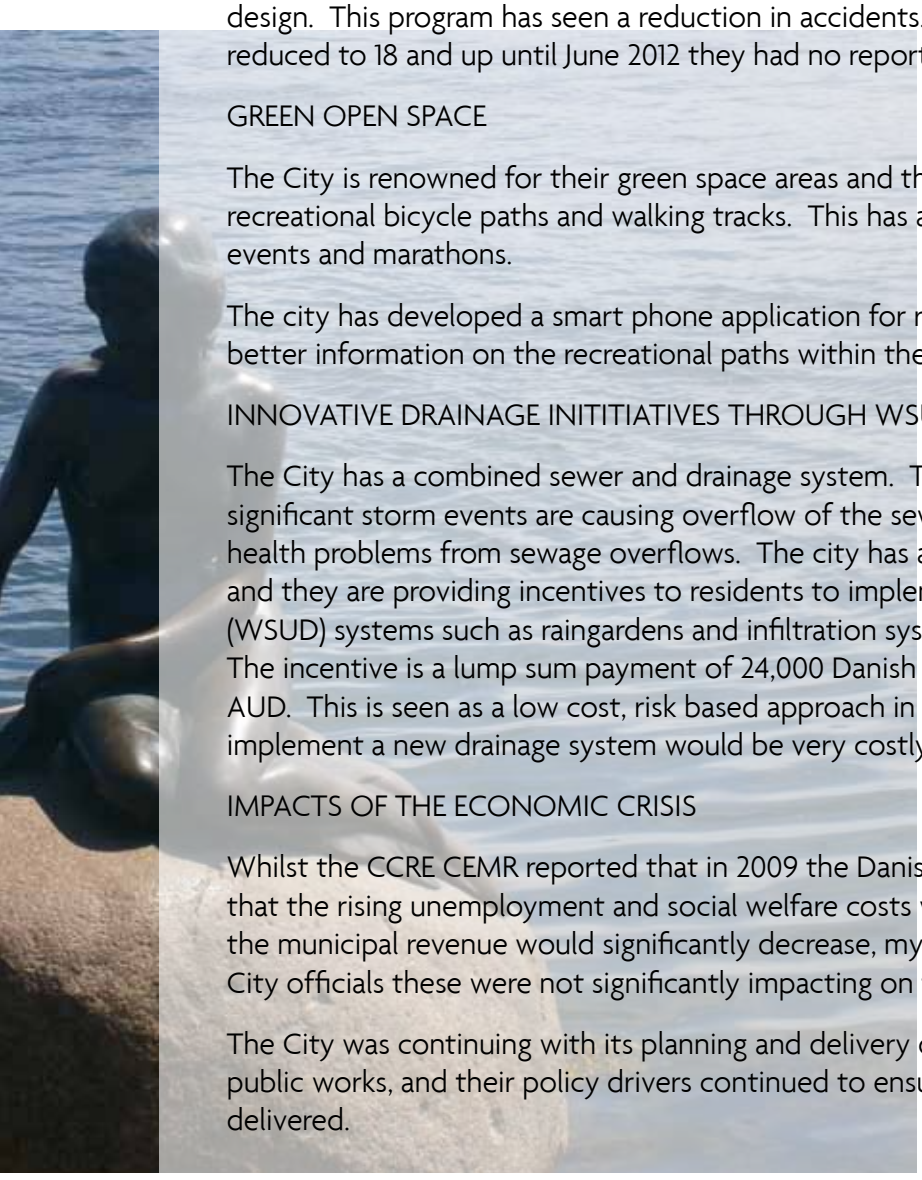
3.5.6. City of Rudersdal Observations

As part of the tour and organised interviews with municipalities, we met with representatives from the City of Rudersdal Public Works Department. Attached in Appendix 5 are further details.

The discussions and observations between our study tour group and the representatives of the City of Rudersdal are described in this section of the report.

ROAD SAFETY PUBLIC WORKS

The City introduced a Road Safety program in 2003, as a consequence of 54 accidents per year. These included both vehicles and bicycles and were attributed to a lack of good infrastructure design. This program has seen a reduction in accidents. In 2008 the number of accidents was reduced to 18 and up until June 2012 they had no reported accidents.



GREEN OPEN SPACE

The City is renowned for their green space areas and the way they activate these spaces with recreational bicycle paths and walking tracks. This has attracted a range of events including cycling events and marathons.

The city has developed a smart phone application for residents and visitors to use to provide better information on the recreational paths within the City.

INNOVATIVE DRAINAGE INITITIATIVES THROUGH WSUD

The City has a combined sewer and drainage system. There are a lot of problem areas where significant storm events are causing overflow of the sewer system, thus creating significant health problems from sewage overflows. The city has a lot of low density detached dwellings and they are providing incentives to residents to implement onsite water sensitive urban design (WSUD) systems such as raingardens and infiltration systems, and disconnect from the system. The incentive is a lump sum payment of 24,000 Danish Kroner, which is the equivalent to $4000 AUD. This is seen as a low cost, risk based approach in problem areas where the capital costs to implement a new drainage system would be very costly.

IMPACTS OF THE ECONOMIC CRISIS

Whilst the CCRE CEMR reported that in 2009 the Danish Local Government Association predicted that the rising unemployment and social welfare costs would lead to increased expenditure whilst the municipal revenue would significantly decrease, my observations and from the discussions with City officials these were not significantly impacting on the City's program of works.

The City was continuing with its planning and delivery of major developments and associated public works, and their policy drivers continued to ensure infrastructure projects were being delivered.

3.5.7. About Mindlab

MindLab is a cross-ministerial innovation unit for the Danish Government, which involves citizens and businesses in creating new solutions for society.

- The innovation unit works with civil servants from the three parent ministries:
- The Ministry of Business and Growth;
- The Ministry of Taxation; and
- The Ministry of Employment.

These three ministries cover broad policy areas that affect the daily lives of virtually all Danes. Entrepreneurship, climate change, digital self-service, citizen's rights, employment services and workplace safety are some of the areas they address.

MindLab is not only an innovation unit, but also a physical space – a neutral zone for inspiring creativity, innovation and collaboration.

MindLab has been instrumental in helping the ministry's key decision-makers and employees view their efforts from the outside-in, to see them from a citizen's perspective, through an approach known as co-creation, a platform for developing better ideas.

3.5.8. MindLab – Copenhagen, Observations

The study group were fortunate to be able to meet with Christian Bason, Director of MindLab, at his team's social innovation laboratory. The group were able to discuss the work that MindLab are doing by using design-based principles to design and review services, develop policy and provide innovative solutions to social problems.

CITIZEN INVOLVEMENT AND CO-CREATION

At MindLab, Christian and his team use citizen involvement as one aspect in the design process as a powerful enabler of public sector innovation.

This idea is often questioned by public sector officials as it generally draws out fears that it will result in citizen-dictators, citizen involvement requires too many resources and creates unreal expectations.

However the design process frameworks developed and used by MindLab ensure that citizens are well aware that their involvement, ideas and research does not by right mean that they are part of the decision making process.

Furthermore, Christian argues that citizen involvement is not resource intensive, and as the UK Customs and Revenue (HMRC) customer insight unit says:

If you think knowing your customers is expensive, how expensive do you think it is not to know them?

USING DESIGN BASED PRINCIPLES

MindLab are using design based principles to develop a better approach to the development and review of public sector services, both policy and delivery. This principle encompasses an approach where policy and service delivery are designed through co-creation with citizens to ensure that they are being designed for citizens instead of being designed by bureaucrats and forced upon citizens.

'WICKED' OR COMPLEX PROBLEMS

Wicked or complex problems are those problems that are open for interpretation, characterised by competing or conflicting options for solutions and which will most likely never to be fully solved such as chronic health problems, ageing population, climate change, inner-city social problems and crime, long term unemployment, and faltering educational systems. These complex problems are seen to be amongst the most pressing challenges. These problems are not easily solved through linear, systems based styles of problem solving. Hence, the suggestion is that the use of design based principles, social innovation and citizen involvement provides the best chance to deliver services that best address these wicked or complex problems.

3.6. Switzerland

3.6.1. Municipalities and the Swiss political context

Switzerland, or as it is otherwise known, the Swiss Confederation, is a federal republic made up of 26 cantons. These cantons are further divided to form the communes or municipalities. There are over 2,400 municipalities that make up the cantons within Switzerland.

The cantons have permanent constitutional status within the confederation, however each canton has its own constitution, government, parliament and court system.

The communes or municipalities are governed by a Council headed by a Mayor as executive. The responsibilities of each commune differ depending on each canton. These may include providing local government services such as education, medical and social services, public transport and collection of taxes.

Communes are financed through taxes such as individual income tax. The rates vary more or less within the framework set by the canton.

3.6.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

In 2009, the Swiss Local Government Association had reported that local and regional authorities had not yet been affected by the financial and economic downturn. The future possibility of negative impacts on municipalities had been highlighted, however, and a number of strategies had been developed and actions put in place to minimise problems. These measures included limiting spending for a whole range of services to avoid the double effect of growing costs and falling income.

The Swiss Association recognised that local and regional governments would be obliged to respond to requests for additional services particularly in the field of assistance to the unemployed and social support.

The suite of governments including the federal, canton and municipalities, had taken a number of actions to mitigate the effects of the financial and economic crisis. These actions particularly regarding investments designed to increase economic and trade activities were expected to maintain employment levels, skills and living standards.

At the time of the report (CCRE CEMR, 2009), the Swiss Association had concerns that the financial and economic crisis was having more delicate repercussions for the community. These included social issues such as the fear of citizen's losing their jobs, leading to the reduction in purchasing power and consequently to social withdrawal, rejection to others and opposition to immigrants.

3.6.3. About Zurich

Zurich is the largest city in Switzerland. Zurich is situated in central Switzerland along the north west of Lake Zurich and 30 kilometres north of the Alps. Zurich is the capital of the canton of Zurich.

The City of Zurich is one of 171 municipalities that make up the Canton of Zurich.

The City of Zurich has a population of approximately 376,000 inhabitants and covers on area of 88 sq.km.

3.6.4. City of Zurich Observations

As part of the tour and organised interviews with municipalities, we met with representatives from the City of Zurich's Public Open Space Department and the Public Works Department. The meeting also included a presentation from a representative that developed the City's 2000-Watt Society strategic document for the City's reduction in greenhouse emissions and energy security.

The tour included a visit to a number of recently completed projects by the Public Works Department highlighting their integration of public open space into traditional road upgrade projects. Attached in Appendix 6 are further details.

The discussions and observations between our study tour group and the representatives of the City of Zurich are described in this section of the report.

PUBLIC OPEN SPACE

Public open space projects within the City are 'piggy-backed' on street upgrade works.

I am of the view that Zurich's Public Open Space Plan is a good example of a sound service plan. The public open space plan clearly categorises the importance of each public open space to the community. This has been done on the basis of high level community input. This integration has then provided officers with direction on the maintenance service levels, and determined the type of renewal or upgrade that is implemented within these public open spaces, as part of a holistic capital project.

ASSET MANAGEMENT

The City of Zurich's asset management maturity is extremely high. They have a very good asset management system which clearly identifies the asset classes that are required for renewal, reconstruction or minor maintenance.

The asset management system interfaces with the City's Mapping System, which provides a visual layout of those areas that require specific treatment or works. This then informs the City's long term capital works plans.

The high level of asset management maturity and good asset management systems allows for a more coordinated approach to capital works evaluation and prioritisation. The City is responsible for a range of infrastructure services which include water and sewer, drainage, roads, parks and open space. These high level systems allow the different service areas to overlap their renewal and reconstruction plans on an annual basis, and then allows these service areas the opportunity to move projects forward or delay projects as required to achieve the best community outcome. This has lead to the City's departments having overall cost savings, so if a road project is going to lead towards a major reconstruction and the other assets, such as water mains or sewer lines are due for renewal in the near future, the city can move these works forward, promoting overall cost savings and minimise disruption to local citizens and businesses.

BETTER COLLABORATION WITH OTHER AUTHORITIES

There are real opportunities if municipalities have control and deliver the infrastructure services of the assets that are located within the road reserve, to save monies for citizens. Given Victorian Councils deliver very little of the civil infrastructure services, the opportunity is for better coordination with other authorities and agencies. This will be better achieved by the sharing of good quality long term capital works programs with a minimum of ten years.

INHOUSE CONSTRUCTION CAPABILITY

The city has its own construction and major maintenance teams for small projects up to the value of 100,000 Swiss franc or $102,000; however the larger scale projects are contracted out to the private sector.

IMPACTS OF THE ECONOMIC DOWNTURN

The effects of the GFC and European debt crisis have had an impact on the City of Zurich. This has lead to a 30 per cent cut in the open space budget. Instead of looking at dramatic austerity measures, which is probably symptomatic of Zurich's limited long term exposure to the crisis, such as a reduction in staff numbers, the City has simply started to rationalise, defer or change projects to limit the costs.



3.7. Germany

3.7.1. Municipalities and the German political context

The German state consists of a central federal government and 16 federal states.

These federal states are referred to as Länder or regions, and are the second tier of government. The Länder are further subdivided into the 403 municipalities. Due to the vastly differing geographical sizes of each of the regions the number of municipalities within each differs significantly.

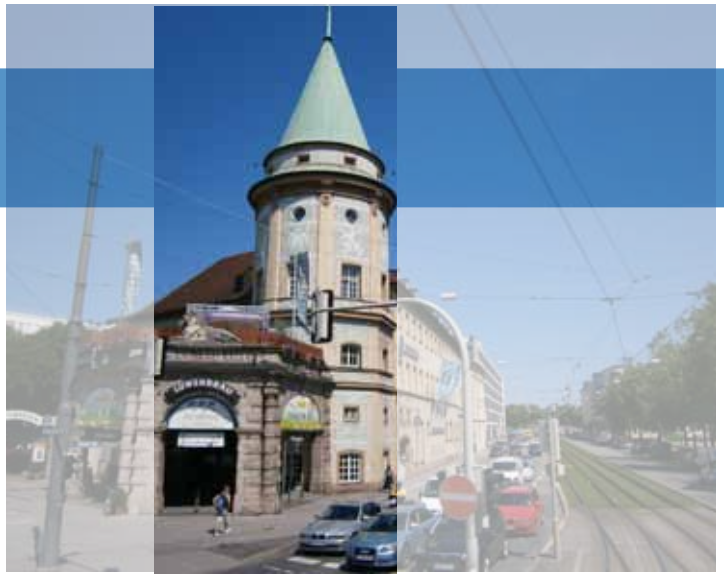
The roles and responsibilities of municipalities also differ significantly depending on the size of the area and the way in which that particular region is governed. The responsibilities for services by municipalities are generally defined as those that are mandatory and those that are voluntary. Some of the mandated activities include health care and veteran affairs; road traffic; registration of vehicles and vehicle taxation; water legislation and land cultivation; federal and land elections (implementation); social affairs and youth care.

Where municipalities that are small in size and population and do not have the financial capability to undertake these services, the expectations are that the Regional Government will deliver some of these services.

3.7.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

In 2009, the German Local Government Association reported that the financial crisis had affected local government in Germany in a number of ways. One way in which the crisis had affected local government had been through the depreciation of financial products that municipalities had invested in and are now proving to be toxic.



Other concerns for local government were through the cross-border leasing activities which are very complicated financial products and would possibly lead to additional costs which were originally unforeseen.

A lot of Local government authorities within Germany rely on credit to finance their budgets, which was having a negative impact from rising interest rates for credit. The other impact was the liquidity squeeze on the market which is also making it difficult for municipalities to access finance.

Further to this, and according to newspaper reports, some German local authorities had invested in assets through Lehmann Brothers. The bankruptcy of Lehman Brothers meant that these investments had also been lost.

Trade tax is one of the main pillars of local government income and to a certain degree is directly linked to the economic well-being of local companies. The economic crisis has had a direct impact on the amount of trade tax companies pay to local government.

The German Association expected that the economic downturn would eventually lead to rising jobless figures and more people depending on social allowances.

In 2009, the German Association was waiting on an economic stimulus package being approved by the central government. The proposed package contained several actions, of which one was directly related to local government, in the order of €10 billion or $12.4 billion for investments towards education and infrastructure at the local level.

3.7.3. More About Munich

Munich is the third largest city in Germany, behind Berlin and Hamburg. It is situated north of the Bavarian Alps, along the River Isar. Munich is the capital and the largest city of the state of Bavaria.

The City of Munich is one of 20 municipalities within the Upper Bavarian Region of the State of Bavaria.

The City of Munich has a population of approximately 1.38 million inhabitants and covers an area of 310 sq.km.

3.7.4. Technical University of Munich Observations

As part of the organised study tour, our study group met with two University Professors in the areas of Urban Planning and Construction.

The discussions and observations between our study tour group and the representatives of the Technical University of Munich are described in this section of the report.

REFERENDUMS FOR CITIZEN PARTICIPATION

Referendums play a significant part in the City of Munich's decision making process. Referendums are held on a more frequent basis compared to Australia. Citizen's can apply to the City for a referendum to be held related to a specific issue. The referendum will be held if supported by a petition with 31,000 signatures.

IMPACTS OF THE ECONOMIC DOWNTURN

City revenue is predominately generated from income tax and corporate tax. Post GFC most cities were in substantial debt. One example of the measures that cities took to minimise there levels of debt is in Dresden where the City of Dresden sold all of their public social housing on the international market.

LIVEABILITY

Munich is considered liveable by Sophie Wolfrum, Professor of Urban Planning for the following reasons:

- Economic prosperity;
- Employment opportunities;
- Good population size of between 1.3 and 1.4 million;
- Rich cultural scene;
- Nice architecture, both new and historical;
- Urban planning controls from the late 1800's through to the 1970's; and
- Close proximity to Natural aspects such as Mountains, Lakes etc, for sport and recreation.

IMPACTS OF URBAN MIGRATION

Germany is experiencing significant movements in its population base. Whilst Germany has an ageing population the population is increasing due to a high level of immigration, the population within Germany is shrinking in most areas of Germany, while the major cities such as Munich and Berlin are growing significantly due to the rapid urbanisation of Germany.

There are 5300 Towns, Cities and Villages across Germany that have a decreasing population, this relates to 42 million people working in these areas, with an expected drop in the workforce of 10 million people.

3.8. Austria

3.8.1. Municipalities and the Austrian Political Context

Austria's constitution characterises the republic as a federation consisting of nine autonomous federal states. Both the federation and all its states have written constitutions, however the structure is similar to that of larger federal republics such as Germany.

The Austrian political context is essentially a three tiered level of government, which includes:

- The federal government;
- The 9 federal states; and
- At a local level, the 2,358 municipalities.

Municipalities in Austria are governed by a democratically elected Council, which appoints a Mayor as the leader of the representative body. The executive body of the municipality is lead by an appointment which is generally referred to as the Municipal Secretary or City Office Director.

3.8.2. Impacts of the Global Financial Crisis and the economic downturn

This section of the report has been developed from a literature review of a report titled The economic and financial crisis: Impact on local and regional authorities undertaken by the Conseil des Communes et Régions d'Europe Council of European Municipalities and Regions (CCRE CEMR, 2009).

The 2009 report (CCRE CEMR, 2009) indicated that the financial and economic crisis was having an impact on Austrian municipalities.

The first alarming signal that was highlighted in the report was the bankruptcy of Kommunalkredit Austria AG, a bank mostly involved in the financing of public sector investment areas, including municipal investment areas, such as sewer and water.

During the financial crisis this bank was nationalised, however the report states that there is evidence from municipalities that it had become more difficult to obtain reasonable short to medium term financing. The view of the Austrian Local Government Association is that this inability to obtain credit is counter productive and will inhibit municipalities from fostering growth through the rollout of local investments.

The Association expected that the financial and economic crisis would have a major impact on municipalities because the demand for social benefits would rise, whereas the tax revenue of the communities would decrease. This was not only due to the effects of the economic crisis but also because of the Tax Reform Agenda implemented by the federal government.

The Association had taken action by lobbying the federal government to secure the access to the required funds.

Austrian cities and municipalities invested about €2 billion or $2.29 billion in the year 2007. The Austrian Association outlined in the CCRE CEMR report that further investment into infrastructure was required in 2009, of which these investments would be to fund major infrastructure projects that were in the pipeline. The view of the Austrian Association was that while the investments would require finance, the investment into infrastructure projects would have a positive effect on economic growth and strengthen Austria's international position, wealth and social balance.

3.8.3. City of Vienna Observations

As part of the tour and organised interviews with municipalities, we met with representatives from the City of Vienna's Urban Planning Department. Attached in Appendix 7 are further details.

The discussions and observations between our study tour group and the representatives of the Urban Planning Department are described in this section of the report.

LAND USE PLANNING

Vienna is suffering from the same urban sprawl issues as Melbourne. However, Vienna's development has been concentrated to existing public transport lines and routes which has helped improve the efficiency of the transport system, which is considered one of the best transport systems in the world.

SKILLS SHORTAGE

Vienna is suffering from an engineering skills shortage.

GROWTH PRESSURES

Vienna is suffering from parking pressures within the city. This was partly due to the fact that it was cheaper to pay for a daily parking pass than it was to pay for a train ticket on the Metro System. In order to combat this, the city raised the costs of the daily parking pass and minimised the yearly train ticket to less than 1€ per day.

INTEGRATED TRANSPORT SYSTEMS

An underlying principle of Vienna's Transport Strategy is to ensure that the public transport component of the plan is complimented by the need to have bicycles as an integral part of the transport modal split. This is evident in the aspiration of the City to raise the bicycle trip target from the current 6 per cent level to 10 per cent by 2015. In comparison to Berlin – 17 per cent and Copenhagen – 45 per cent this is considered a healthy, yet achievable target.

4. Findings

4.1. Discussion

The infrastructure lifecycle defines a number of phases or stages that infrastructure can be in during its life. These stages are generally defined as planning, design, construction and maintenance. The infrastructure life-cycle explains the stages of life for an infrastructure asset – infrastructure is planned for, then designed and constructed, before going into a stage of its life where it needs to be maintained. Nearing the end of its life, the infrastructure asset will then move back into the planning stage.

The planning and delivery of public works covers a significant proportion of the infrastructure life-cycle and specifically relates to the aspects of planning and managing infrastructure, as well as the design and construction of infrastructure. Therefore, effective planning and delivery of public works is a very important and significant part in the efficient management of public infrastructure.

Local government in Australia is responsible for the ownership and management of $187.3 billion of road infrastructure and other fixed assets. The local government owned road network includes 80 per cent of the nation's overall road network. Further to this, local government manages in the order of $25.9 billion of public buildings (Moody, 2012).

A genuine concern of public works engineers and practitioners is local government's ability to fund projects for the renewal and rehabilitation of existing infrastructure. The term used to describe this shortfall in funding to achieve the required renewal and rehabilitation costs is the 'infrastructure renewal gap'.

The Institute of Public Works Engineering Australia (IPWEA) states that while local government spent $4.1 billion in 2009 for the construction, renewal and maintenance of the road network, there is still a collective shortfall of $860 million per annum in ensuring that the local government road network is kept within a sound and safe condition (Moody, 2012).

The initiatives of local government organisations and associations, such as IPWEA, into improving local government's capacity to efficiently and effectively manage these assets from a planned life-cycle basis – rather than on a basis of reactive maintenance – has enabled local government to save significant monies. Good asset management practices and systems are pivotal in enabling local government to direct capital into the infrastructure that requires it most. This extends the life of those assets whilst ensuring that the use of this capital is providing the best value possible.

4.2. Planning and Delivery of Public Works

Improved asset management practices and systems have enabled local government to have a much better understanding of the condition of their infrastructure assets. This has enabled local government to more effectively plan for the necessary works to ensure that the life of infrastructure assets is extended, whilst meeting the required needs of that infrastructure.

However, depending on an organisations level of asset management maturity, often asset management is focussed on looking at the existing asset stock, and the way in which that existing infrastructure is managed. Whilst this proves a sound way to ensure financial sustainability in the management of existing assets, the planning and delivery of new or upgraded assets is just as important.

The mismanagement of capital funds for the purpose of new and upgraded infrastructure will also have impacts on the financial sustainability of local government into the future. The planning for new or upgraded infrastructure needs to be effectively managed to ensure that what is being delivered provides the outcomes that are required for the service that the infrastructure is intended for.

Too often there have been cases, where new or upgraded infrastructure projects are approved within the budget of local government capital works programs on a political basis or from community pressure. Without a rigorous business case and scrutiny of proposed infrastructure projects through a capital evaluation framework, it is impossible to ensure that what is being delivered is sufficient for the needs of the service it is intended for, both now and into the future. Furthermore, the deviation from rigorous planning and evaluation frameworks for new or upgraded infrastructure can result in infrastructure being delivered that will result in unaffordable ongoing life-cycle costs that could have otherwise been avoided.

The Federal Government's Department of Infrastructure and Transport Infrastructure Report Planning and Delivery: Best Practice Case Studies February 2012 states that the projects considered best practice case studies have proved that:

- projects that develop from long-term plans and which have robust business cases are likely to be successful;
- strong project governance arrangements mean strong project delivery;
- the procurement model should be chosen on the basis of project specifics and should rigorously follow established published guidelines;
- transfer risk appropriately in order to maintain value for money; and
- careful management of local and environmental impacts assists project delivery.

These best practice case studies relate to infrastructure projects of State or Federal significance with total project costs generally between $100 million to over $1 billion.

These best practice principles are also relevant to smaller projects – representative of the scale of projects for local government public works. There is value in more flexible procurement and project governance model for the smaller local government project and this greater flexibility in the areas of procurement and project governance can provide greater value and returns to the local community.

An important principle within these best practice case studies is the underlying long term planning that is required for successful project delivery.

4.2.1. Service Planning

Within Victorian local government, the situation of poorly planned projects and projects that are developed from a political push, is common and simply highlights the need for good long-term service plans.

As an example, during a presentation titled Service Planning – The missing link in Sustainable Asset Management at the 2012 IFME Congress, Ross Goyne stated that the lack of service planning in local government has been identified as an impediment to sound sustainable asset management (Goyne, 2012). Whilst Ross Goyne's point is relevant to local government's existing infrastructure and how renewal and rehabilitation of those assets is undertaken to ensure that they are adequate for the service. This point is just as relevant for new or upgraded infrastructure.

Similarly to sound asset management practices and systems, the effective planning of services provided by local government, is absolutely fundamental in ensuring financial sustainability in the delivery of public works infrastructure and minimising ongoing life-cycle costs.

The reason local government owns and manages infrastructure is primarily to enable it to deliver those services, that the community 'needs'. For example, early childhood learning services require buildings for kindergartens, waste management services require transfer stations and land fill cells for waste disposal and transport services require road infrastructure.

This highlights that it is essential to the effective delivery of services and the sound financial management for the planning and delivery of public works that the infrastructure should not be defining the service, but the service should be determining the infrastructure 'needs' to deliver the particular service.

Without infrastructure, local government could not deliver its services to the community. In order to effectively plan for public works infrastructure it is essential to have service plans.

An effective service plan provides an important platform for service delivery, ensuring that priorities are clear, principles of the service outcomes are firm and where internal or external influences require the service model to be addressed or amended, it can be done rationally and easily.

Service Plans are essential in making rational and coordinated decisions about service levels and the types of provisions required such as human resources and skills, financial resources and importantly the infrastructure required in achieving those service levels.

Furthermore, service plans provide a clarity for an individual's daily work and the achievement of those tasks in delivering that service, which is directly linked to corporate plan and council plan objectives, to ensure the service meets the needs of the community.

- Good quality service plans:
- Need to effectively outline and address the needs of the customer or citizen;
- Provide measures that can be linked to the achievements of higher level plans, such as corporate plans and Council plans;
- Identify and mitigate risks to planned service levels and improvements; and
- Focus on key issues such as quality and productivity.

Further to this, Service plans need to be integrated with asset management plans and the 'need' for new and upgraded infrastructure needs to be assessed, evaluated and prioritised, for inclusion into a capital works program, within the context of the organisations overall infrastructure needs.

4.2.2. Business Planning

An important part in the development of service plans is to ensure that these service plans are developed through a rigorous, periodic business planning process and framework. Introspective analysis of local government business is essential to ensure that service plans are relevant to the needs of the community.

The business planning frameworks should provide adequate scrutiny and analysis of the service, to better determine the infrastructure needs of the service. This should include:

- Self assessment of the service delivery model;
- SWOT Analysis on the service outcomes; and an
- Assessment on the financial sustainability of the service.

Through rigorous business planning of services, local government can ensure that the demand for services exists. If the need for the service does not exist due to a drop in the demand of the service, it can then aid a rational decision making process on whether there is value in continuing with the service. This then better informs the asset management of the infrastructure that is required for that service.

A holistic and long term planning approach is essential. If there is going to be a decline in the service demand, then the decommissioning of that infrastructure can occur or opportunities may exist where the infrastructure can be better used for a service that is in a state of growth with increasing demand.

An example of this may be where there is a decline in the need for early childhood services. It may be possible to rationalise the number of kindergartens in an area to minimise the ongoing life-cycle costs of the building infrastructure that is required to deliver the service. Or even still, the existing building infrastructure may be better utilised by an alternate service that has a higher need for that infrastructure.

However, the need for early childhood services in most communities, is growing instead of declining, the example shows that better and more informed decisions can be made around this service, which then aids the effective use of capital in the management of the assets and the future planning for public works infrastructure.

Effective business planning processes and good quality service plans are essential to ensure the efficient use of capital funds in planning and delivery of public infrastructure.

4.2.3. Capital Evaluation Framework

The effective planning of public works should be developed from a rigorous business case for each project, evaluated through an adequate capital evaluation framework then prioritised within the overall public works program.

The capital evaluation frameworks should look at each capital works proposal from a balanced score card approach. The project should be analysed and rated not only from a financial perspective but from a perspective that also looks at the overall community benefits.

Furthermore, each project should be assessed against its alignment to the Council plan objectives and whether the project goes towards achieving the plans objectives.

In addition to this, the evaluation framework should have a level of rigor which ensures that the ongoing life-cycle costs have been assessed and will not cause ongoing financial implications during the maintenance phase of its life.

4.2.4. Project Brief

Further to an effective Capital Evaluation Framework there is also a need to ensure that when a project moves from the planning stage of the infrastructure life-cycle into the design and construction phases that the primary intent of that infrastructure is not lost. The mechanism to ensure this is the Project Brief or Project Scope.

When proposed infrastructure moves from the planning stage into the design and construction stages it needs to be undertaken with the development of a good quality project brief and scope. The importance of a good quality project brief is essential to ensure that the infrastructure that was planned for is actually delivered. A good project brief should have a range of things to ensure that the project, delivers the require outcomes.

Rick DiPaola (2011) in his presentation at the 2011 IPWEA Public Works Conference states that the essential elements of a good quality project brief are as follows:

- The scope should be concise and articulate;
- The deliverables and outcomes should be quantified;
- The budget required to achieve the outcomes;
- Should have realistic timeframes; and
- Should clearly outline the stakeholders of the project.

Furthermore the Project Brief should be developed with a range of different stakeholders that work within the different stages of the infrastructure life cycle to ensure that the infrastructure delivered suits its purpose, while maximising the life of the infrastructure and minimising the ongoing life-cycle costs.

4.3. Productivity

4.3.1. Outline

The preamble of the Victorian Local Government Act, Section 1 (5) states that it is essential that Council's are accountable to their local communities in the performance of their functions, the exercise of their powers and the use of their resources.

Productivity is defined as the effective and efficient use of all resources. Therefore, it is a specific legislated requirement of Local Government organisations to ensure that they provide good government outcomes to their communities, through the effective and efficient use of their resources. Local Government resources can include, but are not limited to, time, people, finances, infrastructure assets, fleet, plant, equipment, knowledge and information.

Another simple, yet quite powerful, definition of productivity (Pavlina, 2005) is that:

Productivity = Value / Time

In this context, there are essentially two specific ways of increasing productivity. For Local Government that is through either:

- Increasing the value that is created; or
- Decreasing the time that is required to create that value.

So it is not only legislated that Local Government needs to ensure its productivity through the effective and efficient use of their resources, it is imperative to ensure that they are providing value for money to their communities through the services they provide.

4.3.2. The need for improved productivity

During times of economic crisis it is crucial for government at all levels to ensure that they are effective, they improve on their efficiency and they maintain their competitiveness.

During these times and with the impacts of reducing revenues, it is essential for government to ensure that they continually evaluate and improve their productivity. Improved productivity provides efficient, cost effective services that the community needs and demands.

In a recent report by the Victorian Competition and Efficiency Commission (VCEC), the Commission indicated that ".. as an illustration of the importance of productivity improvement a one per cent improvement in multifactor productivity in Victoria could improve the State's real gross state product by 2.5 per cent. This is equivalent to a $7.5 billion improvement. Importantly, reform would ensure the continued prosperity and liveability of the State into the future." (VCEC, 2011)

So what are the important aspects that lead to improved productivity and that local government should be investigating, implementing and advocating for, to ensure that they are planning and delivering the infrastructure that is required by the community?

I would suggest that organisations need to have good business planning processes in place to seriously analyse the community 'needs' for specific services and the effectiveness of those services to meet the community 'needs'. Without effective business planning organisations face the risk that the services they are delivering do not meet their customers 'needs', or in the case of Local Government citizens 'needs' are not met.

Furthermore, good business planning and analysis of services can provide Local Government with significant cost savings in the services and programs that they deliver. Good business planning also enables an organisation to achieve improved financial sustainability.

Good business planning and an analytical view on the services being delivered leads to effective service plans, and thus improved productivity.

In 1999, the Victorian Government amended the Local Government Act to add a new section on Best Value. This replaced the previous requirements for Compulsory Competitive Tendering.

Under Best Value, councils are obliged to review all their services and adopt service delivery models that are the best on offer to meet the needs of their community.

The Local Government Act requires Council to take these six principles into account when reviewing its services under best value:

- The need for services to deliver against agreed quality and cost standards;
- Accessibility of services to those who need them;
- Services being responsive to changing community needs;
- Continuous improvement in the delivery of services;
- Community consultation on services and activities; and
- Regular annual reporting to the community on Council's performance.
- The importance of productivity is embedded within the six principles of the Best Value legislation.

4.3.3. Addressing the Skills Shortage

Whilst we did not visit the UK or the Republic of Ireland, significant austerity measures have been introduced by Government in these countries in an attempt to reduce debt by curbing Government spending. This austerity has occurred at all levels of government in these countries. The austerity measures have included significant redundancies where up to thirty percent of the public sector work force – including those of municipalities – have been made redundant in an attempt to minimise the operating costs of Government.

Whilst this measure is an attempt to improve the operational efficiency of municipalities, it could have drastic impacts on the skills sets within the public sector. These skills sets are essential to sufficiently plan and deliver for public infrastructure, now and into the future and studies have shown that skilled personnel reduce costs and improve productivity. The question is whether this level of austerity is counter productive and whether it improves the long term community outlook.

What we found on our visits is that skills shortages are a major concern for many European municipalities, and an example of this is from the City of Tallinn in Estonia.

The Estonian levels of government consist of the central government, counties and municipalities. There are 227 municipalities in Estonia. Majority of municipalities are rural municipalities which make up 193 of the 227 municipalities. The population of each municipality ranges from Tallinn with approximately 427,500 inhabitants to Ruhnu with 68 inhabitants.

The Estonian central government is planning to introduce involuntary administrative-territorial reform for municipalities through amalgamation of local government.

Further to this, one concern of the City of Tallinn is that if the Estonian Central government, undertakes a reduction in staff, especially those with the required skills to undertake the planning and delivery of public works, through either austerity or through amalgamation of municipalities, that those skills will emigrate to other European states that have not undergone such austerity and amalgamation.

There concern is not unfounded. As a result of the GFC and the subsequent economic crisis, construction industry workforce numbers have been drastically affected. The representatives of the City of Tallinn, provided an insight to their concerns, where there figures have shown that the drop in construction industry workers within Estonia has dropped from over 80,000 to 40,000 since 2008. Whilst jobs within the industry are now growing post-GFC, the number of people available to fill those jobs has significantly dropped due to the emigration of skills to other countries within Europe.

This highlights the competitive nature of the skills market in Europe and the need for well thought out public policies around skills.

This competition for skills is also evident in Australia where the mining sector boom is putting significant pressure on the skills market available to local government. This is a symptom of Australia's two paced economy, driven by the mining sector boom, and significant lessons can be learnt from the European situation.

Whilst the impact on municipalities that have undergone such measures to reduce workforce numbers is yet unknown, a comparison with the movement of skills out of municipalities can be mirrored in the Victorian Local Government amalgamation process in the early 1990's.

The amalgamation of Local Government organisations in Victoria resulted in a vast number of engineers, construction officers and many other necessary skilled employees moving from the public sector into private industry. This has had a major impact on Local Government organisations in ensuring that they have the appropriate skills sets within their workforce to deliver public works.

Local Government organisations in Victoria suffering from this lack of required skills have generally relied on the private sector to ensure that their capital works programs are being adequately delivered. Whilst, this is a satisfactory method in the short term, long term skills gaps can result in significant costs for the planning, design and project management of projects that form a capital works program.

Furthermore, whilst a number of projects can be outsourced, it is evident from the lack of skills within the engineering sector, that municipalities still need skilled engineers to manage the consultants and contractors that this work is being outsourced to. A significant risk to our local government organisations and a risk to the successful outcomes that a project is trying to achieve, is the lack of adequate skills within our organisations to effectively manage those private sector consultants and contractors.

I like the Swiss approach and in Switzerland's City of Zurich, austerity measures such as mass staff redundancies have not been considered a viable solution to the impacts of the economic crisis. The approach taken in Zurich is to prioritise projects that will provide the best value and promote both growth and liveability. As a result, and due to a reduction in capital funding of around 10 per cent, the City of Zurich has either revised or deferred projects to reduce spending. Whilst revising and deferring projects, is not ideal, this may be considered a better alternative than taking measures that reduce the skills in the municipal work

force. In saying this however, a sound re-prioritisation process is crucial to ensure that essential projects are still undertaken.

Another example is the Municipal Association in Finland that is a member of the CEMR CCRE is putting in place measures to ensure that the likelihood of central government imposed amalgamations do not result in significant redundancies. This is considered essential by the Finnish Association, as they are very aware of the competitive nature of the skills market in Europe. They highlighted in their submission to the CEMR CCRE that this was a major concern as redundancies will have a major impact on the long term skills needed for Finnish Municipalities to ensure this does not pose a threat to liveability (CEMR CCRE, 2009).

The Finnish education system provides for free education from primary to tertiary level. This investment by government in the skills for technical professions, such as civil engineering, has had a positive result on the skills that are available to Finnish cities. Evidently, the Finnish education philosophy of 'free education', which is similar in the Scandinavian countries, has been an investment to secure the skills needs of the country.

The result of this has meant that Finland, whose exports account for 45 per cent of the economy, has been leaders in the export of technical professions.

The Australian Government's Senate Inquiry into the engineering skills shortage has shown what many in local government have known for some time, but little action has occurred. According to the senate report, Australia is suffering from a chronic lack of engineers that is holding back our economy and puts a burden on every taxpayer.

In response to the Senate Report APESMA President Bill Jackson highlights the impact of the engineering skills shortage to the country's productivity in his statement.

> This report finds that Australia needs at least 37,000 more engineers before 2016 or Australian taxpayers will be left greatly out of pocket.
>
> This critical shortage of engineers means we all pay more than we should for infrastructure projects, jobs growth is stymied and bottlenecks hold back the Australian economy.
>
> Australian governments have simply failed to address a problem that's been endemic for decades.
>
> We now need to fight this on all fronts – by encouraging our kids to enrol in engineering degrees, by helping students graduate with an engineering qualification, by giving younger engineers greater skills, by retaining our best engineers and by bringing in some engineers from overseas to help plug the gaps.
>
> It's a problem that is deeply ingrained from primary school to retirement day. (Jackson, 2012)

Whilst it is considered that during times of economic downturn that an investment in skills would be a considerable cost to government, cities like the City of Helsinki consider the need to minimise skills shortages essential to ensure that they can effectively plan and deliver the works essential to improve outcomes for their citizens and ensure the liveability of the City of Helsinki.

Addressing Australia's skills shortage is pivotal to ensuring improved productivity in the planning and delivery of public works, inturn driving investment and growth through infrastructure.

4.3.4. Greater collaboration with other Authorities

The initiatives of local government organisations into improving their capacity to efficiently and effectively manage these assets from a planned life-cycle basis through good asset management practices and systems can provide great opportunities to further their financial sustainability.

An example of these opportunities was evident in the way the City of Zurich plans their annual works programs. These annual works programs are improved from long term plans for public works that are better informed from good asset management practices and capital evaluation frameworks. This then provides an opportunity for a collaborative approach to the delivery of infrastructure.

As stated earlier, the City of Zurich's asset management maturity is extremely high. They have a very good asset management system which clearly identifies the asset classes that are required for renewal, reconstruction or minor maintenance.

Further to this the asset management system interfaces with the City's Mapping System, which provides a visual layout of those areas that require specific treatment or works. This then informs the City's long term capital works plans and is also available to the broader community.

The high level of Asset Management maturity and good asset management systems allows for a more coordinated approach to Capital works evaluation and prioritization. The City is responsible for a range of infrastructure services which include water and sewer, drainage, roads, parks and open space. These high level systems allow the different service areas to overlap their renewal and reconstruction plans through the city's mapping system. This then allows these different service areas, on an annual basis, the opportunity to move projects forward or postpone projects for a couple of years. For example, if a road project is going to lead towards a major reconstruction and the other assets, such as water mains or sewer lines are due for renewal in the near future, the City can move these works forward, promoting overall cost savings and minimising further inconvenience to the community in a few years time.

The representatives of the City of Zurich estimated that it has lead to the City's departments having significant overall, collective cost savings well over one million Swiss franc per year.

There are real opportunities if municipalities have control and deliver the infrastructure services of the assets that are located within the road reserve, to save monies for citizens. Given Victorian local government delivers very little of the civil infrastructure services, the opportunity is for better coordination and collaboration with other authorities and agencies. This will be better achieved by the sharing of good quality long term capital works programs for example with a minimum ten years length.

4.3.5. Taxation reform

Along with workforce participation and skills shortage issues, the Grattan Institute's CEO John Daley highlights the current taxation system as a major hindrance to Australia's economic productivity.

John Daley's et al. report Economic reform priorities for Australia (2012), has investigated the productivity of the overall taxation system, at all levels of government within Australia. One of the outcomes of the research behind this report shows that if Australian government's at all levels Federal, State and Local Government implemented broad brushed taxation reform from the current system, that predominately relies on distortionary and less efficient forms of taxation to generate revenue, to a system that utilizes the most efficient forms of taxation, it could boost Australia's GDP by $25 billion per year.

The findings in Daley's report show that some forms of taxes cost more to collect than other taxes, and therefore provide more economic drag and thus decrease prosperity. The report found that the more efficient taxes include property tax and consumption taxes, such as the GST. The inefficient taxes include income tax and taxes on transactions.

The findings from the study tour showed that the percentage of the overall tax to an individual, which contributes to the revenue of municipalities in Europe, is significantly higher than the percentage tax share between levels of government in Australia.

The amount of the overall income tax take from all levels of government in Europe is between 17 to 23 per

cent, and while the overall tax share to municipalities varies it is considerably higher than Australian standards. The Australian Local Government Association (ALGA) states that local government has access to a very narrow tax base. Only 3-4 per cent of the nation's total tax is collected at the local government level (ALGA, 2007).

Whilst this is generally comparable with the amount of services European municipalities deliver opposed to municipalities in Australia, the ALGA states that this is resulting in a major disparity between revenue collection and service delivery/community expectations (ALGA, 2007).

Along with the total tax share, another significant difference is the way in which revenue is passed on to municipalities.

Revenue from property tax, in the form of council rates; special rates and charges; as well as charges from products and services are generally the way in which local government in Victoria generates its revenue base.

Further to this, additional revenue is generally available through grants and funding from specific federal or state government programs. This revenue that is passed on to local government from the commonwealth and the states is generally generated from a range of taxes that the higher levels of government can implement, such as income and corporate tax and consumptions taxes, such as GST.

The major issue for local government in Australia is that the monies available to them through grants and funding programs are often controlled by the conditions of the funding programs.

Local government in Australia often relies on grants and external funding for infrastructure projects that it cannot directly fund through its rate revenue base. The distribution of those funds via grants and funding programs, limits the freedom for local government to direct those funds where they are most needed by their communities, because the use of those funds are being dictated by levels of government that are removed from the specific issues of that community.

In Europe, the revenue generated from income tax is generally distributed directly to the municipality, where they are free to use those monies, relative to the strategic direction that they set, based on engagement and consultation of their communities. This is essentially an outcomes based approach as opposed to specific project control.

The direct transfer of monies to local government would build greater capacity and freedom for local government to deliver on the strategic direction of both the Council and the community, and enable it to meet its “Council Plan” objectives.

Improvements in the transaction of monies that are collected from the total tax share between state and federal government to municipalities will provide improved productivity within state and federal government departments, but will ensure that local government can improve on the effective and efficient use of those funds.

Furthermore, if the taxation reforms that John Daley recommends occur there will be added improvements and efficiencies on the way these taxes are collected, which will provide a multiplier effect to the efficiencies gained from freeing up the transaction process of those taxes to local government.

4.4. Liveability

4.4.1. Outline

The organisation Partners for Liveable Communities Australia defines 'liveability' as the sum of the aspects that add up to the quality of life of a place (2010, Partners for Livabale Communities). These aspects can include a place's economy, amenity, environmental sustainability, health and wellbeing, equity, education and learning, as well as leadership.

When we consider liveability and the aspects that add up to the quality of a place, we can determine that these aspects are all underpinned by the quality of infrastructure of that place.

Good quality, effective infrastructure is vital to a country or city's future prosperity and drives economic growth. Good quality, effective infrastructure is considered by governments of developing countries around the world as the most crucial aspect in achieving a sustainable economy. The recent economic development and prosperity of developing countries such as China, has primarily been driven by its investment in improving the quality of infrastructure and thus improve its economy.

Improved infrastructure enables business to have better access to customers, suppliers, employees and new ideas. In addition, investment in infrastructure provides citizens with better access to employment, education, community activities and recreation.

Therefore, good quality infrastructure and the liveability of our cities and towns – go hand in hand. The criteria for some of the most common survey's on liveability – namely the Economist, the Mercer and the Monocle – all have aspects that are rated based on the quality of a city's infrastructure.

Criteria such as the quality of civil infrastructure, the efficiency and access to public transport, good urban design, good quality housing and international connectivity are all aspects of these respective surveys.

Of the cities visited throughout the study tour, all were listed in the top ten of at least one of these surveys on liveability, apart from Tallinn, Staffanstorp and Malmö. Whilst Tallinn, Staffanstorp and Malmö did not rate within the top ten of the Economist, the Mercer or the Monocle liveability surveys, the comparisons these cities had with those that did would essentially define those cities as highly liveable.

Aspects like good quality infrastructure were all clearly seen when exploring these cities. Public Transport systems such as that in Helsinki, Zurich and Vienna all had fantastic connection between services featuring systems of Trains, Trams, Buses, Ferries along with complimented integration to world class pedestrian and bicycle infrastructure.

Therefore, the planning and delivery of public infrastructure is critical in ensuring or maintaining liveability within our communities. It is imperative that public works practitioners ensure that the planning and delivery of public works programs provides the basis for other aspects of liveability such as recreation, links to the natural environment, good health and education systems all which are improved through the quality of infrastructure.

In Europe, good quality pedestrian and bicycle infrastructure whilst serving the purpose of improving the transport functions within a city, through improved and greater mobility, also goes towards improving the recreational aspects of citizen's lives, along with health and wellbeing as a more healthy alternative to a person travelling by car, bus or train.

Improved transport functionality, efficiency and connectivity, provides citizens with access to employment yet balances the time away from family – an important part of liveability.

4.4.2. Public Works Planning for Liveability

The importance of infrastructure does not only influence service delivery, but also goes towards improving the liveability of our cities and towns for our communities. I would suggest that it is essential for public works engineers and practitioners to ensure that the systems and processes used to plan, analyse, evaluate and determine the priorities for public works programs have some form of evaluation of the benefits of liveability from the delivery of these projects.

Current practice and capital works frameworks generally assess community benefit and financial benefit.

Bass Coast Shire Council's capital evaluation framework's community benefit evaluation for capital works projects includes an evaluation against the Council Plan objectives, Risk Management and Assessment, Community Impact and Readiness.

The assessment of risk looks at the consequence and likelihood of that consequence occurring if the project does not proceed. The assessment of Community Impact generally looks at the breadth of the benefit to the community and whether it benefits a few or benefits many. The assessment of readiness ensures that projects that have undertaken significant stakeholder engagement and information, as well as those projects that have undertaken feasibility studies are better rated.

In the assessment of these criteria specific links to liveability may result from the method of prioritisation.

Further assessment of projects against the Council Plan objectives also will generally go towards improving the likelihood that a project improves the liveability of our cities and towns, as Council plans often have objectives which are strongly linked to liveability.

One issue that can arise is the periodic changing of Council Plan objectives with the change of Council over the four year political term. This can mean that the level of liveability assessment embedded in the council plan objectives for one Council can be significantly different to that of another Council in the next term.

Whilst this type of evaluation and subsequent prioritisation of public works projects, can ensure that some level of liveability and community involvement are indirectly assessed through these criteria, improvements to the evaluation and prioritisation of projects to specifically assess liveability aspects of a project should also be included in the assessment process.

Further inclusion of aspects and criteria of the three most popular liveability surveys, namely the Economist, Mercer and Monocle, should be included into the evaluation frameworks used by public works engineers and practitioners for the prioritisation of capital works projects. This will help to guarantee liveability is embedded into the planning and delivery of public works.

4.4.3. Urban Planning for Liveability not Profit

The current model for urban and town planning within Victoria is essentially underpinned by 'profits' not 'liveability'. The Victorian model relies on private developers having more input into the planning of how vast areas may be developed. Whilst strategic planning mechanisms go a long way to ensuring the community's needs will be assessed as part of a development proposal, a further issue for municipalities is developers can always contest these plans through the administrative tribunal.

Often the needs of the community are not adequately assessed through the tribunal and opportunities to improve the liveability of our cities and towns are missed. A model for the sustainable development of areas which is used by the City of Staffanstorp, is different to the approach generally used in Australia. In Australia we see that a private developer will purchase land for the purpose of development. In the case of residential development the land is generally land zoned for the specific purpose of residential development or the private developer will apply to have the land rezoned.

The model in Staffanstorp, along with much of Sweden, is that the municipality will strategically purchase land for the purpose of future development. The municipality will then go through the appropriate planning process to ensure that the development is in line with the tenets of the Municipal Plan and will provide a better net result for the community through liveability. The municipality then tenders the pre-planned and approved development for developers to then construct.

This method of delivery of land development better ensures community outcomes. The municipality can ensure that liveability, health and wellbeing are the primary focus of the planned development, not profits. This gives the municipality, and the community, more control in the way in which the land is developed, such as maximising public open space, improving commercial space, having sustainable residential development density and ensures that the infrastructure delivered is based on community needs, both now and into the future.

This is further expanded in the approach taken by the City of Copenhagen, where they see development as a metropolis for people, yet the focus of the new development should concentrate on the 'Urban Life' before focusing on the buildings, landmarks and infrastructure. This vision based approach to development ensures community outcomes and liveability are primary outcomes of a proposed development. Once the vision has been achieved, the infrastructure required to achieve this vision of liveability can be then be determined.

4.4.4. Public Open Space Requirements

Public open space is a key contributor to liveability and is highly valued by the community. The benefits of public open space to citizens is generally categorised by three basic forms which include recreation, aesthetic value and ecology. Public open space areas can include parks, green spaces, recreations reserves and sporting facilities, but also town squares, streetscapes and boulevards.

A common aspect of all the cities across Europe that we visited, that were considered to be the 'most' liveable cities in the world, all had fantastic public open space. Whether it was parks and gardens, town squares or sporting grounds and facilities, the importance of public open space was highly recognised by the municipalities we visited. Furthermore, the inclusion of good quality public open space facilitates higher density development without sacrificing liveability.

These open space areas facilitate a whole range of recreational activities which promote health and well being, such as organised sport, individual exercise or passive recreational activities and provide the community with respite from the usual urban environment. The aesthetic and ecological benefit of public open spaces to the community through the conservation of nature in the urban environment is self evident.

In addition to the aesthetic value, public open space and the way in which it is activated can provide significant cultural benefits. In the Melbourne Central Business District, a cultural transformation has occurred with the utilisation and revitalisation of the last bastion of open space available within the highly densified city area. These open space areas are the laneways and arcades, which in the past were used for servicing the high rise buildings within the city. Now these laneways and arcades are used as open space which facilitates alfresco cafes, bars and eateries, one-off boutiques and unique galleries. 'Laneway' Culture, as it has been labelled, has set Melbourne apart from other capitals within Australia and is well known across the world.

The European trend of maximising the amount and quality of open space and integrating open space into projects wherever possible is an important aspect in ensuring enhanced liveability for our communities in the planning and delivery of public works.

4.5. Leadership

4.5.1. Outline

If ever there is a time that the community needs leadership it is in times of crisis. The global financial crisis and the following economic crises have required leadership from government at all levels. Initially, it was from central and state government's and as the flow on of the crisis continues to shake up economies; significant leadership will be required by local government and municipalities.

There is leadership within local government that exists with the democratically elected Councillors and executive management, but there is also leadership at all levels within an organisation. Leaders and leadership exists at all levels, and the importance of infrastructure for the community should not be forgotten in times where the need to save monies consumes decision makers in times of shrinking revenues.

Patricia Galloway in her book 21 Century Engineer (2008) states that 'civil engineers were once esteemed by the public as both visionaries and leaders in a noble profession essential to the welfare of humankind. Today, though, civil engineers are often seen as mere advisors and technicians'. Galloway (2008) argues that this situation must change and that the means to do so are in the hands of engineers themselves.

In this publication, Galloway (2008) lays out nontechnical areas in which engineers must become proficient including the challenges of globalisation, improving communication, ethics and professionalism, dealing with diversity, and providing greater leadership.

Public works engineers and practitioners need to demonstrate their leadership in times of economic downturn. One of the hardest topics to grasp for those that do not have a concept of the life cycle of infrastructure is the importance of effective asset management. It is an imperative that leaders within local government at all levels ensure that decision makers see the relevance and the importance effectively funding and managing your existing infrastructure stock to ensure financial sustainability.

It is always good to see new infrastructure or the upgrade of infrastructure, such as a new bridge or community building. However it can be a very vague concept for many on the importance of ensuring that you have your 'house in order', and are implementing effective infrastructure asset management, with your existing infrastructure asset stock.

The calls over the past years for Australian Local Government to implement better asset management systems, and therefore better manage their infrastructure, has been one of the most significant measures that public works engineers and practitioners have undertaken to ensure financial sustainability.

The move towards good asset management systems and the growth in the knowledge of asset management is clearly an act of leadership. Whilst the use of asset management systems is simply good management of assets, the journey for Australian local government organisations from having no to very little asset management maturity, to where we are today, has been an act of infrastructure leadership.

It is this type of leadership from public works engineers and practitioners that will provide valuable, financially sustainable infrastructure for future generations.

Further to this, it was evident from the study tour that there are a number of issues at both a macro and micro level that Local Government in Australia needs to address. In order to address these issues it is vital that both the elected representatives, executive management and public works engineers and practitioners show leadership in addressing these issues, to ensure that our local government organisations can improve productivity and ensure that our communities can live, work and play in some of the most liveable cities and towns possible.

4.5.2. Constitutional recognition of local government

Of all the European municipalities that were visited as part of the study, all were recognised constitutionally by the central government of their respective countries. However, local government in Australia is not recognised constitutionally as a legitimate third level of government by the Commonwealth, a significant shortfall.

Constitutional recognition has been proposed based on a number of different platforms. They are as follows:

- Symbolic Recognition;
- Financial Recognition;
- Democratic recognition; and
- Recognition through federal cooperation.

In 1974 and 1988 referendums were held whereby the Australian people voted 'not' to have local government recognised in the constitution. Whilst some believe that given the Australian people have not agreed to the constitutional change on two occasions, that the issue should not be revisited.

Former Howard Government Minister and political commentator, Peter Reith (2010) in an article in The Australian newspaper states: the local government proposal is different. It has been put twice before by Labor governments and thrashed resoundingly.... How many times do they expect this to be put to the public before they will accept the result?

In 1974 and in 1988, the areas of service responsibility for local government were specifically around the three R's – Roads, Rates and Rubbish. Further to this, the level of community expectation to municipal services was much different. Since 1988, the relevance of local government on the delivery of essential services has changed significantly. Local Government today is responsible for a vast array of services compared to in 1988.

Therefore, the relevance of local government to local communities and the Australian people has changed significantly. Given this it is becoming more likely that the Australian people will see the increased relevance of local government and the need to have it recognised in the constitution.

In addition to the symbolic and the democratic recognition, the financial recognition would settle the ongoing debate and legal challenges to the legal status of funding between the federal government and local government that exists through programs such as Nation Building Roads to Recovery program and the Regional and Local Community Infrastructure Fund.

The direct transaction of funding between federal and local government would provide significant productivity gains for both local government and the federal government. Productivity gains would be gained through the savings in administering funding from the Federal government through the States then onto municipalities. Minimising time delays would also be a significant productivity gain.

Constitutional recognition would also provide local government with more freedom to use the funds based on local strategies and plans, similar to the outcomes of the highly successful Nation Building Roads to Recovery program.

Local Government leaders need to advocate and lobby for constitutional recognition to be decided through a referendum. Pivotal to this should be the effective communication to communities on the advantages of constitutional recognition for local government. A collaborative campaign – with clear key messages - should also be undertaken to ensure that people are fully aware of the value in local government being recognised in the constitution.

4.5.3. Limit valueless bureaucracy, regulation, legislation and 'red' tape

A continual pressure to the effectiveness and efficiency for Local Government is the continued presence of valueless bureaucracy, valueless regulation and legislation that is imposed on local government.

John Daley's et al. report Economic reform priorities for Australia (2012) states that Australia's productivity performance has deteriorated over the past decade and in the long run this will impair Australian quality of living, and our ability to respond to everything from an ageing population to climate change.

Daley et al. also reports that the slowdown in productivity stems from an increase in productivity-stifling regulation and legislation; a loss of appetite for productivity-enhancing change among governments, businesses and voters; the effect of 'capacity constraints' as the economy has approached 'full employment'; and slippage in Australia's take-up of technologies.

Two of the aspects that Daley et al. recognises Australia needs, in order to revive economic development and growth, is to make better decisions about infrastructure investment and focus more on innovation. Innovation is required in development of regulation and legislation to ensure that the end result does not produce valueless productivity-stifling bureaucracy and red-tape.

Local government is continually scrutinised by State Government to ensure that it is remaining competitive in its service delivery and is providing value for money services to its communities. However, the recommended initiatives to improve productivity, value and competitiveness are often contradicted by other valueless bureaucracy and regulation that is imposed on local government from the State Government.

Whilst the role of 'watch dog' by State Government is a critical part in ensuring that local government is complying with its responsibilities under the Local Government Act. It is also essential that any requirements imposed on local government are assessed against whether they are going to provide true value, and therefore productivity, to the community.

There are definitely productivity gains to be had by both the State and municipalities taking an approach of working together for continuous improvement, innovation and capacity building instead of playing the roles of compliance regulator and sub-ordinate. At the very heart of these gains to productivity should be the underlying principle on whether it improves value to our communities and achieves the goals and outcomes defined in the Council Plan.

A simple example of this is the requirements for the approval of traffic management plans (TMP) for works within the road reserve. Definite productivity gains and project cost-savings could be made by a complete review of this process. Lengthy delays in approval processes for the TMP approvals and significant costs to develop and implement plans occur because of blanket approaches to traffic management, which should however be based on a common sense approach along with a risk management approach.

The need for highly detailed traffic management plans for short term intermittent works such as surveying of small sections of road provides very little value in terms of the costs to undertake the work and the safety benefits to the public and those undertaking the work. One example we were faced with on a recent project was the traffic management requirements for a minor short term surveying project of an intersection on a highway.

The estimated time to undertake the survey was approximately two hours of which approximately ten minutes of the survey work would be within the recommended clear zone widths. The requirement under the approved TMP, taking the blanket approach in line with the guidelines, resulted in the need for 14 multi message boards to be installed and subsequently removed in order to undertake the work to survey the intersection.

In assessing the situation from a common sense risk based approach, it was found that the risk to the surveyor and the surveyors assistant was medium based on a consequence of major to catastrophic and a likelihood of the consequence of the risk occurring being rare. In assessing the risk to the two officers required to install the signs the risk was considerably higher. In this case the act of implementing the traffic management devices to minimise the risk to the surveyor actually created a greater risk to worker safety. Furthermore, developing and implementing the traffic management plan required more time and resources, than undertaking the work.

Examples of differences between project delivery costs between European projects and Australian projects, was evident in the metro underground train line extension between the City of Helsinki and the neighbouring City of Espoo. The length of the tunnelling project was 15km in length, the same length as a similar project being undertaken in Sydney for its North West Tunnel link. However, the estimated project costs in Finland were estimated at 25 per cent of the total cost of the same length tunnelling project in Sydney.

Obviously, the project costs and the difference in price are relative to the availability of skilled contractors to undertake the work, the ground conditions and the subsequent ancillary works required. However, some of the costs savings have to be attributed to the level of productivity within our project planning and delivery models. Also the 'urgency' to achieve targets because of the climate conditions in Finland generally ensures collaboration and consultation along the entire project management process.

5. Conclusion

The impact of the economic crisis on European municipalities and their ability to plan and deliver public works infrastructure has had varying effects on the different countries and municipalities that we visited on the study tour.

At some of the municipalities we visited it was observed that they were not being adversely impacted by the economic down turn that is occurring in Europe. In particular, municipalities in Denmark and Sweden and to a slightly lesser degree Finland seemed to be coping with the crisis. All of the municipalities in these countries noted that there had been some initial slow downs to their business, subsequent to the GFC in 2008, however from my observations it was evident that their policy drivers and planning were continuing to ensure infrastructure project delivery.

Other municipalities, such as the City of Tallinn, City of Zurich and the City of Vienna, noted that the economic crisis was having an impact on the delivery of infrastructure projects. In particular, the representatives from the City of Zurich noted that there budgets had been significantly reduced due to the impacts of the downturn. However the City of Zurich were not changing their plans or programs as a result, they were simply delaying the delivery of projects that were not as high a priority for a future time.

It was apparent from our study tour visits that all the municipalities in these countries acknowledged that spending on infrastructure in times of economic downturn was a sound investment of municipal revenue, as well as delivering projects at a 'lower' cost. During our discussions with municipal representatives it was clear that the municipalities understood that an under investment in infrastructure, at any time let alone during a time of economic crisis, could significantly hinder growth once the adverse effects of the crisis had passed.

Furthermore, it was evident that the municipalities in these countries understood that an under investment in infrastructure during a time of economic crisis would stifle productivity, in turn suppressing economic growth, decreasing liveability in the short and long term and would also show to their citizens a lack of leadership from government.

From the study tour interactions with European municipalities, other organisations and the attendance of the IFME congress, it became apparent to me that there were some general aspects that public works engineers and practitioners, along with local government leaders, could integrate as underlying principles for improvements to the planning and delivery of public works.

Some of the observations of the study tour within this report are not necessarily specific to my study topic, however it was the exposure to the vast spectrum of best practice, that lead me to be able to conceptualise and comment on aspects to better prepare local government for the impacts of an economic downturn and their ability to deliver on their infrastructure programs.

From my observations throughout the tour, there are three overarching ingredients that public works engineers and practitioners, and Local Government as a whole, can integrate into their business, in particular their infrastructure planning, service planning and project delivery. These three ingredients are:

- Improve our Productivity;
- Enhance the Liveability of our Cities and Towns; and
- Demonstrate greater Leadership.

Improved productivity provides greater value to our community through the services and infrastructure that local government delivers. With improved productivity it is shown that significant savings can be made in the planning and delivery of public infrastructure.

Ways that we can improve productivity are to continue to address the skills shortages within the engineering and construction industry, improve relationships to facilitate greater collaboration with state government departments and other authorities and advocate for a more efficient taxation system.

Leadership in the form of advocating on behalf of our communities for taxation reform, a fairer tax share for local government, minimising valueless bureaucracy and red tape, as well as constitutional reform to recognise local government, will provide even greater financial sustainability for municipalities.

Enhancing liveability through the effective and efficient planning and delivery of public infrastructure provides greater value to the community. By improving the public infrastructure our communities' value, we are instantly providing a greater level of productivity through improved value.

To effectively plan and deliver public works, good quality business planning frameworks, service plans, asset management systems and plans, capital evaluation frameworks, project briefs and procurement models are required. The findings from the study tour showed that underpinning these planning and delivery tools with improved productivity, enhanced liveability from the public works infrastructure being delivered and demonstrating greater leadership will ensure that the impacts of an economic crisis can be mitigated.

Improving our productivity, enhancing liveability and demonstrating greater leadership are essential ingredients and principles to ensure that local government is providing genuine value, maximising the quality of life through the planning and delivery of public works and providing good governance to its communities.

6. Recommendations

6.1. Recommendations – Service Planning

That Local Government organisations:

1. Ensure that their services are underpinned by good service planning and accordingly good quality service plans.
2. Ensure that asset management systems are informed by information contained within service plans to ensure the infrastructure that supports the delivery of those services is adequate and fit for its intended purpose.
3. Investigate and develop design-based principles in the development of service plans to better understand the needs of the community and those that are dependent on the service.

6.2. Recommendations – Business Planning

That Local Government organisations:

4. Define their 'core' and their essential 'non-core' services and ensure they are determined through rigorous business planning processes that specifically define the 'customer' and the customer's 'needs'.
5. Implement good business planning frameworks to ensure that their services, and relevant service plans, are continually being evaluated, reviewed and improved to ensure that those services are meeting the needs of the community. Therefore, ensuring service plans are relevant and can inform the effective management of the infrastructure required for that service.
6. Ensure that services have adequate cost effective infrastructure, good service planning be developed from introspective business planning processes, and these plans determine the infrastructure that is required.

6.3. Recommendations – Capital Evaluation Framework

That Local Government organisations:

7. Review and adopt capital evaluation frameworks that ensure that the aspect of community benefit includes those things that are considered to make a place liveable. Criteria from well known liveability surveys should be integrated into the evaluation framework to ensure projects that maximise liveability are prioritised before those that don't, thus providing an increased level of value in the delivery of public works.

6.4. Recommendations – Project Briefs

That Local Government organisations:

8. Ensure that they have adequate project scoping and project brief development systems that ensure the desired outcomes of the infrastructure asset being delivered are achieved.
9. Ensure its Local Government associations develop workshops and/or training courses on the development and writing for good quality project briefs.

6.5. Recommendations – Productivity

That Local Government organisations:

10. Ensure infrastructure planning and delivery departments develop collaborative partnerships with other authorities and share their long term (10 year) capital works programs, to enable a more coordinated approach for the delivery of infrastructure, to ensure overall cost savings.
11. Together with their Local Government associations lobby state and federal government for improved efficiencies in the taxation system, improved efficiencies in the transactional model for funding to local government and greater autonomy for municipalities to determine how and where funding shall be spent.
12. Together with their Local Government organisations and associations continue to lobby state and federal government for taxation reform and a greater share of the overall tax base.
13. Encourage more flexible working arrangements to increase greater workforce participation for older skilled employees and encourage the working arrangements to be centred on knowledge transfer, training and mentorship to ensure that skills sets and knowledge is passed on to younger generations.
14. Encourage the employment of undergraduate engineering students through vocational program's to promote local government as an 'employer of choice' within the industry.

6.6. Recommendations – Liveability

That Local Government organisations:

15. That in the development of business cases for projects, consideration be given to aspects of the project that can improve liveability with the intention to maximise these aspects and therefore liveability.
16. Integrate liveability and the principles of liveability into the frameworks for the planning of public works infrastructure to ensure that the infrastructure delivered provides maximum value to the community.

6.7. Recommendations – Leadership

That Local Government organisations:

17. Ensure that its public works engineers and practitioners effectively communicate the need for rigorous asset management systems to understand their municipalities true liability in terms of their infrastructure renewal gap. Furthermore, the infrastructure renewal gap needs to be communicated as one of the most important factors in ensuring financial sustainability of infrastructure.
18. Ensure that their service plans, asset management plans and systems and their capital evaluation frameworks are providing good quality ten year capital works programs, to better inform others of the long term infrastructure demands for their municipality.
19. Effectively communicate to their communities, and therefore the electorate, the benefits to the community with local government being recognised in the Commonwealth of Australia's Constitution.
20. The municipality and its associations continue to advocate and lobby for the Federal Government to undertake a referendum to have Local Government symbolically, democratically and financially recognised in the Commonwealth of Australia's Constitution.
21. Ensure that its Local Government engineers and practitioners continue to review and evaluate their planning and delivery methods for public works infrastructure to minimise valueless bureaucracy and red 'tape'.
22. The municipality and its associations provide a leadership role and advocacy role to ensure that regulation and legislation that impacts local government is developed from a collaborative approach.

7. Appendices

7.1. Appendix 1

7.1.1. City of Helsinki

The City Council is made up of 85 democratically elected Councillors. From the members of the City Council, a board of 15 representatives is appointed, of which one board member is appointed as Mayor of the City, for a term of seven years.

The City's organisation is structured under four Departments. Each Department has its own planning committee with an appointed Deputy Mayor. The four Departments are as follows:

- Department of Public Works and Environmental Affairs;
- Department of Social and Health Affairs;
- Department of Cultural and Personnel Affairs; and
- Department of City Planning and Real Estate.

The City of Helsinki is responsible for a vast range of services, which include:

- Public Works;
- Social welfare and health;
- Education and Culture;
- Fire Services;
- Building Regulation;
- Land Use Planning;
- Environment Protection; and
- Waste Management.

7.1.2. City of Helsinki – Public Works Department

As part of the organised study tour, our study group met with representatives of the City of Helsinki's Public Works Department.

The visit to the Public Works Department involved a presentation about the department, its role within the City and the context within which it works. Further to the presentation we were able to have a round table discussion about the issues and challenges facing the City of Helsinki and its Public Works Department. The presentation and the subsequent discussion provided a good insight into the way in which the Department operates.

The Public Works Department is assigned a range of responsibilities which include:

- Planning and organising for the construction and maintenance of public areas (streets, parks and green areas);
- The design and construction of premises (kindergartens, schools, health care centres etc.) for the city; and
- Control of parking and granting permits for public area use.

The Public Works Department is divided in to five divisions, of which three are responsible for the planning and delivery of Public Works Department.

These departments and their total budgets are as follows:

- Streets and Parks Division – 206.9M €
    - Streets Construction – 88.6M €
    - Parks Construction – 7.7M €
    - Streets and Parks Maintenance – 110.6M €
- Construction Management Division – 224.4M €
    - New Construction – 113.3M €
    - Renovation – 111.1M €
- Architectural Division
    - Turnover of 2.4M €

7.1.3. City of Helsinki - Challenges

One of the major challenges facing municipalities, within Finland, along with the City of Helsinki is that the costs of social welfare and health services are increasing, at the same time revenue is decreasing.

As well as the range of taxes collected, the City of Helsinki collects customer charges for services such as:

- Water Supply;
- Waste Disposal;
- Power Supply; and
- Public Transport.

For services such as Social Welfare and Health Services less than one-tenth of the expenditure is covered through customer and patient charges. It should be noted that basic education is free.

There is an increase in expenditure is mainly due to Finland's aging population and compared to Australian levels, the level of unemployment, is growing due to the economic crisis in Europe.

Finland's ageing population is putting added pressure on municipalities due to their exposure to pension funding gaps, as well as the additional pressure this ageing community is putting on health services.

We also noted that the City of Helsinki is also responsible for the unemployment benefits of those that are unemployed within the municipality, hence an added incentive to maintain jobs within the municipality.

These pressures on revenue have resulted in the City's investments through loans steadily increasing since the GFC in 2008. This has included investments into major district developments and major transport projects, such as the expansion of the underground metro train system between Helsinki and Espoo. These types of investments are considered to be financially sustainable investments.

One concern of representatives of the Public Works Department was that of all the loans of the City, they estimate that up to 50% of these are either not sustainable or are used to fund operations instead of capital investments.

Another priority of the Public Works Department is the need to ensure that the existing infrastructure is proactively managed, given the current state of an aging infrastructure base and the fiscal challenges that the City faces.

7.2. Appendix 2

7.2.1. City of Tallinn

Tallinn City Council consists of 79 democratically elected councillors. The City Council is the local government representative body of Tallinn on the basis of the Election Act.

The City Council is independent in deciding matters such as budget approvals and amendments, imposition of local taxes, approval of development plans, adopting detailed plans, electing and releasing the City Mayor and fulfilling other functions required by law.

The City Government is the City of Tallinn's executive body. The City Government consists of seven members, namely the Mayor and six Deputy Mayors. The City Government fulfils the assignments given to it by legislative drafting, economic activity, control and the involvement of the residents.

The City is divided into eight city districts which are administrative agencies whose statutes, structure, personnel, salary levels and conditions are approved by the City Council upon the proposal of the City Government.

The City's eight city districts are responsible for a range of services delegated to the City through the Local Government Organisation Act. These services include:

- welfare and youth work;
- waste management;
- spatial planning;
- municipal engineering;
- public transport; and
- schools and kindergartens.

The City of Tallinn is organised between these eight districts with a vast range of departments, which includes the Municipal Engineering and Services Department and City Planning Department.

7.2.2. City of Tallinn – Municipal Engineering and Services Department & City Planning Department

The organised meeting with representatives from the City of Tallinn's Municipal Engineering Services Department and City Planning Department provided the study group with a broad overview of the City of Tallinn's public works.

Whilst the population of Estonia is on the decline, the population within Tallinn is increasing, which is in line with the global trend of rapid urbanisation. This increasing population is putting significant pressure on the City to provide services and improved infrastructure. Infrastructure related to transport, energy efficiency and housing is a primary focus of the City's Municipal Engineering Services Department and City Planning Department at present.

The City of Tallinn currently has a range of large development investments that it is undertaking, which include the harbour side redevelopment housing, as well as a range of industrial park developments. As well as this it is upgrading its bus transport system and is undertaking a €10M project to improve the energy efficiency within the Old Town.

Since the GFC in 2008, the overall budgets of the City have been declining in size, which has put added pressure on the City to deliver the infrastructure that it needs to cater with the growth that it is experiencing.

The following outlines the drop in budget amounts since the GFC:

- 2008 €503M;
- 2009 €467M;
- 2010 €458M; and
- 2011 €464M.

The City of Tallinn's income is generated from a range of sources namely:

- State Projects 24%;
- Income Tax 54%;
- Land Tax 5%;
- Local Tax 2%;
- Products and Services 14%; and
- Dividends 2%.

Of the overall City Budget the level of expenditure related to Public Infrastructure relates to approximately 30%, in the areas of City Transport, Engineering Networks and Streets and Pavement.

The City of Tallinn has a number plans that relate to the long, medium and short term direction of the City. The long term plans include Tallinn 2030 and its Environmental Strategy. These long term plans then influence there medium level plans which include the City's Development Plans and Projects and District Development Plans.

The City then has a range of short term plans, which includes the 2012-2015 budget, which is adopted for a three year period, opposed to a one year period.

In order to assess the achievement of these plans the City undertakes extensive customer surveys with 140 indicators to assess the service satisfaction of its citizens.

7.2.3. City of Tallinn – Challenges

The City of Tallinn is faced with a number of challenges.

The GFC has exposed the risks of an economic downturn on vulnerable groups within the community. This has lead to high levels of unemployment and added pressure on the City in terms of the costs associated with social welfare and unemployment benefits.

Unemployment rates were between 7 to 8% pre-GFC and have peaked at 10.7% post-GFC. As part of this increase in unemployment there has been a significant impact on the construction industry of which there were 80,000 workers in the construction industry, while there is only 40,000 workers in 2012.

The recession and negative to slow growth within Estonia has resulted in a lack of jobs available in the construction industry. This has lead to the migration of skilled workers to move from Estonia to other areas of Europe where work is available.

The City of Tallinn is also likely going to be forced into involuntary-administrative reforms such as amalgamation. This is a concern for the City as the loss of skilled staff could further exacerbate the problem of skills leaving Estonia for other European countries thereby reducing the City's capabilities and possibly increasing costs at a later date. Similarly to Helsinki, Tallinn has exceptionally hard winters, which limits their construction season to the period between May – October.

7.3. Appendix 3

7.3.1. City of Staffanstorp, the Municipal Planning Department and the Geographic Information Systems Team

The organised meeting with representatives from the City of Staffanstorp's Municipal City Planning Department and Geographic Information Systems Team provided the study group with a broad overview of the City of Staffanstorp's organisation, along with the major development and strategic public works projects that they are planning.

The City of Staffanstorp is a typically rural municipality with four major cities or townships and is located in the South West corner of Sweden in the Skäne region. Staffanstorp is renowned in Sweden for its prime agricultural land, with highly productive soils producing significant yields of both livestock and vegetables.

The two main Cities of the Skäne area include Malmö and Lund. Staffanstorp is located between these two major economic hubs.

The City's statistics show that approximately 8000 people commute from the Staffanstorp area to these nearby cities, whereas only 3000 people commute into the city. All of these figures are

In the 1970's the planning model in Sweden looked at the de-urbanisation of cities. A trend followed with development focussing on planning frameworks that facilitated single detached dwellings. This led to areas such as Staffanstorp growing and the population increasing. With this also came a change to the community from a community that was predominately employed in the agricultural industry to a population of workers that would commute to the nearby cities to work.

In the 1980's, Staffanstorp undertook a major urban redevelopment of sports and recreation land situated within middle of the City. This land was redeveloped into residential housing with the sports and recreation space being increased in size moving to the outside of the City.

Worth noting is that the style of housing developed in the 1980's was kept consistent with the older style of housing within the city, to ensure a consistent neighbourhood character.

These redevelopments in the 1970's and 1980's resulted in significant growth in the population of the municipality from 6,000 inhabitants in the 1960's to over 21,000 in 2001. The city has an aging population with the median age of the population at 38 years of age, compared to the world median age of 24 years of age (http://www.funtrivia.com/askft/Question57160.html.)

The City of Staffanstorp's revenue is predominately generated through tax, with over 75 per cent being from taxes and another 3 percent generated from fees and charges. Other revenue is generated from developer contributions. The main tax used to generate revenue is income tax, at a level of 18.89 per cent of an individual's income being collected by the municipality.

The long term strategic document developed in 2009 is titled Perspektiv 2038. Perspektiv 2038 is the City's specific community vision document for development within the municipality. The document has specific objectives similar to values statements, which are conceptual yet clear, comprehensible and provide citizens with an understanding of what is expected to be achieved over the 30 year life of the strategy. The objectives within Perspektiv 2038 were developed with citizens through public participation and community engagement. These objectives are:

- From garden furniture to inspirational open space;
- From small town to city life;

- From close to the time quality;
- From accommodation to liveability; and
- From rural to home land.

Whilst some of the meaning is lost in translation, it is still evident that the future development within the municipality is about significant improvements to peoples lives through strategic development.

Perspektiv 2038 is the document that is then used to influence urban planning. Proposed and planned development needs to satisfy the objectives within Perspektiv 2038.

The City of Staffanstorp's model for development, which is similar across Sweden, is to strategically purchase land for the purpose of development.

A major project that is in the process of being planned for by the City is their Sugar Town or Socker Bruket redevelopment of an old sugar factory site. This site was purchased as a strategic investment by the City many years ago after the sugar factory ceased operation.

The planning for the development has involved a range of community consultation focussing how "24 hours in Sugar Town" would be like in 2038. This visioning approach to development specifically ensures that the development is starting with the 'end in mind' to ensure it achieves the outcomes for the community and the objectives within Perspektiv 2038.

The Sugar Town development includes 1000 new dwellings with a range of high density to low density. Reduced mix use to avoid a conflict with the central part of Staffanstorp as well as integrated indoor and outdoor public and commercial open space.

Another important project for the municipality is the railway duplication and extension project. Whilst, railway infrastructure is a responsibility of the regional government and central government the municipality has advocated for the project to be undertaken. The project is estimated to cost 1 billion Swedish Kroner or $145 million Australian Dollars, and is a co-operative financed and collaboratively funded project. The project plans to deliver improved connectivity between the major townships within Staffanstorp with the cities of Lund and Malmö.

The 2007 figures showed that the mean distance between house and work for most people was over 10 kilometres and over 70 per cent rely on their vehicle as their primary mode of transport to commute.

The project will help facilitate denser development around railway stations and improve the modal splits of commuter transport.

The City of Staffanstorp's Geographical Information Systems GIS Team are undertaking some innovative approaches through the use of mapping as a tool to provide information. The City's GIS team has consciously shifted the perception both within the team and outside the team, as their role is about the opportunities for information through mapping not being about the system itself.

This has enabled the team to undertake things such as two-way communication between the City and the community through web based mapping. This has provided the City with information that helps facilitate and better plan development and public works projects. For example, one such tool is that citizens can plot on maps places of interest and can log why that place is important to them. This can then influence the works that occur in this area. Other examples include the use of the City's student records to better plan for bicycle infrastructure, and ensure that the addition of infrastructure is best utilized where it has been implemented.

7.3.2. City of Staffanstorp – Challenges

My observations during our study tour was that City of Staffanstorp is well placed to deal with future challenges.

The City is in the process of planning for a major residential and commercial development at the site of an old Sugar Factory, Socker bruket.

The success of the development and the economic opportunities rely on the Swedish people's acceptance of living outside of the two main urban capitals of the Skäne region and commuting from Staffanstorp. This seems to be generally accepted as a major segment of the working population within Staffanstorp commute to these cities for work. However, if the trend of urbanisation continues to occur like it has been in other areas of both Sweden and Europe, the success of this development could vary from what was expected. This could be a risk given the proximity of Staffanstorp's Sugar Town to the major cities of Lund and Malmö, and the competition that these larger cities create.

Furthermore, the ability to connect this new development with the Cities of Lund and Malmö relies on the regional and central government's ability to deliver the major rail duplication and extension projects.

Staffanstorp's rural areas are renowned throughout Sweden as some of the best agricultural land in Sweden. Staffanstorp also needs to juggle with the balance between urban development, economic growth and development opportunities that this creates, and the conservation of the prime agricultural land that provides food security to the region and to the country.

7.4. Appendix 4

7.4.1. City of Copenhagen

The City of Copenhagen municipality is governed by Copenhagen City Council. Council elections are held every four years.

Copenhagen City Council consists of 55 members elected for a period of four years. The Council is the city's supreme political body. It is divided into seven committees with the following grouping and responsibility: Finance, Culture - Libraries - Sport, Education - Youth, Health - Care, Family - Labour Market, and Building - Construction, Energy - Water - Environment.

Following the 2009 municipal elections, the 55 seats are divided in the following way:

- The Social Democrats 17;
- Socialist People's Party 13;
- The Red-Green Alliance 6;
- Liberal party (Venstre) 6;
- Social Liberal Party (Det Radikale Venstre) 5;
- Conservative People's Party 4; and
- The Danish People's Party 4.

The political leader/mayor of the Copenhagen municipality has since 1903 been a Social Democrat.

The municipality is divided into 15 administrative, statistical and tax districts.

7.4.2. City of Copenhagen – Urban Planning Department

As part of the organised study tour, our study group met with representatives of the City of Copenhagen's Planning Department. The City Planning Department's representatives provided a number of presentations. The presentations were based on some overall, general information about the City, Planning and Open Space, Green Mobility and the Climate Change Adaption Plan

The area of the municipality has increased from 71 sq.km to 90 sq.km between 1912 and 2012 due to a number of land reclamation projects.

The greater metropolitan region of Copenhagen has a population of 1.8 million, with the population of the City of Copenhagen municipality approximately 550,000.

In the 1950's the population within the city was 768,000. The de-urbanisation of the city through the trend in the 1960's and 1970's of development for single detached dwellings in areas outside of the city, has been the single most significant factor in the decreased population.

The city has been developed based on the Finger Plan. The Finger Plan is an urban plan from 1947 which provides a strategy for the development of the Copenhagen metropolitan area. According to the plan, Copenhagen is to develop along five 'fingers', centred on S-train commuter rail lines, which extend from the 'palm', that is the dense urban fabric of central Copenhagen. In between the fingers, green wedges are supposed to provide land for agriculture and recreational purposes.

The City has a level of autonomy in the development of its municipal plan, which is a legally binding, overarching plan for the direction of the City. The City generates revenue predominately through taxes, such as income tax at 30 per cent of an individual's personal tax, property tax and corporate tax.

The City has a number developments that they are undertaking which include;

- The North Harbour;
- Ørestad;
- The South Harbour;
- Carlsberg; and
- The Knowledge City.

The city has a district heating system, which is managed by the municipal owned Authority, Copenhagen Energy that services 98 per cent of the dwellings with heating. Copenhagen Energy is also looking at implementing District Cooling for the warmer months of the year.

The Copenhagen Together plan adopted by the City Council looks at the planning and integration of open space, and aims to make Copenhagen the 'Metropolis for People'. The philosophy behind the plan is that all planning should focus on the Urban Life before focussing on the buildings, landmarks and infrastructure.

The City has experienced a number of phenomenons in the past. The 1950's the city experienced an invasion of Cars and in the 1990's it experienced an invasion of bicycles. The Copenhagen Together plan concentrates on how you achieve good, functional open space integrated with the transport modes within:

- Promenades;
- Pedestrian Streets;
- Squares; and
- Connections.

The plan also looks at the social aspect of open space, planning and transport with connection from new developments to the old part of the City,

The City's Green Mobility Plan looks at green alternatives to mobility and specifically concentrates on the bicycle as the primary transport choice for Copenhageners. The plans objective is to improve, promote and further improve mobility through bicycles as the primary transport mode within the City.

The Green Mobility Plan also links with the City's Parking plan to minimise congestion within the inner city and the demand for parking.

Every day, collectively Copenhageners cycle 1.2 million km per day compared to 4.8 million kilometres travelled within a car.

Copenhageners choose bicycles for a number of reasons as their primary transport mode. These being:

- It is easy and fast – 54 %;
- For exercise – 19 %;
- For financial reasons – 6%;
- For convenience – 7 %; and
- For environmental reasons – 1 %.

Copenhagen is suffering from significant bicycle congestion which is putting stress on the existing bicycle infrastructure. The Copenhagen bicycle infrastructure is predominately made up of grade separated 2.2m bicycle lanes along with a number of bicycle 'super highways'.

Furthermore, the evidence suggests that the winter months do not impact people's choice of transport with bicycle numbers only dropping to 75 % of the levels that are experienced in the summer months.

The City's Climate Change Adaption Plan looks at the impacts of climate change on the city, namely the impact to the drainage system, sea level rise and the flooding this causes and the impacts of warmer weather.

The Climate Change adaption plan also provides direction on how the City will cope with these impacts.

The City has a combined Sewer and Drainage System which is operating at capacity. A number of significant rainfall events over the last few years have resulted in major localised flooding within areas of the City. This has caused not only flooding within the public areas such as roads, open space and parks, but also the flooding of properties. The combined nature of the sewer and drainage system and this flooding provides a major risk to the community when these rainfall events occur. Furthermore, many properties within the city have basements which prove an added issue to the problem.

The estimated cost to improve the underground sewer and drainage system to improve capacity is 10-15 billion Danish Kroner or 1.7 to 2.5 billion Australian Dollars.

In dealing with localised flooding the City is implementing a risk based approach with the introduction of Water Sensitive Urban Design principles, reuse, retention and storage of stormwater on roofs and within the streets as a cost effective solution to the problem.

In dealing with sea level rise the City is looking at the constructing a number of dykes to protect the City from the damage caused by storm surges and the resulting flooding that occurs also.

Furthermore, given the costs of implementing some of the measures within the Plan, the Plan encourages the use of pilot projects and pilot areas for the trial and evaluation of specific solutions to ensure that they work on the small scale before undertaking the full rollout of the protection measures.

7.4.3. City of Copenhagen – Challenges

The City of Copenhagen has a number of traffic issues. Further to the issue of vehicular traffic congestion, the City is experiencing problems due to the congestion of bicycles. The cities existing bicycle infrastructure, which is comprised mainly of 2.2m grade separated bicycle lanes, is effectively running at capacity at peak times.

The City of Copenhagen is experiencing an increase in the number of stormwater drainage problems due to more frequent and more intense rainfall events. Furthermore, the drainage system and the sewer system in most of Copenhagen is a combined system. This results in overflow and major flooding occurring which has the further impact of being contaminated from the sewer system.

Further to the drainage issues that are being experienced, other impacts attributable to climate change include sea level raise and the effects of storm surge. This is also having an impact on the City's ability to be protected from significant rainfall and storm events.

7.5. Appendix 5

7.5.1. City of Rudersdal

The City of Rudersdal municipality is governed by Rudersdal City Council. The Rudersdal City Council is comprised of 23 elected representatives.

Along with the City Council the municipality has an executive body divided into a number of boards, each with appointed members. These boards are as follows:

- Economy Board – 9 Members;
- Technical Board – 7 Members;
- Children's Board – 7 Members;
- Social/Health Board – 7 Members;
- Culture and Nature Board – 7 Members; and
- Company and Work Board – 7 Members.

7.5.2. City of Rudersdal – Public Works Department

As part of the organised study tour, our study group met with representatives of the City of Rudersdal's Municipal Engineering Department. The City Municipal Engineering Department representatives provided us with a presentation about the municipality and the works that they were involved in.

The City of Rudersdal is situated north of Copenhagen and covers an area of 72 sq.km. The City has a population of approximately 54,000 inhabitants. The City employs approximately 5,000 people to deliver the services on its behalf.

The Council vision, "Best place to live", relates directly to liveability for its citizens. The City is a very affluent area of Denmark. The municipality's residential accommodation is dominated by large detached single dwelling homes on large residential properties. Car ownership within the municipality is relatively high with 2.2 vehicles per household in Rudersdal compared to Copenhagen with 1.8 vehicles per household.

The municipality is renowned for its significant green open space areas and recreational parks. The municipality does not have any industry, which the community wants to protect.

The green open space areas provide significant recreational aspects to its citizens. A number of recreational and bicycle path ways of which a smartphone GPS application has been created for a more interactive experience to recreation users of these pathways and trails.

Some statistics provided by the City's Municipal Engineering Department showed the extent of the transport network including the path network. These being:

- Public Roads 205km;
- Private Road 124km;
- Bike Lanes along Roads 108km;
- Other Bike paths 114km; and
- Recreational Routes 115km.

Along with the maintenance, upgrade and renewal of this infrastructure, the Department is also responsible for Waste Management, including the disposal of household waste and waste water.

Household waste is incinerated for the purpose of generating electricity with the by-products recycled. The two main by-products after incineration are the metals that are present in the waste and the remaining ash. Metals are recycled for use in steel products and the ash is recycled to form a stabilising product for the use in road works.

Waste water is currently treated at a number of small plants located across the municipality. The Municipal Engineering Department are currently investigating combining these small plants into one facility.

The waste water or sewerage system also acts as the stormwater system, within the municipality.

The City also provides funding towards public transport costs to subsidise fares for buses within the municipality.

The Municipal Engineering Department introduced a road safety program to its public works programs to reduce the number of serious car accidents that were occurring within the municipality. The results from the infrastructure upgrades initiated as part of this program had resulted in a drop of 54 serious accidents in 2003 to 18 in 2008. At the time of June 2012, no serious accidents had been reported for that year.

In addition, the Municipal Engineering Department is undertaking a lot of water sensitive urban design projects, such as infiltration and bioretention systems, as well as permeable pavements.

7.5.3. City of Rudersdal – Challenges

One concern for the City and its residents is that a lot of the overall tax generated by Danish citizens is generated by the residents in the Rudersdal Municipality. Whilst the area is very affluent, the overall income tax collected by the State is reapportioned to a lot of other municipalities through the tax system which tries to maintain social equity. The City estimates that the equivalent to AUD $167 million which is generated in Rudersdal is redistributed to other municipalities in Denmark.

Majority of the City's sewer and drainage systems are a combined system. There had been a number of significant rainfall events that had occurred, that were higher than usual, over the past few years. This as well as the increased development that had been occurring has resulted in the combined system being at or above capacity. This has lead to a number of cases where the system has overflowed, which would not be such an issue if the system was specifically for drainage only.

The costs to implement a whole dedicated system for the city were going to be an extremely significant cost to the City. As an alternative, the City is looking at using water sensitive urban design to help alleviate the problem. This alternative has proved viable mainly due to the low density development in the area. The City has introduced a scheme whereby property owners can take advantage of a 24,000 Danish Kroner or $4,000 incentive, to disconnect their stormwater drainage from the overall system and install a bio-retention/ infiltration system on their property. This has been introduced as a cost effective option to improve the capacity of the existing drainage network.

7.6. Appendix 6

7.6.1. City of Zurich

The City Parliament is made up of 125 members, with elections held every four years. The City Parliament decrees regulations and by-laws executed by the City Council and by the administration. All dealings of the City Parliament are public. Members of the City Parliament are not politicians by profession. Any resident of the City of Zurich entitled to vote can be elected to the City Parliament or the City Council.

The Zurich City Council is comprised of nine members and constitutes the government of the City of Zurich. The City Council operates as a collegiate authority. Its nine members work on a full-time basis and each member presides over a department. The President of the executive department acts as Mayor. The nine City Council members carry out departmental tasks and projects, coordinate various measures and implement laws decreed by the City Parliament. The election of the City Council by registered voters is held every four years.

The City of Zurich's administration is made up of nine departments and the corresponding service departments which implement the rulings of the City Parliament. The administration is run by the nine-member City Council which is elected by the people.

7.6.2. City of Zurich – Public Open Space Department and Public Works Department

As part of the organised study tour, our study group met with representatives of the City of Zurich's Public Open Space Design Department and the Public Works Department. The City's representatives provided us with a number of presentations.

The meeting also included a presentation from a representative that developed the City's 2000-Watt Society strategic document for the City's reduction greenhouse emissions and energy security.

The tour included a visit to a number of recently completed projects by the Public Works Department highlighting their integration of public open space into traditional road upgrade projects.

The presentation and discussions with the Public Open Space Design Department was centred on the Public Open Space Strategy that they adopted in 2010. This strategy was developed by the Public Open Space Design Department with assistance from a number of leaders in the development of Public Open Space policy and through extensive community consultation.

The three strategic aims of the document were to ensure a clear hierarchy, coherent design and enhanced amenity qualities of public open space in the City.

The strategy categorises each public open space area within a hierarchy. This hierarchy then determines the standard that the public open space would be upgraded to, including the design elements such as street furniture, soft landscaping and street trees and the amenity and spatial qualities.

The strategy is a detailed document that provides very clear, direction as to what is required within any public open space areas within the City.

Public Open Space projects are initiated in a number of ways, which can sometimes stem from a political basis, but are generally integrated into the upgrade or renewal of street scapes or other such projects. These road projects along with having a functional purpose are also enhancing the liveability for citizens by improving the quality of the public open space.

Once open space upgrade works that are undertaken by the City are completed, they are then assessed through community surveys to inform the City on the outcomes.

The City of Zurich's Public Works Department undertakes the City's infrastructure maintenance and construction. The department uses in-house delivery for small works up to the value of about $100,000 Swiss Franc or $102,000 and larger projects over this amount are outsourced.

The asset management systems and processes that are used by the City and its departments aid the department in their planning for renewal and upgrade projects.

The City has an exceptional asset management maturity, which is partly due to the Statutory Plan requirements to have 80 year public roads program. This statutory plan is then further complemented by a more detailed five year maintenance and renewal plan.

The City's Public Works Department has a very coordinated approach to public works, which is achievable due to the high level asset management. The asset management system is linked to their mapping system and provides a visual analysis of condition rating, as well as the detail of the roads and assets that are required to be renewed, rehabilitated or upgraded. This can then be overlaid over the other asset management plans for services such as water, sewer, and drainage amongst others. This then allows a coordinated approach to the planning of their public works annual programs by then being able to postpone works or move them forward in a program to ensure that necessary works are being undertaken at the same time. For example, instead of road works being done one year and then a few years later a sewer main being renewed, the City coordinates these works to be undertaken at the same time, minimising the inconvenience to the community as well as saving considerable money.

The organised study tour also included a site visit to a number of recently completed projects undertaken by the Public Works Department and the Public Open Space Department.

7.6.3. City of Zurich – Challenges

The City of Zurich has a number of challenges ahead due to the impacts of the Global Financial Crisis (GFC) and the economic crisis. This includes the impacts to the City's revenue which has dropped by approximately 30 per cent. This has been attributable to the reduction in taxes being paid by both banks and individuals affecting the municipality's corporate and personal income tax share. The representatives of the Public Open Space Department noted that this had lead to a reduction in their budgets by up to 10 per cent.

The City of Zurich, and Switzerland as a whole, has a real challenge to provide energy security to their citizens. A vast amount of the energy that is used by Switzerland is developed outside of the country and then imported to Switzerland. Mainly from Germany.

7.7. Appendix 7

7.7.1. City of Vienna – Urban Planning Department

As part of the organised study tour our group met with representative s from the City of Vienna's Urban Planning Department. The representatives from this department provided us with two presentations, centred on background information of the City, the urban planning that is occurring and their plans for climate change protection.

Austria is made up of 9 separate provinces which all have separate planning laws. The greater urban area of Vienna is beginning to sprawl into other municipalities, hence some parts of the City are under the jurisdiction of the City of Vienna and others are under the jurisdiction of neighbouring municipalities.

The revenue for municipalities in Austria is derived from income tax, land tax and products and services. Income tax accounts for 50% of the municipal budget for the City of Vienna. The overall Budget for the City in the year of 2012 was approximately €11 billion or $13.64 billion. The global financial crisis (GFC) had an impact on the department's budget resulting in a 10 per cent cut.

The unemployment rate is relatively high compared to the current Australian rate. The current rate in Austria is 7.4 per cent, with a target to reduce unemployment to 3.5 per cent. Pre-GFC the unemployment rate was between 5 to 6 per cent, showing that the GFC has had an impact on employment within Austria.

Whilst the level of unemployment is high, The City of Vienna is still experiencing the effects of engineering skills shortages, which is having an adverse impact on their ability to effectively plan and deliver public works.

Development of the urban areas of Vienna has traditionally been along the existing public transport lines, due to the topography of the area as well as to ensure good connectivity throughout the City. The modal splits for the city are approximately one-third vehicles and two-thirds public and alternative transport, such as buses, trams, trains and bicycles. Bicycles make up 6 percent of the modal split for transport.

In 2003 the City's Urban Planning Department developed policy to reduce the number of car trips by 25 per cent. However the policy was not funded until 2008. An important aspect of this policy was to increase the use of bicycles trips, to make up a 10 per cent share of the transport modal split by 2015. In comparison to Cities such as Copenhagen and Berlin which have a high bicycle use, and 45 per cent and 17 per cent modal split respectively, the 2015 target was both considered by the department as both aspirational and achievable. The policy also centred on better connection with the existing public transport system, such as the metro rail system to compliment the practicalities of cycling in the city as a legitimate transport option.

The policy, along with trying to reduce congestion and improve the efficiency of the transport system, also aimed to achieve a to reduction in the demand on parking within the centre of the City, which was at capacity, due to the lack of road reserve and other areas available. The City of Vienna is responsible for the public transport system within the City. The policy included raising parking fees and reducing public transport fares to make using public transport a more financially palatable option for commuters than using their car.

In the early 1900's, the planning for infrastructure such as roads, drains, sewer and water supply, was undertaken. This was done with significant foresight at the time, with a good perception of the future needs of the City.

The City's Urban Planning Department now uses a number of 10 year strategies and plans for the planning of the City. These include the urban development plan and the transport master plan to provide guidance on the future direction of the City.

The city has a number of large developments being planned for, one being the Old Primary Development, which is an area of 52 hectares and includes 50 per cent green and public open space, with the other 50 per cent being made up of 35 per cent developable land and the other 15 per cent road reserve and transport reserves. The objectives of the development are to maintain good levels of sustainable density, develop where existing transport lines and links exist, and include family subsidies for housing. The City also uses competitions for land use projects as was the case with this development.

8. References

Australian Associated Press 2011 Europe's debt crisis will hurt Australia: RBA The Age viewed 12 August 2012 http://www.theage.com.au/business/europes-debt-crisis-will-hurt-australia-rba-20111214-1ou52.html

Kim Wells 2012 Victorian budget 2012-13: Treasurer's speech in full The Department of Treasury and Finance Victoria viewed 12 August 2012 http://www.bendigoadvertiser.com.au/story/76244/victorian-budget-2012-13-treasurers-speech-in-full/

Municipal Association of Victoria 2012 About the Defined Benefit Superannuation Shortfall – Fact Sheet Municipal Association of Victoria

Council of European Municipalities and Regions 2009 The economic and financial crisis Impact on Local and Regional Authorities Conseil des Communes et Regions d'Europe Council of European Municipalities and Regions

Victorian Auditor General's Report 2011 Business Planning for Major Capital Works and Recurrent Services in Local Government Victorian Auditor General's Office

Ross Moody 2012 Senate Inquiry into the shortage of engineering and related employment skills Institute of Public Works Engineering Australia Commonwealth

Department of Infrastructure and Transport 2012 Planning and Delivery: Best Practice Case Studies February 2012 Commonwealth of Australia

Ross Goyne 2012 Service Planning: The missing link in sustainable asset management IFME 2012 Congress presentation and congress paper

Rick Di Paola 2011 The importance of the Project Brief Presentation at the IPWEA 2011 Public Works Management Conference

Steve Pavlina 2005 What is productivity? Personal development for smart people viewed 12 August 2012 http://www.stevepavlina.com/blog/2005/10/what-is-productivity/

Victorian Competition and Efficiency Commission 2011 Securing Victoria's Future Prosperity: A Reform Agenda, draft report, November 2011.

Parliament of Victoria 1999 Local Government (Best Value Principles) Act 1999 Victorian State Government

Bill Jackson 2012 Senate Report Shows Engineering Shortage a Burden on Taxpayers, APESMA Media Release, 12 July 2012 http://www.apesma.com.au/newsviews/latest/?id=2084

Daley, J., McGannon, C., and Ginnivan, L. 2012, Game-changers: Economic reform priorities for Australia, Grattan Institute, Melbourne.

Australian Local Government Assocaiation 2010 Website http://alga.asn.au

Partners for Livable Communities Australia 2010 Website http://www.livable.org.au/index.php?id=3

Patricia Galloway 2008 The 21st Century Engineer: A Proposal for Engineering Education Reform ASCE Press

Peter Reith 2010 More to Question than Yes or No, The Australian published 13 September 2010 http://www.theaustralian.com.au/national-affairs/opinion/more-to-question-than-yes-or-no/story-e6frgd0x-1225919850879