

**Municipal Engineering  
Foundation Victoria**

**2010**

**Development and Delivery of  
Public Works**



**2010 Study Tour**

- ☞ **United States of America**
- ☞ **United Kingdom**
- ☞ **Canada**

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## Acknowledgements

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There are a number of people to thank for providing and being part of the wonderful experience gained in participating in the 2010 MEF Vic International Study Tour.

To the trustee's of the Municipal Engineering Foundation Victoria, I offer my gratitude and thanks for making the study tour available, and for providing the opportunity and means for me to participate. The support and opportunity the foundation provides for local government engineers to further their learning and experiences is a great credit to the past and present trustees.

A special thank you is also extended to Keith Wood and Merv Paton for helping us get organised and guiding us in the right direction. Keith's knowledge and Merv's organisation made sure we got onto the right track from the start.

Sincere thanks to Mr Warren Roberts, who gave his time to lead the group through the experience of world travel and making sure we didn't miss any flights, and to Mrs Sue Roberts (our tour mum) who made sure we were all okay. To the other tour participants, Mr Phil Jeffery, Mr Marcus vanEck, Mr Raj Manihar, and Mr Sena Abeykoon, who made the tour very special with your fun, support and great company.



*L-R: Sena Abeykoon, Marcus vanEck, Raj Manihar, Paula Gardiner & Phil Jeffery*

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To the Mayor, Cr. Lyn Russell, Councillors, Chief Executive Officer Mr Rob Small, and especially the General Manager Infrastructure & Services Mr Neil Allen of Colac Otway Shire Council, for encouraging and allowing the opportunity and support to participate in the study tour.

It is also the hospitality and assistance of the host organisations and their wonderful staff that we visited during the study tour that allowed us to seek information and engage in conversation that bridges the gap in understanding of how the 'others' do it. So a special thanks to the great people of;

- City and County of San Francisco City, California, USA
- City of Napa, California, USA,
- City of Toronto, Ontario, Canada
- City of Waterloo, Ontario, Canada
- City of Medford, Massachusetts, USA
- Cambridgeshire County Council, UK
- Leicestershire County Council, UK

## Executive Summary

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The Municipal Engineering Foundation Victoria has provided an incredible opportunity for public works engineers to expand professional and personal development through the International Study Tour program. The 2010 Study Tour incorporated visits to organisations within the United States of America, Canada and the United Kingdom, as well as attend the International Public Works Congress, which this year was held in Boston, USA.

The participants of the 2010 study tour studied topics associated with delivery and development of public works, climate change adaption and mitigation strategies, stormwater management and water reuse and recycling.

The main aim or objective that I had as a participant was to consider and review the practices and techniques used by other organisations in the development and delivery of public works.

Through the visits to each organisation it is evident that each of them approaches the challenge of developing and delivering Capital Works programs in differing ways. It also showed that there is no one way of managing the public works sector, with each organisation implementing practices that enabled infrastructure to be provided to attempt to meet the needs of the community.

While there were a number of differing techniques used, the study tour proved that there is no 'wrong' way to develop and delivery capital works programs. It did show that there is always room for improving the way we do business, which in truth should always be the case.

The need to continually assess the 'why' projects are needed and the 'how' projects can be delivered is essential, as it provides the basis for enabling the needs of the community to be assessed and met.

Each organisation that was visited understood and acknowledged the fundamental need for sound strategic direction to deliver best value for money infrastructure to meet the needs of the community. The challenging factor is gaining the overarching direction that enables capital works programs to be established that meets all the needs within restricted budgets as it is dependent on political pressures and delivery expectation.

As such, it is considered and recommended that Victorian Council's make a serious attempt at identifying, articulating and communicating what the infrastructure needs are and how they can be delivered and funded. The fundamental element that enables this is to ensure the community understand and support where Council aims to move into the future. This then allows for projects to be development and prioritised within each Council's financial means and delivery capabilities.

Of all the organisations visited, there was no one that had annual capital work completion targets set. It seemed that there was a general shift toward multiyear budgets providing flexibility around timelines for project delivery. While this approach is quite different to the experience within Victoria, which generally sets a completion target for capital works programs on an annual basis, it has both advantages and disadvantages.

While it can be challenging to deliver capital works programs and meet the set targets on an annual basis, it is still considered a reasonable and sound method for program delivery. The methods implemented within Victoria are as reasonable as others that were presented by the organisations visited.

The 2010 American Public Works Association (APWA) International Public Works Congress and Exposition was held at the Boston Convention and Exhibition Centre, Boston, Massachusetts, and provided an amazing opportunity to attend a massive array of educational sessions, social gatherings, interactive workshops and an enormous trade display.

In addition to the multitude of educational and workshop sessions the congress also hosted fantastic key note speakers, with topics incorporating leadership and challenges of change. The sessions raised issues surrounding the continuing challenges facing the public works industry with respect to ever increasing expectation in an environment of increased delivery demand with decreasing available funding. However, the focus was more about the opportunities that these changing times provide with increasing scope for new initiatives and technologies – the main ingredient is ensuring the industry leaders step up for the challenge.



# 1 Introduction

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It became clear during the visits to the many organisations in the USA, Canada and the UK that what we knew as local government is not consistent across other countries. It raised the question of how will it be possible to compare or apply 'learning's' when the very way the organisations are put together and what they do differ from what we know.

On the face of things, the government structure, especially in the USA, is very different to the seemly straight forward three tiered system of Australia. This together with the different services that the organisations are responsible for delivering made me think that I would only really be able to report on the observations of each visit. Once I started to work my way through preparing this report the realisation struck that, while government structure and organisational service delivery may be varied and different, the fundamentals of what we are all doing was still similar. The challenges of matching need against available funds for providing services and infrastructure is the same regardless of where we travelled, and the ongoing challenge of prioritising projects to get the best value for money is battled with by everyone.

With that in mind, I will attempt to provide observations of the service delivery and structure surrounding the organisations that were visited, I will also thread common challenges and the techniques and methodologies that are being applied to provide and deliver Public Works projects within the public sector.

## 2 Purpose

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I was fortunate in February 2010 to be awarded a scholarship to travel to the USA, Canada and UK by the Municipal Engineering Foundation Victoria to study my chosen topic of “*Development and Delivery of Public Works*”. During the tour a number of local government organisations were visited within each country, as well as attending the American Public Works Congress in Boston, USA.

The aim is to consider the methods used to develop and deliver Public Works within the challenging realm of Local Government.

The objectives or purpose of my study tour was to;

- Explore different prioritisation methodologies
- Explore different ways or delivery options available for providing works
- Explore asset management influences on works programs; and
- Whether public works programs were being delivered in an effective and efficient manner.

### 3 Organisation Visits

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#### 3.1 City and County of San Francisco

[www.sfgov.org](http://www.sfgov.org)



*San Francisco City Hall (entrance)*

##### 3.1.1 Overview

The City and County of San Francisco is the fourth most populous city in California which hosts a population of approximately 815,000. The City is the only consolidated city-county in California and encompasses a land area of 121 square kilometres (46.7 square miles) on the northern end of the San Francisco Peninsula.

It is the most densely-settled large city (population greater than 200,000) in the state of California and the second-most densely populated large city in the United States.

San Francisco is the financial, cultural, and transportation centre of the San Francisco Bay Area, a region of more than 7.4 million people.



*Location in City and County of San Francisco within the state of California*



The City and County of San Francisco has held the status of a consolidated city-county since 1856. The mayor is also the county executive, and the county Board of Supervisors acts as the City Council.

Under the city charter, the government of San Francisco is constituted of two co-equal branches. The executive branch is headed by the mayor and includes other citywide elected and appointed officials as well as the civil service. The 11-member Board of Supervisors, the legislative branch, is headed by a president and is responsible for passing laws and budgets, though San Franciscans also make use of direct ballot initiatives to pass legislation.

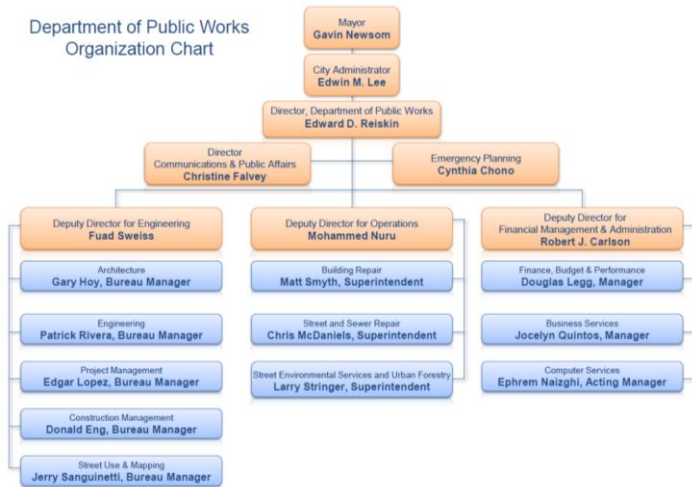
Because of its unique city-county status, local government exercises jurisdiction over property that would otherwise be located outside of its corporation limit. San Francisco International Airport, though located in San Mateo County, is owned and operated by the City and County of San Francisco.

The municipal budget for fiscal year 2007–2008 was just over US\$6 billion.

**3.1.2 Infrastructure Management**

The Department of Public Works is charged with the responsibility of managing the public infrastructure of the City and County of San Francisco. This includes the development, implementation and delivery of the public works program, or Capital Works.

In 2005 the City and County of San Francisco developed and adopted a ten-year constrained capital expenditure plan for city-owned facilities and infrastructure. This was driven by the concerns raised by civil leaders and citizens surrounding expenditure for capital needs. The ten-year capital plan is continually developed and reviewed annually.



A committee was developed, the Capital Planning Committee (CPC), to approve the Capital Plan and make recommendations on all the City’s capital expenditures. The mission of the CPC is to review the proposed capital expenditure plan and to monitor the City’s ongoing compliance with the final adopted capital plan.<sup>1</sup>

The ten-year Capital Plan facilitates individual programs for different sections within the City and County. Services relating to Public Safety, Health and Human Services, Infrastructure and Streets, Transportation, Recreation, Culture and Education, Economic Neighbourhood development, and General Government are all considered as an identified component of the overall Capital Plan.

<sup>1</sup> The City and County of San Francisco Capital Plan

While asset life and replacement cost allocations are considered within the Capital Plan, assumptions of asset life and cost are based on projected asset life, not on actual asset condition or fit for purpose need.

The Capital Plan is a holistic document that considers each facet of governance, including funding requirements and funding sources, borrowing need and debt management, emerging needs (for each sector) and importantly identified projects. It provides a thorough strategic document that clearly sets out the areas requiring funding and allows for government leaders to make sound decisions that consider long term vision.

**3.1.3 Development of Public Works**

The Capital Plan consists of the key components Renewal<sup>2</sup> and Enhancement needs. Projects are identified via study plans and strategic studies, as well as work identified by officers in the field (i.e. reactive works).

Projects are presented for consideration at each department level before being complied and prioritised based on set principles. The identified principles for funding prioritisation are used as a guideline by staff when determining the relative priority of capital projects.

The Capital Plan provides clear direction for both elected officials, officers and the general public in understanding the strategic direction and priorities set out for capital funding within a ten year window.

**3.1.4 Delivery of Public Works**

With the Capital Plan being reviewed annually, it allows for works programs to be adjusted to reflect changing needs or to reallocate funds for projects that are delayed or progressing other than expected.

While project scale would vary across each department ranging from minor works programs through to major infrastructure projects, it was observed that projects are well scoped and planned before having funding allocated. As such, project managers charged with delivering projects have a clear understanding of the required outcomes and timelines required for each project.

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<sup>2</sup> Renewal refers to projected asset life, and is considered as a straight line. Renewal does not relate to actual asset condition based on asset condition or on fit for purpose need.



Although each project is scoped and delivery expectations are known, the City and County of San Francisco does not have an annual project completion requirement, i.e. there is no requirement to complete the capital works funded for each year.

Therefore, the measure used for determining if the capital plan is being delivered is whether projects are complete or not, without the constraint experienced through an annual budget process where projects must be completed and funds expended within a given financial year.

**3.1.5 Observations**

**3.1.5.1 Site Visit**

The visit also included a site visit to the new US\$800 million hospital redevelopment. The project included the construction of a new wing to an existing operational hospital. As such, part of the project requirements was that the existing hospital was to remain open during development. It was observed that the level of planning and milestone tracking was very detailed for the project, with resources allocated to ensuring measurable milestones were tracked. It was generally observed that project managers and crews took pride in measuring progress and meeting timelines, which ensures everyone is working towards meeting targets.



Hospital Development Site

The preplanning involved in the hospital redevelopment had been undertaken over a number of years, and was funded via a special General Obligation<sup>3</sup> bond.

**3.1.5.2 General Comments**

The principles of asset management and how this links with Capital Plans are simplistic and early in their development. That infrastructure asset renewal needs are based on projected book life with? without consideration to actual asset condition can lead to asset renewal needs not being met within a timely manner.

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<sup>3</sup> General Obligation bond proposals in California require 2/3 voter approval.



The Capital Plan developed is a very comprehensive document that clearly identifies the financial needs to meet the infrastructure asset needs. It also provides for expenditure to be separately considered across the main service areas within the city.

Observation of the general road network showed the road pavements to be in a state of disrepair, however the asset renewal component only seemed to be considered with respect to water and sewer works programs. i.e. that road pavement repair or rehabilitation was generally carried out when water main upgrades etc were completed.

Of interest, within the City of San Francisco, the stormwater and sewer pipe line system is combined. While this practice dates back since the city started to be developed, it is interesting that there was no identified plan to install new separate infrastructure even given the problems and challenges a combined system has.

Footpath assets are again generally in a state of disrepair, with many trip hazards and pedestrian management issues. Interestingly the responsibility for footpaths abutting private property rests with the private property owner. As such the city does not maintain or hold any responsibility in ensuring footpaths are maintained in a safe manner, however the city can (and do) direct property owners to carry out repairs or rehabilitation.

Funding for projects is sourced from a number of sources including;

- Property taxes;  
Property taxes within the State of California were set by State Mandate to be calculated on purchase price (not on annual property revaluation). Property taxes are shared between the City and State. Generally referred to as General Funds.
- General Obligation bonds;  
Funding that is calculated on a project basis and is funded by residents. It is subject to a special mandate (or vote) where 2/3 of the vote has to be in favour of the proposal for the project to proceed.
- Lease Revenue Bonds; and
- Certificates of Participation.

Federal Government stimulus funds are also available following the global economic crisis.





## 3.2 City of Napa

[www.cityofnapa.org](http://www.cityofnapa.org)

### 3.2.1 Overview

Founded in 1847 astride the Napa River, the City of Napa grew robust in the Gold Rush. Before the name “Napa” became synonymous with premium wine, the City was known for its tanneries, steel products, and prunes. Today the City of Napa is the centre of commerce and government in Napa County. The area was settled in the 1830s and incorporated as a city in 1872.

The City of Napa has a total area of 45.57 square kilometres (17.8 square miles), and hosts a population of approximately 72,500.



*Location in Napa County and City of Napa within the state of California*

Napa is a Charter City, where the Charter is the basic law under which the City operates and it can only be amended by a vote of the people. The City uses a Council-Manager form of government, with the Mayor and four Council members elected at-large to four-year terms. The City Manager is then appointed by the Mayor and Councillors. The City Manager is the Chief Executive Officer and is responsible for the 10 City Departments. For FY 2009-10, the budget allows for 503 full-time-equivalent employees.

### 3.2.2 Infrastructure Management

The Department of Roads are responsible for the management of the City infrastructure assets, including the provision of new, upgrade and maintenance needs.

The City implements and approves a six year capital works program, funded via a two year budget cycle, which allows for projects to be completed (and funds expended) across the two year period. Capital programs are established with input from each service delivery section within the department, including water, sewer, stormwater and roadways.

Overall the City manages 140 miles of road, and has implemented a plan to resurface 10 miles per annum. This is aimed to provide an annual program to gradually improve the asset standard throughout the city which has been widely accepted by the residents. It is noted however that the resurfacing program is not based on asset condition but rather in identified sectors or blocks. The program is designed to enable resurfacing of each road section on a 14 year cycle.

The condition of assets has suffered in the past due to lack of funding, however through the City identifying and acknowledging the funding needs they have set about preparing a Master Plan of the City. The Master Plan aims to review all the assets in the City and outline in a strategic fashion the infrastructure improvement needs. This will then lead to more detailed strategies to outline what works are needed, the funding required and how the works will be funded.

Some of the other challenges the City face is the availability of road making materials. Limited source companies also make obtaining materials at a competitive price a challenge. A method the City is trialling with neighbouring cities is reusing road pavement materials in situ when conducting rehabilitation works. Grant funds for this trial, including the procurement of necessary equipment, are being sought through environmental grants due to the identified environmental benefits associated with reusing pavement materials. This is an example of thinking 'outside' the square to meet the ongoing challenges of providing serviceable assets with limiting budget allocations.

### ***3.2.3 Development of Public Works***

The overarching policy that is used in preparing and developing the Capital Works program is project needs within each neighbourhood or area within the city. The aim is to systematically conduct infrastructure improvements in 'one go' while in each area or neighbourhood. With the two year program this allows for underground asset works to generally be completed in the first year, with above ground projects completed in the second year.

This methodology fits with the proposed Master Plan development that aims to clearly identify what standard of infrastructure is required, how much will it cost and timed to fit within house resource availabilities.

The Capital Works program is also established in line with the General Accounting Standards. This is largely due to the need to report in accordance with these standards.



Capital Works programs are established from the idea phase, where the possible solutions and associated costs are analysed, to design for the development of plans and specifications, through to construction.

**3.2.4 Delivery of Public Works**

Largely the delivery of works is carried out in house. The delivery of all works in house has been a decision made by the City to ensure employment opportunities, and due to the significant costs associated with contractors. Due to limited contractor competition within the region, external contractor costs can be higher than providing the service capability in house.

**3.2.5 Observations**

**3.2.5.1 Site Visits**

City Officers also hosted a walking tour of a flood mitigation project funded by Federal Government. The Napa River-Napa Creek Flood Protection Project has been in progress since the late 1990’s and incorporates some 6 miles (10km) of the Napa River. The project incorporates a fresh approach to flood control projects due to the living river principles that have been applied.



*Waterfront Development along the Napa River banks*

The city has conducted a variety of waterfront development along the banks of the river including certain fill operations governed by the United States Army Corps of Engineers regulations. The Napa River Flood Project has been in progress since the late 1990s with the goal of mitigating the risk of flooding along a 6-mile (9.7 km) stretch of the River and 1-mile (1.6 km) of Napa Creek.

The project was originally estimated to cost approximately \$28 million, however when contract bids were received; the project cost came in at US\$14 million. The significant variation in the total

project cost was attributed to the global financial situation which has created more competition for work and deflated project costs.

The scope of works involved the construction of flood walls, reconstruction of bridges (both road and rail), overflow channels and drainage systems. In addition to the core flood mitigation works, significant streetscape and river side improvements were made including construction of pedestrian boulevards and town squares. By expanding the scope of the project, the city has been able to



further develop the riverside assets for residents, visitors and businesses. The success of the project is evident in the open space that has been created within the setting of an aesthetically appealing city centre.

### **3.2.5.2 General Comments**

Asset management principles are limited in their application for developing public works programs, nor are they considered as a major principle of improvement programs. Even though this principle is firmly ingrained within our practices, the planning and development of the capital improvement programs are undertaken to meet clearly identified aims with strategies being developed to provide the direction and criteria associated with prioritising identified works.

The development of Master Plans is a sound method for identifying project needs across the City and allows for the engagement and endorsement of the local residents by asking the questions of what they expect with service delivery, and then outlining the costs and probable time frame. This practice for identifying improvement opportunities is an element that could be incorporated into the methodology used in conjunction with asset renewal needs in developing our future capital works programs.



### 3.3 City of Toronto

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

#### 3.3.1 Overview

The City of Toronto is located in southern Ontario on the north western shore of Lake Ontario, Canada. Toronto is also the provincial capital of Ontario and hosts a population of approximately 2.5 million residents.



*City of Toronto – City Hall*

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The city covers an area of 630 square kilometres (243 square miles) and includes approximately 46 kilometres (29 mile) of waterfront shoreline of Lake Ontario. The Humber River and Don River are the main rivers that transverse through the city.

Toronto is a single-tier municipality governed by a mayor–council system. The structure of the municipal government is stipulated by the City of Toronto Act. The Mayor of Toronto is elected by direct popular vote to serve as the chief executive of the city.

The Toronto City Council is a unicameral legislative body, comprising 44 Councillors representing geographical wards throughout the city. The mayor and members of the city council serve four-year terms without term limits.

Toronto had an operating budget of C\$7.6 billion in 2006. The city receives funding from the Government of Ontario in addition to tax revenues and user fees, spending 36% on provincially mandated program, 53% on major municipal purposes such as the Toronto Public Library and the Toronto Zoo, and 11% on capital financing and non-program expenditures.



*Location of City of Toronto within the region of Ontario*

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### ***3.3.2 Infrastructure Management***

Within the City of Toronto two divisions are charged with the responsibility of managing the City's infrastructure and assets. The Technical Services division are responsible for the provision of specialized technical services such as engineering design and construction management, development review and surveying and mapping. The division is comprised of four sections: Development Engineering, Design & Construction – Linear Infrastructure, Design & Construction – Major Works Facilities, Portfolio Management & Support and Surveying & Mapping. It is the Technical Services division that also delivery's the cities capital works program.

The city's Transportation Services division is responsible for road maintenance, road regulation and improvements to the public open space. The Transportation Services division manages approximately 5,300km of road network, 7,100km of footpaths (or sidewalks), 530 bridges, 600 pedestrian crossovers, 1,940 traffic control signals, 4,100 bus shelters, one million signs, as well as over 400km of on-street and off-street bikeways.

### ***3.3.3 Development of Public Works***

The City of Toronto prepares and implements a 10 year Capital Plan that aims to establish a firm 10 year plan that strategically manages the City's assets in a prudent and affordable manner.

Considerations and inputs into the development of the plan include asset renewal requirements to support service delivery, targeting new asset requirements and upgrade requirements to meet the needs for planned growth and investment and ensuring city asset value is maximised.

The 10 year Capital Plan provides clear direction for both elected officials, officers and the general public in understanding the strategic direction and priorities set out for capital funding.

### ***3.3.4 Delivery of Public Works***

The Technical Services division delivers a large portion of the capital works program associated with the service divisions of Water, Transportation and Solid Waste Management. Since 1998, the budget allocation for capital works, associated with the above service divisions has risen from C\$200 million to a projected budget of C\$700 million in 2010. This highlights the significant growth in capital expenditure across the city.

The City of Toronto utilises a number of methods to enable the capital program to be delivered, including in house project delivery and external contractors.

Other initiatives that are being implemented include the bundling of similar projects and putting out for public tender. This has enabled the City to run the planning and procurement processes more in parallel, and thus significantly reducing the lead time and improving overall program delivery.

**3.3.5 Observations**

**3.3.5.1 General Comments**

The City of Toronto faces the challenge of finding creative and innovative ways to deliver capital projects within an environment of increased volume and tighter delivery timelines.

Other benefits that have resulted from incorporating alternative delivery methods have attracted high quality construction companies, which has provided top quality project outcomes and improved project delivery timelines.

Overall, the City of Toronto have developed and maintained strong strategic direction for guiding capital works programs across the city’s service divisions. This enables long term planning to be undertaken with more certainty, which is always the preferred position when attempting to balance the communities future infrastructure needs against available funding.



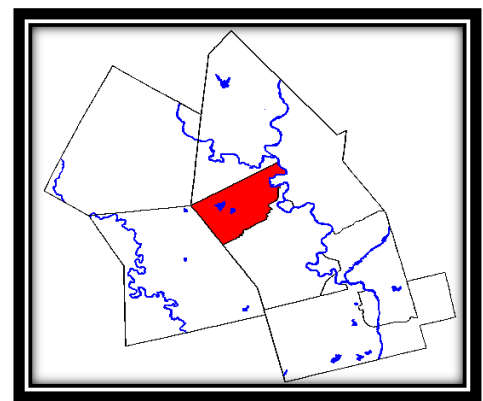
## 3.4 City of Waterloo

[www.city.waterloo.on.ca](http://www.city.waterloo.on.ca)

### 3.4.1 Overview

The City of Waterloo is located in southern Ontario, Canada, and is the smallest of the three cities located within the Regional Municipality of Waterloo. Waterloo was incorporated as a village in 1857 and became the Town of Waterloo in 1876, until becoming the City of Waterloo in 1948.

The City of Waterloo has a total area of 64.1 square kilometres (24.7 square miles) and hosts a population of approximately 122,000.



*Location of City of Waterloo within the Regional Municipality of Waterloo*

Waterloo has a strong technology sector with hundreds of high-tech firms. The dominant technology company in the city is Research In Motion, makers of the BlackBerry, which has its headquarters in the city and owns several office buildings near the University of Waterloo's main campus.

### 3.4.2 Infrastructure Management



The Public Works Services Department is responsible for the planning, management, rehabilitation and maintenance of the city's infrastructure. This includes the development, implementation and delivery of the public works program.

Works programs are prepared incorporating asset condition and renewal needs and identified strategic need. A number of systems have been established to consider asset condition including routine condition assessments and mapping areas of failure and complaint via GIS. Asset renewal needs are then compiled for inclusion within the capital works program using a computer system called Maximo.

The program ranks projects based on a predetermined set of criteria. The criteria include risk of failure considerations to determine priority.

The City has also developed Master Transport studies that are used to incorporate strategic need, or road hierarchy to then program within the road reconstruction program.

Maintenance or intervention levels have been established, which are governed by the Province setting minimum maintenance standards that need to be met. This also assists in providing a base line for assessing asset condition.

The City of Waterloo operates a 10 year capital works program with a 3 year set budget. This in effect sets the works program for a three year program, so projects can be completed any time within the 3 year timeframe.

### ***3.4.3 Development of Public Works***

Capital Works programs are established through a series of steps. The process starts with each area or department preparing an initial list of projects that are identified through asset condition and improvement needs. The lists are then considered together and matched to enable like works to occur at the same time. This is important when considering underground asset needs and above ground asset need projects, primarily to ensure any underground improvements are carried out first.

Funding availability and opportunities are considered during the compiling and prioritisation of submitted project proposals.

Prioritisation of projects are done via discussion by a project review group, with considerations given to supplied defect information, required renewal works, modelled capacity reviews (particularly for drainage), and transport needs as identified within the Transport study.

### ***3.4.4 Delivery of Public Works***

Project planning and delivery are programmed within the 3 year budget cycle. As such projects can be delivered anytime within the 3 years, with limited annual completion targets set. The main focus for project delivery is that the identified need is met at a high quality standard within the allocated budget.

Similar to other organisations visited, capital projects are delivered through a mix of in house construction and via external contractors.



### 3.4.5 Observations

#### 3.4.5.1 Site Visits



As part of the visit, City Officers hosted a driving tour of Waterloo City, as well as a guided tour of the City’s golf course. The golf course project was undertaken with project aims to provide a picturesque open space environment that also incorporated stormwater treatment and reuse.

While the golf course is now leased from the City and operated privately, the open space area also incorporates walking trails that wander through the constructed wetland and lake system that was developed. Stormwater is treated via lakes and wetlands prior to discharge into the Grand River. Pollutant levels at outlets are well within the national environment guidelines.



*Lake system incorporated within the golf course used as part of the stormwater treatment*

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#### 3.4.5.2 General Comments

The methods implemented in the City of Waterloo are more aligned with the techniques and methodology used in Victoria for the development of Capital Works programs.

Asset management principles are well developed and are almost on par with where Victorian Council’s are up to.



## 3.5 City of Medford

[www.medford.org](http://www.medford.org)

### 3.5.1 Overview

City of Medford is a city located within the Middlesex County, Massachusetts. Located on the Mystic River, five miles northwest of downtown Boston, hosts a population of approximately 56,000.

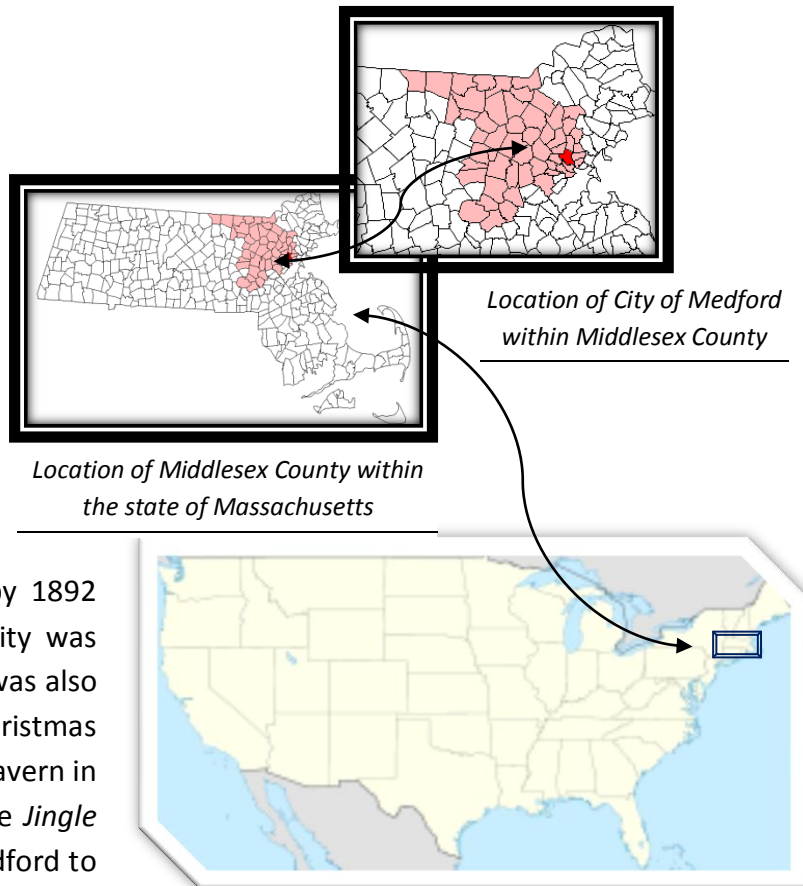
Medford City was settled in 1630, and by 1892 was incorporated as a city. While the city was known for industry and manufacturing, it was also the city that inspired the well known Christmas carole *Jingle Bells*. Legend has it that in a tavern in the late 19<sup>th</sup> century a local resident wrote *Jingle Bells* after watching a sleigh race from Medford to Malden (a close by town).

The City of Medford is governed as a Mayor-Council City, with Mayor Michael J. McGlynn the current elected Mayor. The City contains a land area of approximately 21.1 square kilometres (8.1 square miles) and has a municipal annual budget of US\$81.178 million, with a non enterprise<sup>4</sup> Public Works budget of US\$8.527 million.

Mayoral elections are held every two years, following which the Council and city officials are elected and installed into office.



L-R: Paula Gardiner, Phil Jeffery, Mayor Michael McGlynn, Warren Roberts, Raj Manihar, Sena Abeykoon & Marcus VanEck



Location of Middlesex County within the state of Massachusetts

Location of City of Medford within Middlesex County

<sup>4</sup> Non Enterprise divisions include Cemetery, Engineering, Highway, Parks, Forestry and Recreation. Enterprise divisions include sewer and water.

### ***3.5.2 Infrastructure Management***

The city's Engineering Division is responsible to provide project management for the capital improvement projects, as well as reviewing and commenting on private development, and maintain the City's asset records.

The city is focused on delivering environmentally sustainable projects, and has a commitment to providing energy efficient services. As part of this commitment a significant effort has been made within the local school to retrofit with energy efficient techniques which include the construction and installation of a wind turbine.

### ***3.5.3 Development of Public Works***

Forward planning of capital works is limited due to the frequency of mayoral elections, and as such capital works programs tend to be developed on a two year cycle.

Capital Works programs are developed with project needs identified, scoped and costed and forwarded to the mayoral office for consideration and prioritisation. Capital programs are then prepared and incorporated into City budgets for consideration and adoption by the elected Council. Other factors that complicate the management of public roads, is the very high percentage of roads that are private streets. Private Streets within the city account for approximately 47% of the road network. For private streets construction is undertaken if at least 51% of residents agree to pay for required road improvements. When roads are to an agreed standard, the asset can be reverted to the City and then form part of the public road network.

While private streets are considered as 'unaccepted' by the City, they are required to provide emergency access and as such maintenance is carried out by the City.

### ***3.5.4 Delivery of Public Works***

Capital Works programs are delivered via a mix of in house construction crews and external contractors. The City's Engineering Division provides and coordinates the design, estimates, specifications and inspections for all projects contained on the capital works program. These projects are then subject to bids, or what is referred to in Australia as the tendering process.

Funded projects are required to be planned, designed and constructed within the two year program cycle.



### **3.5.5 Observations**

#### **3.5.5.1 Site Visits**

The visit also included a site visit to a large scale residential development that was undertaken on a contaminated brown field site.

#### **3.5.5.2 General Comments**

The structure of government in the City of Medford is in stark contrast to the structure implemented in Victoria. Responsibility for the governance and daily management of the City is managed by the Mayor, whose tenancy within the role exists within a two year cycle. It appears that this limits the capacity for long term planning and development within the City.

Strategic direction into the development of capital works is very limited, with seemingly no identified asset renewal needs or overarching aims to be achieved. An observation is that this approach, while serving the short term needs, can impact on the City's capacity to accommodate and manage long term needs. Given the City is largely built out, the development pressure is not as significant, however with limited short term direction, the risk of providing good value for money spend on assets is reduced.



## 3.6 Cambridgeshire County Council

[www.cambridgeshire.gov.uk](http://www.cambridgeshire.gov.uk)

### 3.6.1 Overview

Cambridgeshire County Council located approximately 1 hour north of London, was first formed in 1889. Over time other areas have been merged, and in 1974 the County Council became what it is today.



The Council currently consists of 69 councillors, representing 60 electoral divisions. The Conservative Party has a majority on the Council, having gained control in the 1997 local elections.

County councils are considered large organisations with their function including education, social services, highways, fire and rescue services, libraries, waste disposal, consumer services and town and country planning.

### 3.6.2 Infrastructure Management

Environment Services at Cambridgeshire County Council has two directorates that have an input into Infrastructure Management as follows:

- Highways and Access look after the day to day management of the network, the maintenance of the network, asset management etc and new works up to £500k. There are approximately 4200 km of road network. This department also manage the Park and Ride Service and manage contracts for school bus services etc.
- Growth and Infrastructure look after major capital schemes (such as Addenbrookes Access Road) and the Guided Busway. In addition they develop the capital programme for new works over £500k and work with developers seeking to mitigate the impact of any developments on our network.

### ***3.6.3 Development of Public Works***

The Capital Programme is derived from a series of strategies and policies. Key in this is the Local Transport Plan which sets out the strategic direction and includes bids for larger projects to Central Government.

The Capital Programme primarily sets out the new works. For safety schemes accident data is reviewed, with identified locations prioritise for treatment.

On the maintenance side Cambridgeshire County Council undertake a series of inspections in the summer which is then used to identify a programme for the following year. All proposed works above approximately £5000 are then taken to Cabinet for approval in March once the budget is known. Of course some schemes are delivered over more than one year but these are also identified in the network service plan which is effectively the works programme.

### ***3.6.4 Delivery of Public Works***

Cambridgeshire County Council has two arrangements for delivery of the capital programme. For works over £500k there is an arrangement whereby the Cambridgeshire County Council client the work, it is designed by a consultant, who is an external organisation and sits in an arrangement called Cambridgeshire Highways and then delivered through a Framework Contract. There are two contractors who are on the Framework Contract and work is shared between them partly based on a performance measure.

Framework contracts are only allowed to have a 4 year term (under European Law) but they reduce the procurement costs and are considered an effective arrangement for this type of work. At the moment Cambridgeshire County Council are working with neighbouring highway authorities to examine the possibility of a Regional Framework Contract with perhaps four contractors on it.

For work under £500k Cambridgeshire Highways (a privatised provider) is used. Generally the design is done in house and then passed to them for construction. At the moment Cambridgeshire Highways is an arrangement between the Cambridgeshire County Council and Atkins, who are a private consultancy company. Who is Atkins?

The Cambridgeshire have no outdoor staff and as such all works are delivered by a contractor of some form.



### 3.6.5 Observations

#### 3.6.5.1 Site Visits

The visit also included a tour incorporating visits to both the Cambridgeshire Park & Ride facility and the Addenbrooke's Access Road.

The Park & Ride facility visited was one of a few that has recently been upgraded or constructed to cater for transport needs of residents and visitors. Vehicular access within the city of Cambridge is challenging, with parking availability limited. As such the provision of park and ride facilities are a needed transport provision within the County. It was noted that the park and ride facilities were well used and are seen as a reasonable and economical means of accessing the city areas.



*A Park & Ride Bus used to transport residents into the city*

The Addenbrooke's Access Road is a component of the Addenbrooke's 2020 development. The development includes the creation of 215,000 square metres of new clinical and biomedical research floor space, and the relocation of an existing hospital, Papworth. The access road is estimated to cost £24 million which has been partly funded (£14 million) through a combination of Government grants and long term loans through Growth Area Funding and Housing Growth Funding. Construction was nearing completion when the site visit was undertaken.

#### 3.6.5.2 General Comments

The Cambridgeshire County Council has established programs based on strategies to ensure consistent and sound direction to determine project priority based on defined needs for both the community and the County.

The focus on continual review of strategies and processes enables the organisation to ensure current day and forecasted issues are being included within the consideration for public work needs.

## 3.7 Leicestershire County Council

[www.leicestershire.gov.uk](http://www.leicestershire.gov.uk)

### 3.7.1 Overview

Leicestershire County Council is the county council for the English non-metropolitan county of Leicestershire, and was first formed in 1889, and consists of a total of 55 councillors. The council is controlled by the Conservative Party, and is led by David Parsons.

Leicestershire has three tiers of local government. These tiers are the county council, seven district or borough councils and parish councils.



The Leicestershire County Council hosts a population of approximately 644,600 people and has an overall annual expenditure of £574 million.

Leicestershire County Council's workforce of approximately 6,000 people are responsible for the services including education, social services, libraries, main roads, public transport policy and fire services, trading standards, waste disposal and strategic planning for Leicestershire to the County Council.

### 3.7.2 Infrastructure Management

The Environment and Transport Department of the Leicestershire County Council manages and maintains 2,575 miles (4,145 kilometres) of roads across the county. The department is also responsible in providing public transport and promote safe and sustainable travel. Where new developments are taking place the department also ensure that they are properly integrated into the county's transport system.

There is a range of external partners that assist Leicestershire in delivering an effective transport system including other local authorities, local bus and taxi companies, voluntary and community groups and the business community.

A number of strategies have been developed to assist with infrastructure management which enables the County to focus the efforts to provide a good value for money program to meet the current and future needs of the community. Some of these strategies include an annual Transport

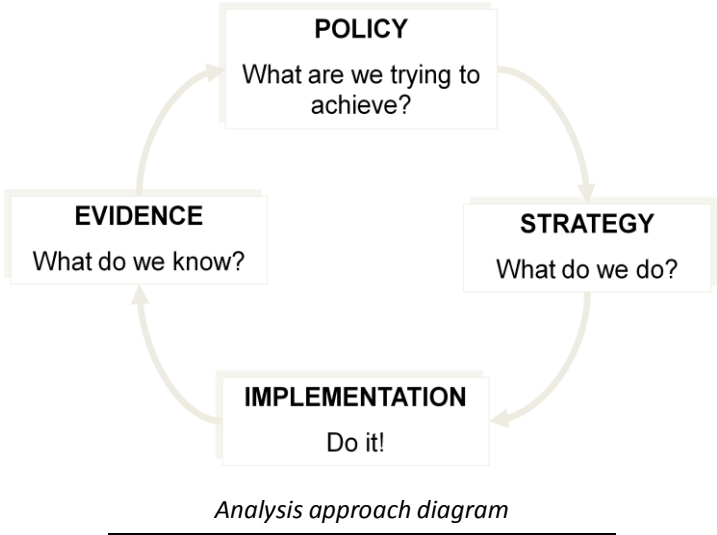
Services Plan, Sustainable Community Strategy, Local Area Agreements and the Local Transport Plan.

### 3.7.3 Development of Public Works

Public Work programs or Capital Improvement needs are identified through the Local Transport Plan, which is a five year document as well as considerations to asset renewal needs and future demands identified through Community Strategies and land development proposals.

The Local Transport Plan sets out key transport challenges and how these challenges will be addressed. While the Government requires the development of the Local Transport Plans, each County is able to develop the plans to meet the needs identified within their region. The current Local Transport Plan (LTP2) is due to come to an end in March 2011, and as such the LTP3 is currently being developed.

Policy development and Plans are established using a continual analysis approach to determine what is to be achieved, how it will be achieved, and reviewing what was done and how it can be done better. This cycle and analysis is applied through the planning process.



### 3.7.4 Delivery of Public Works

Leicestershire County Council aims to deliver at least 80% of the targets identified within the Local Transport Plan 2 by the end of the 2010/11 financial year.

Projects are delivery generally via collaboration agreements between the County and private companies as well as through collaboration with neighbouring regional councils for procurement of services.



3.7.5 Observations

3.7.5.1 Site Visits

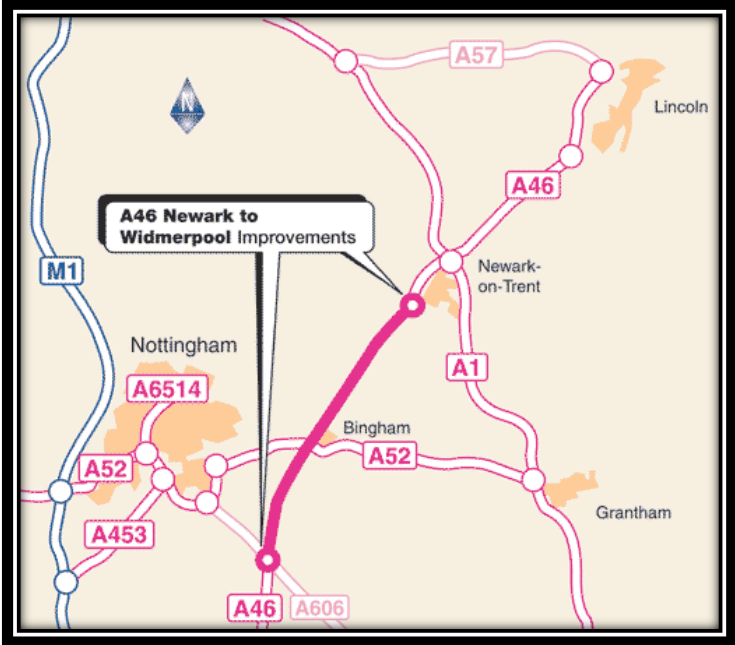
The visit also included a tour of the construction of a major arterial road construction project. The project is an alliance initiative with the Highways Agency and two contractors - Balfour Beatty and Scott Wilson. The project was to deliver the construction of the new A46 motorway.

The A46 is an important regional trunk road connecting the East and West Midlands. The section between Widmerpool (near Leicester) and Newark carries between 16,200 and 25,300 vehicles per day, of which up to 15% are heavy goods vehicles. This level of traffic gives rise to frequent congestion and delay.

The existing A46 is generally straight and undulating as it follows the line of the old Roman Road - Fosse Way. The road has a poor safety record with 13 fatalities, 56 serious and 222 slight accidents between 2001-2005.

The Highways Agency is constructing a new 17 miles long two-lane dual carriageway from the A606 two level junction at Widmerpool to an improved roundabout at Farndon, just south of Newark.

The improvement will reduce congestion, improve safety and provide a bypass for East Stoke and Farndon.



Location map of the road upgrade

Each carriageway will consist of two traffic lanes with a vertical concrete safety barrier along the whole length of the central reserve. Some sections of the existing A46 will be retained for use by local traffic and some sections would be downgraded for use by cyclists, walkers and horse riders and for private means of access.

The main construction works began in July 2009 with the road expected to open to traffic in summer 2012.

### **3.7.5.2 General Comments**

The Leicestershire County Council bases all programs on sound strategic direction, which has been implemented to ensure the reasons for projects to be undertaken are well understood and will delivery on the needs of the community and the County.

The development of programs for public works ensures all areas are considered including asset renewal needs, ongoing maintenance requirements and operational expenditure. This is combined with high level detailed studies and plans that have been developed within the region to ensure projects return value for money.

The focus on continual review of strategies and processes enables the organisation to ensure current day and forecasted issues are being included within the consideration for public work needs.

The County Council faces the same challenges as any organisation with managing increased community expectation with tight budget constraints. The Council has identified throughout their strategies and plans the need to reduce budget requirements while maintaining service levels and asset condition standards. A number of initiatives and trials have been considered including public lighting dimming to reduce power costs, as well as increasing collaborative procurement to provided increase value for money through service delivery.



## 4 APWA International Public Works Congress

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The 2010 American Public Works Association (APWA) International Public Works Congress and Exposition was held at the Boston Convention and Exhibition Centre, Boston, Massachusetts.

Many thousands of participants travelled to Boston from all over the USA as well as many international countries including Canada, Australia and New Zealand to name but a few.

The Congress provided an amazing opportunity to attend a massive array of educational sessions, social gatherings, interactive workshops and an enormous trade display, spanning 4 days of nonstop public works action starting Sunday 15 August and concluding in an amazing closing ceremony on Wednesday 18 August.

Over the course of the congress, I attended many sessions aimed at asset management, project management, capital works delivery and personal development.

In addition to the multitude of educational and workshop sessions the congress also hosted fantastic key note speakers, with topics incorporating leadership and challenges of change. I was fortunate to attend sessions lead by;

- Ms Christine Ervin, who presented *'The "New Normal": Designing for Speed, Scale and Scope'*;
- Mr Marty Linsky, who presented *'Public Works Leadership in a Time of Permanent Crisis'*; and,
- Mr Ian Hill, who presented *'Mastering the Power of Change'* and *'Leadership in Changing Times'*.

The sessions raised issues surrounding the continuing challenges facing the public works industry with respect to ever increasing expectation in an environment of increased delivery demand with decreasing available funding. However, there focus was more about the opportunities that these changing times provide with increasing scope for new initiatives and technologies – the main ingredient is ensuring the industry leaders step up for the challenge.

The highlight of the congress was the ever present opportunity to meet new people from different corners of the world. Through organised Chapter dinners and luncheon's, as well as congress social gathering including the Young Professionals Reception I met some fantastic people, whose interest in progressing the public works industry was fantastic. The interaction through the course of the congress was invaluable and an opportunity not to be missed.

## 5 Outcomes

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The Study Tour provided a unique opportunity to gain insight and knowledge from various organisations in the public works industry within the USA, Canada and the UK. It is presumptuous to consider the observations and outcomes provide an overall view of the public works industry within the countries visited, however it does enable a snapshot view of the methodologies, challenges and practices implemented by a number of organisations.

Each organisation that was visited understood and acknowledged the fundamental need for sound strategic direction to enable best value for money infrastructure to meet the needs of the community. The challenging factor is gaining the overarching direction that enables capital works programs to be established that meets all the needs within restricted budgets as it is dependent on political pressures and delivery expectation.

It takes time and funds to enable organisations to take the step back from the 'doing' to develop the strategic directions, which unfortunately can be shifted when a new Council is elected. Overall, the Council's visited within the United Kingdom seem to have the best handle on the development and linkage plans and studies to enables them to provide infrastructure needs in a forward thinking manner. This process has not happened in a short time frame however, and as such is always something that should be worked towards.

As such, it is considered and recommended that Victorian Council's make a serious attempt at identifying, articulating and communicating what the infrastructure needs are and how they can be delivered and funded. The fundamental element that enables this is to ensure the community understand and support where Council aims to move into the future.

It was observed that organisations within the USA and Canada developed capital works programs based a mix of identified need through studies and plans as well as reactive project improvement needs. This was generally done with limited asset renewal assessment, as asset renewal principles are not well developed.

The understanding of asset management principles within Australia is very high, especially compared to that of the USA. This enables asset renewal needs, based on asset condition and service need, to be incorporated within capital work programs in a structured manner. The understanding and practices incorporated within Australia with respect to asset management is something that sets us in a good position for providing capital works programs that ensure infrastructure needs are being considered and provided within the financial constraints that exist.

Of all the organisations visited, there was no one that had annual capital work completion targets set. It seemed that there was a general shift toward multiyear budgets providing flexibility around timelines for project delivery. While this approach is quite different to the experience within Victoria, which generally sets a completion target for capital works programs on an annual basis, it has both advantages and disadvantages. Obvious advantages of setting capital work program budgets across multiple years include the flexibility of project planning and delivery. The advantages surrounding this include the ability to take advantage of market factors and contract availability which could provide cost savings. Some identified disadvantages of the multiyear budget cycle system are it limits the ability for new projects to be funded or for programs to be changed to cater for emerging issues within the budget cycle.

While it can be challenging to deliver capital works programs and meet the set targets on an annual basis, it is still considered a reasonable and sound method for program delivery. The methods implemented within Victoria are as reasonable as others that were presented by the organisations visited. Setting a delivery target enables our organisation to focus our efforts in the delivery of the Capital Works Program, and provides a means to celebrate the successes, and learn from areas that limited the ability for projects to be delivered.

There will always be other ways of setting budgets and determining performance targets, however it is suggested that the methods implemented currently meet the needs that our Council has.



## 6 Recommendations

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Recommendations that have been identified are outlined as follows;

- Council continue to develop the knowledge and understanding of asset requirements across all asset types to ensure sound information is available to address asset renewal needs;
- Identify, articulate and communicate the infrastructure needs to the organisation to enable sound strategic decision making with respect to what is needed, how it will be delivered and funded. The fundamental element that enables this is to ensure the community understand and support where Council aims to move into the future.;
- Further develop the strategic link between asset renewal requirements, asset upgrade needs and identified new assets required by the community to meet their needs;
- Consider implementing a multiyear budget cycle for the delivery of Capital programs to enable flexibility in project delivery.

## 7 Conclusion

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While Australia is similar in size to that of America, the makeup of both countries is quite different. The mere fact that Australia has only 6 states and two territories compared to 50 states highlights we have an easier time of getting around the table to work towards a common methodology in meeting the needs for review and change within the industry. The organisations that exist within each state represent the collective to ensure we have a voice at the table.

The differences in approaching the challenge of developing and delivering Capital Works programs was evident from the organisations that were visited during the Study Tour, and showed that there is no one way of managing the public works sector. Each organisation implemented practices that enabled infrastructure to be provided to attempt to meet the needs of the community. This I consider to be no different to the situation within Local Government organisations in Victoria.

My study topic was chosen purposely to enable a rare opportunity to view methodologies implemented by other countries, given my role within the Colac Otway Shire is to manage Capital Works. This together with the Colac Otway Shire Council's commitment to preparing, developing and delivering on their capital works program with the aim to provide the community with the present and future infrastructure needs.

I hoped to be able to identify some techniques or methodologies from the study tour that could be incorporated within Colac Otway Shire to assist with our aim to prepare long term capital works programs that are financially viable and achievable. I consider the study tour to have been a success in meeting this aim, with the exception that I did not find the magic answer or the 'one' tool that could be slotted into Colac Otway and us our capital works program. The main conclusion that I would draw is the best way to ensure a capital works program is developed to meet the needs and expectations of the community is to plan through strategies and studies that articulate the needs, prepare projects and estimates, test the plans and projects with the community and then implement the programs that deliver on those needs.

While there were a number of differing techniques used, the study tour proved that there is no 'wrong' way to develop and delivery capital works programs. It did show that there is always room for improving the way we do business, which in truth should always be the case.

The opportunity to participate in the 2010 Study Tour was a truly amazing experience, both from a professional development and personal development perspective. To all involved with the Municipal Engineering Foundation, Victoria – a sincere thank you for the opportunity. To everyone else, get in and apply – you will not regret the experience.