

Impact of Infrastructure Investment by State Government on Council Assets and Asset Management Plans



Institute of
Public Works
Engineering
Australia

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Executive Summary

The Municipal Engineering Foundation Victoria was established more than 30 years ago to provide opportunities for engineers working in local government in Victoria to enhance their technical and managerial skills. This is achieved by annually allocating awards and grants for research on a wide range of internal and overseas study topics.

I was fortunate in February 2007 to be awarded a scholarship to travel to the United States of America (USA) and the United Kingdom (UK) to study my chosen topic: *Impact of infrastructure investment by the State Government on Council assets and asset management plans*. During the trip I visited several Councils, attended the American Public Works Association 2007 Annual Congress held in San Antonio, Texas and went to the Institute of Asset Management as a guest of GHD.

A most important part of the trip was the experience of travelling with other scholarship recipients: Jane Waldock - City of Manningham, Daniel Kollmorgen – City of Stonnington, Robert Ward - Municipal Engineering Foundation Victoria and Mauro Covacci – Wyndham City Council. Their contribution to my journey was extremely positive and greatly appreciated.

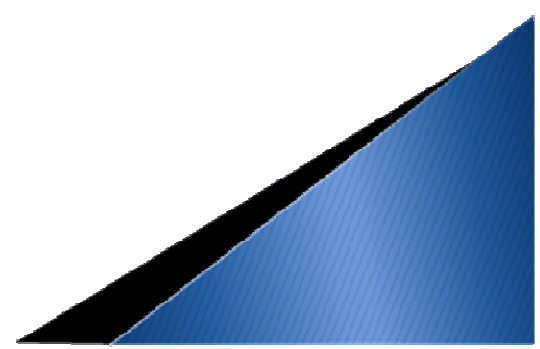
Public works professionals in the USA and UK face similar challenges to local government engineers in Australia to provide and maintain infrastructure that delivers the level of service required by the community. Asset management plans are a valuable tool to enable the necessary works to be prioritised and undertaken. The infrastructure challenges are however not solely a local government problem and support from the Federal and State Governments is essential. We must convince these levels of government to take a *whole of government* approach to managing our existing and new infrastructure.

The *STEP Program* in Victoria has raised the profile and importance of asset management at all levels of local government. Implementation of a similar approach to other levels of government has begun but needs to apply to new projects.

There needs to be a more holistic approach to the delivery of projects that takes into account the principles of the *STEP Program* around asset management.

The most successful infrastructure project delivery model we experienced was where there was a strong partnership between all stakeholders, but particularly Federal, State and Local Governments. A successful project should be determined by a range of factors including the delivery of a high quality service through out the life of the project rather than the narrow view of whether it was completed on time and on budget.

Some modifications to our traditional project delivery would be worthwhile.



Establish Service Need

Establish the strategic assessment of the service need and community aspirations. A project team (or individual) usually defines the needs of the community and it is highly desirable that the team be represented at every stage, all the way through to the completion of the project and then into the operation of the facility.

Stakeholders

Identify all the stakeholders and engagement levels required to obtain ownership of the decisions made during the project.

Definition of Project Concept

Consult with the stakeholders to develop the scope of the project. It may be appropriate to obtain independent technical data or a social impact assessment as part of the development of the scope, to assess the validity or impact of the stakeholder input. Confirm the scope of the project with the stakeholders. A Master Plan maybe required if the scope of the initial project is seen as a first stage of a larger project.

Risk

Undertake risk assessment for the project. What are the risks? When might the risks occur? What is the potential impact? How can the risks be avoided and/or mitigated?

Technical Appraisal

Technical appraisal of the project options is required to ensure that the most appropriate options are investigated. Funding requirements for the 'whole of the project life' should be determined and funding options assessed and finalised.

Feasibility Study

The options should be assessed and the preferred option approved. Responsibilities in the project delivery model should be determined including financial responsibilities.

Design Development and Approval

Design proposals should be developed, a preferred design approved and a project overview and detailed design released to the community.

Tender

The tender process for State and Local Government infrastructure should be open and transparent. This process should provide the opportunity for creative project delivery models to be submitted.

Project Delivery

Notwithstanding the delivery options, it is important to remember that the project goes beyond the construction period. Modifications to the designed works should be assessed to ensure that the 'fix' does not impose a maintenance burden on the project in the future.



Project Closure and Handover

Beyond the rectification of defects, finalisation of accounts etc. comes a debrief of the stakeholders to ensure that the project is fit for purpose, can be maintained and will satisfy the service need. It is obvious, but quality 'as constructed plans', final contract documents, maintenance schedules etc must be presented to the responsible authority.

Maintenance

A maintenance regime should be established for the project and the responsible authority should ensure plans for the project renewal are in place including adequate funding is available as determined during the assessment of the funding of the 'whole of the project life'.

Review

At all stages of a project there should be a check to ensure that the original service need is being satisfied.

It is therefore recommended that Councils:

- ▲ Have comprehensive records on its infrastructure including what the asset, the condition, maintenance program and annual costs.
- ▲ Adequately fund the renewal program.
- ▲ Understand the whole of life cost of a new project.
- ▲ Ensure adequate funding is available to ensure that the infrastructure is maintained at a standard that ensure an appropriate level of service is delivered.
- ▲ Work with the Federal and State Government on developing the scope of any infrastructure project, the whole of life cost, identify the responsible authority for the maintenance of the project, and the area.
- ▲ Seek Federal and State Government funding for renewal and new infrastructure works.

Introduction

The Municipal Engineering Foundation Victoria was established more than 30 years ago to provide opportunities for engineers working in local government in Victoria to enhance their technical and managerial skills. This is achieved by annually allocating awards and grants for research on a wide range of internal and overseas study topics.

The Foundation is very aware of the benefits to the individual and to the local government industry derived from such study tours, in particular the advantages of overseas exposure. I was fortunate in February 2007 to be awarded a scholarship to travel to the United States of America (USA) and the United Kingdom (UK) to study my chosen topic, *Impact of infrastructure investment by the State Government on Council assets and asset management plans*. During the trip I visited several Councils, attended the American Public Works Association 2007 Annual Congress held in San Antonio, Texas and went to the Institute of Asset Management as a guest of GHD.

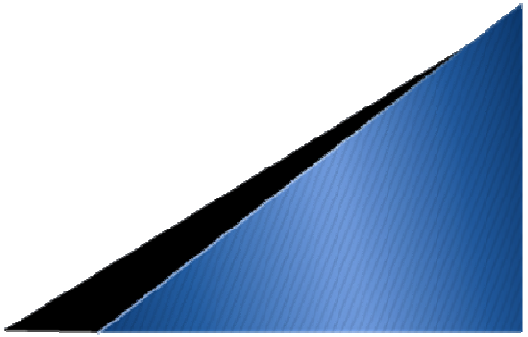
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In my recent experience the Foundation is absolutely correct in facilitating the overseas study tours to enhance the learning of engineers in local government. The support that I have received from the Foundation Trustees has been sensational. I acknowledge and thank the Foundation for the opportunity to travel overseas and learn.

Background

The Victorian State Government is implementing legislation and undertaking significant road and public transport infrastructure projects in Melbourne that impact on the assets and asset management plans of Local Government. My interest is how Local Government, particularly my employer the City of Whitehorse, can ensure that the Federal and State Government recognise financial cost shifting and the burden that these major infrastructure projects place on Local Government.

The extension of the tramlines services in the eastern suburbs of Melbourne, along Whitehorse Road, Box Hill and Burwood Highway, Vermont South, are projects that were undertaken with significant Council and community support. Council has had a longstanding commitment to support these public transport projects and had been lobbying the State Government to invest in these public transport projects.

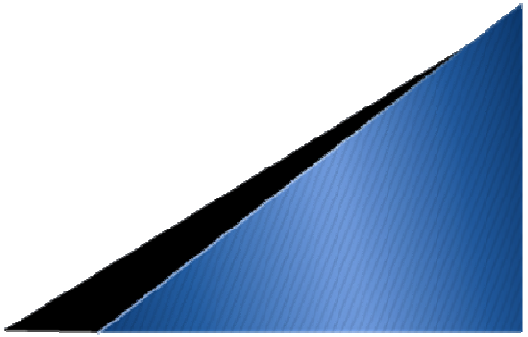


The improvements in the public transport service are acknowledged by Council and the community, however, the new infrastructure associated with the projects and the increase in public transport usage along these roads has placed more demand on the road network and Council's asset maintenance responsibilities.

Victoria's Road Management Act 2004 requires Road Authorities to develop Road Management Plans to ensure assets are maintained appropriately. VicRoads and the Council's Road Management Plans have placed significant responsibilities on Council to maintain the upgraded infrastructure in the road reservations. Limitations on the scope and detailed design of these projects has resulted in the Council having to allocate an increase in resources to maintain the level of service provided by the Council assets.

Council has been responsible for upgrading the road infrastructure eg widening of footpaths to accommodate increased pedestrian activity. The investment in public transport has generated new land use development requiring more Local Government investment in the road infrastructure.

When submitting my subject topic to the Foundation, I wanted to learn about how Councils overseas interact with other levels of government when major infrastructure projects are undertaken in the municipality. Asking a number of questions of overseas Councils seemed a good place to start.

- ▲ How do overseas cities deal with the integration of land use and public transport and road planning?
 - ▲ What is the role of Local Government in the planning of transport improvements overseas?
 - ▲ How do overseas cities finance projects and what detail is required to facilitate a 'whole of government' approach?
 - ▲ How to influence the State Government to take a 'whole of government' approach to projects to provide adequate funding to Local Government for the necessary asset management following the completion of the project?
 - ▲ What does overseas Local Government do to influence project scope and design and have adequate funding provided in the cost of the project for management of Council assets that are affected by the project?
- 

Study Tour

San Francisco



We arrived in San Francisco, California on Wednesday 5 September 2007. Our trip from the airport to the hotel near Fisherman's Wharf was on a freeway that needed some major repairs. My learning had begun.

California is a rapidly growing state, with projections by the California

Department of Finance showing the population will exceed 45 million by 2020. Much of the existing infrastructure needed to support this rise in population is inadequate.

From 1950 to 1970, California invested heavily in public infrastructure in response to its quickly rising population. The state experienced an economic boom in the 1950s, a result of industry growth over the first half of the century. Federal spending increases brought in new revenues and there was growing bi-partisan support for infrastructure investment. The State Government focused on building widespread transportation systems, access to inexpensive higher education with new state university campuses and increased access to water resources across the state.

This commitment to infrastructure funding came to a stop in the 1970s. Decreases in capital investment took place during late 1960s and continued with the public not supporting any new bonds or taxes for government to build new freeways and stopped the building of new water storage facilities.

The years since the 1970s have seen significant barriers to spending in core areas of infrastructure building. Water infrastructure has become an immensely complicated issue with the rise in population. Projects face competition and government approval as well as the strict guidelines of the Endangered Species Act and other environmental laws. Highway expansion received very little funding in the late 1970s and 1980s due to inflation, environmental restraints and resistance to fuel taxes. California's higher education system received significant cuts during the past three decades despite rising levels of enrolment. Low revenues at the local level have meant limited infrastructure development in counties and cities as well.

While the state has spent increasing amounts on its infrastructure since the 1980s, many believed that California still needed substantial investment in many different areas. Infrastructure funding increased somewhat during the 1990s as California's economy took off and demand began to increase.

Existing infrastructure, however, proved unable to accommodate the millions of new people in the state. Highways became congested, education enrolment increased dramatically and water supply issues multiplied.

The State Government focused on assistance to local government to maintain existing assets rather than investing in new infrastructure.

In recent years there has been consensus that California's infrastructure is in serious need of repair and expansion. There are too few water facilities with a lack of capacity. Flood control is a major issue with the state \$5 billion short of what is needed to repair delta levees. California's highways are in disrepair and are the most congested in the country. Experts estimate that current funds are \$150 billion to \$200 billion short of the state's transportation needs. California's education system has grown into the largest in the country, yet is underfunded and underachieving. It is in this context that major proposals for infrastructure repair have been promoted in the most recent years.

In December 2005, California legislators began talking openly about asking voters to approve bonds to restore California's transportation network, levees and other infrastructure. In his January 2006 State of the State address, Governor Arnold Schwarzenegger outlined a \$222 billion 10-year plan to tackle the state's infrastructure problems. It was not surprising that infrastructure investment and financing models were the topics of many discussions I had with people in the USA.

Governor Schwarzenegger's proposal is the broadest of the infrastructure proposals and would ultimately involve the largest amount of money over the longest period of time. He has put a proposition before voters to approve \$25.2 billion worth of general obligation bonds for initial infrastructure development. Then, his plan calls for issuing \$68 billion in bonds during the next 10 years. Combining the bonds with other funding sources, the government would tackle a wide set of infrastructure problems with the goal of accommodating 45 million Californians by 2020.

California Assembly members introduced legislation on 25 January 2006 to implement a plan in 2007/2008 to save 1% of the state's general fund revenue for infrastructure projects such as highway and water facilities improvements.

The package includes four separate bond measures to fund the infrastructure program including \$19.9 billion for transportation, \$10.4 billion for school improvements, \$4.1 billion for flood control and \$2.9 billion for new housing. The bond package includes a separate measure, a constitutional amendment that would prohibit the California sales tax on gasoline from being used for anything other than transportation programs.

Our visits to Councils and discussions with staff revealed that infrastructure funding and asset management are significant issues for state and local government in California.



San Mateo - [www.cityofsanmateo.org]



The City of San Mateo, California is located approximately 20 miles south of San Francisco. The city is both a residential and business community serving a population of over 90,000 in an area of more than 14 square miles.

We visited the City of San Mateo, on Thursday 6 September.

There is no systematic approach to capital infrastructure investment however the City has a comprehensive 20 year road infrastructure investment program.

Most of the infrastructure was developed in the 1940s and 1950s and there is a backlog of works to be undertaken to ensure that the City's infrastructure can continue to provide satisfactory services to the community. The Federal Government encourages regional infrastructure projects and the City is well placed to influence the decision makers and receives quite significant funding. A regional agreement requires that all projects have whole of life costs identified and funded.

Calls from the community for improved infrastructure have been a catalyst for the City to increase funding for infrastructure renewal works and to look to Federal and State Government for funding. Extensive community consultation is undertaken on projects. This approach is somewhat driven by Californian environmental laws that require an impact report to be prepared for all new infrastructure projects. Staff were reluctant to recommend projects proceed unless there is identified funding available to maintain the asset in the future.



We visited the City's new state of the art library.

It was, by USA standards, very 'green' and the funding for the project supported a 'whole of life' plan for the facility.

Daly City - [www.ci.daly-city.ca.us]



Daly City has 100,000 residents, covers an area of seven square miles and is located on the coast south of San Francisco in the County of San Mateo. We visited the City on Friday 7 September.

The City has recognised the importance of investing in infrastructure investment and the need for asset management plans. Funding of these necessary works is presenting an enormous challenge to the elected representatives and the staff.

A long term plan to invest in road and sewer infrastructure is being developed. The Californian Equality Program provides assessment of the impact of new projects and ensures that the City considers whole of life costing of the project before it proceeds.

Staff are developing a practical, detailed guide for determining the appropriate and legally defensible mix of exactions and fees to ensure that new developments help solve ever increasing community needs.

New land development place more burdens on the City's resources. Placing requirements on developers are a source of controversy in most California cities like Daly City. The complex and unclear statutes under which project applicants and local governments must operate often hamper meaningful dialogue to resolve the issues associated with the construction of new infrastructure.

When Daly City proposes to impose a particular type of development fee or dedication, otherwise known as an "exaction", it may do so as long as certain procedures and standards of fairness are followed. The more difficult issues are the ones based on fairness and policy. Proposition 13, enacted in 1978, caused the tax burden reallocation, which, coupled with higher impact fees and special taxes, resulted in the legally justifiable but politically questionable shifting of costs that will doubtless grow over time.

In the USA there is a combination of federal, state and local considerations that have combined to calculate demands on developers to contribute to solving the increasing range of community needs. There are many challenges ahead for Daly City to meet the demands on its infrastructure and fund the works that will ensure that the necessary asset management plans are funded appropriately.

2007 American Public Works Association International Public Works Congress and Exposition



What a fantastic experience to attend the 2007 American Public Works Association International Public Works Congress and Exposition in San Antonio, Texas from Sunday 9 until Wednesday 12 September. The Congress was attended by 6,500 delegates and there were more than 450 exhibitors in a 100,000 square feet display area showcasing the largest display of public works equipment and services in the USA.

The opportunity to meet with people involved in public works across the world was a unique experience and most worthwhile. Infrastructure funding and asset management plans always seemed to be a topic in any conversation.

The presentations of technical papers and the conversations over lunch were very informative. These interactions highlighted the challenges facing local government in Victoria are similar to the issues of concern to public works professionals in the USA and Canada. There was however one outstanding session on a river project in San Antonio that was very beneficial to my learning.



San Antonio River Walk along the San Antonio River is a most impressive part of the city. It is an important pedestrian link, tourist haven, restaurant precinct, that accommodates community spaces and activities, great scenery and people.

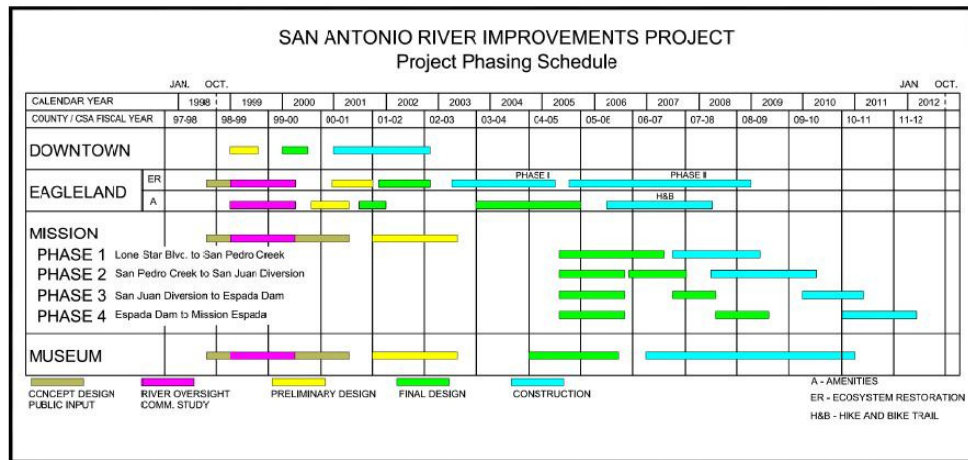
I attended a half day workshop on the San Antonio River Improvements Project on Wednesday 12 September.

[www.sanantonioriver.org]

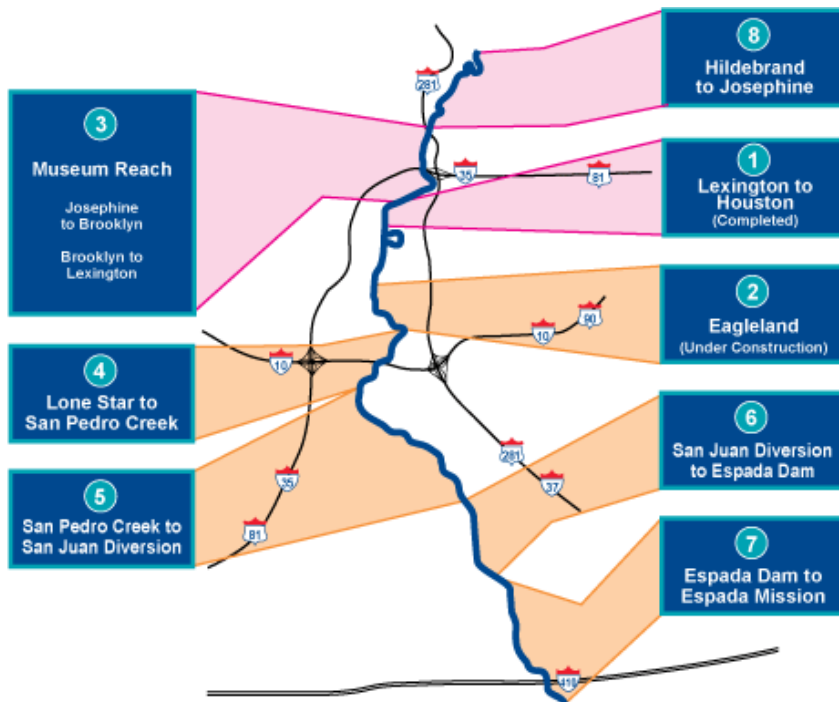
This Project will build on the existing developed area. It is a \$140 million local, state and federal government investment and private enterprise funding in flood control, amenities, ecosystem restoration and recreational improvements and residential and commercial development. The presentation on the project highlighted the concerted government, private enterprise and community effort involved in this river revitalization. The planning, design, project management, construction phases and funding for the Project were most impressive. A similar model would have achieved a better outcome for the projects that were the basis of my study tour topic.

My questions about how a major project can be delivered without disadvantaging local government were all answered.

San Antonio River Improvements Project



Project Phases



Concept Design

The SWA Group produced the award-winning Concept Design Guidelines in 2001. The Guidelines document the community vision for the improvements to the river. The Guidelines set the design vision for the river that will be implemented over the first decade of the 21st Century. These guidelines establish the major framework in which future design consultant's work will be undertaken. Each project reach will be designed with the intent of the guidelines to ensure that the vision's concepts are being realized in the vocabulary that has been established.



Preliminary Design

Design teams were hired to further develop the Concept Design Guidelines into more specific design features for each reach of the project. The preliminary design was completed in 2004. During the Preliminary Design phase, the US Army Corps of Engineers completed the General Re-Evaluation Report which defined the Corps involvement in the river improvements project. The Corps was approved to proceed with the Mission Reach Ecosystem Restoration and Recreation Project.



Final Design

The final design phase was initiated in September 2004 and is currently underway. During this phase, designs are completed and construction documents are prepared to facilitate the construction bid process. Design on the Museum Reach will be completed in September 2006. Design for the Mission Reach will be completed in phases through 2009.



Construction

Museum Reach

Bid and Construction Schedule

Action Date	Task
Week of 25 Sep 06	Advertise for bids
Week of 6 Nov 06	Open construction bids
11 April 07	Award construction bid
8 May 07	Project Groundbreaking
May 09	Project Completion

Mission Reach

Construction Phasing

Mission Reach Segment 1

Lone Star to San Pedro Creek: mid 07- mid 09

Mission Reach Segment 2

San Pedro Creek to San Juan Diversion: mid 08-mid 10

Mission Reach Segment 3:

San Juan Diversion to Espada Dam: early 10-mid 11

Mission Reach Segment 4:

Espada Dam to Mission Espada: late 10-mid 12

[City of San Antonio](http://www.sanantonio.gov) - [www.sanantonio.gov]



San Antonio is a large city located in southern Texas with a population of approximately 1,500,000 people. We visited the City of San Antonio on Thursday 13 September.

Our discussions focused on the delivery of projects, infrastructure funding and the merit of asset management plans. The workshop on the San Antonio River Improvements Project on the previous day was the focus of our meeting and reinforced to me that the City of San Antonio is able to influence the other levels of government and private industry to take a whole of life approach to major projects.

The staff are committed to a multi-disciplinary approach to the assessment of infrastructure projects and clearly stated that State Government projects do not proceed without approval from the City.

[City of Baltimore](http://www.baltimorecity.gov) - [www.baltimorecity.gov]



Baltimore was a one hour train journey from Washington DC on Monday 17 September. Baltimore has a population of 1,800,000 people and significant infrastructure to maintain with an operating budget of \$435 million to maintain its comprehensive infrastructure. This infrastructure includes 400 buildings, three reservoirs, 1460 miles of sewer pipes, 3264 miles of water pipes and 1850 miles of stormwater pipes.

The State Government has mandated that the City have a 14 year Capital Investment Program for its infrastructure through to 2020. In recent years the Federal and State Governments have required that the 1460 miles of sewer pipe infrastructure be upgraded to service the 400,000 customers and improve the outflow. Every sewer pipe will be inspected by CCTV to ensure that the pipes are in satisfactory condition. The cost of this infrastructure project is \$1 billion.

Funding of infrastructure works is a significant challenge for the City of Baltimore and funding options are being assessed.

[Arlington County](http://www.co.arlington.va.us) - [www.co.arlington.va.us]



Arlington County is an urban county of about 26 square miles located directly across the Potomac River from Washington DC.

Originally part of the area surveyed for the nation's capital, the portion on the west bank of the Potomac River was returned to the

Commonwealth of Virginia by the U.S. Congress in 1846. Arlington has a population of 204,800.

We visited the County on Tuesday 18 September and met with senior staff involved in managing the County's infrastructure.

Recent bridge collapses in the USA have resulted in the Federal and State Governments to inspect every bridge in Arlington County every two years. The Virginia State Government provides funding for new bridges but renewal and maintenance funding is the responsibility of the County. State Government funding is available for new bridges but the County is expected to fund 20 per cent of the cost of the new bridge. The Department of Transport, Virginia, provides approximately \$2 million each year for maintenance but this is inadequate given the backlog of renewal works and maintenance to be undertaken to maintain the structure to ensure the appropriate level of service is provided to the community. This is another example of State Government requirements placing a financial burden on local government to maintain infrastructure that serves the community beyond the County boundaries.

[Dorset County Council](http://www.dorset-cc.gov.uk) - [www.dorset-cc.gov.uk]



A three-hour bus and train trip from Heathrow Airport, England took us to Dorchester, home of Dorset County Council for a visit on Thursday 20 September.

Located in the south west of England, Dorset County Council is playing an important role in the upgrading of infrastructure to facilitate one of its larger towns, Weymouth, hosting the sailing events at the 2012 Olympics. Construction of a new road to Weymouth and down grading an existing road is a challenging but important project for the County.

In the national context, expenditure on highway maintenance and renewal forms a high proportion of total transport spending. It is important for the County to demonstrate that this new road and its expenditure requirements in the future represent good value for money.

The Department for Transport believes that local transport authorities like Dorset County Council have the opportunity to deliver better value for money by seeking efficiencies in the construction and maintenance programs.

Dorset welcomes and supports the Department of Transport recommendations for developing Transport Asset Management Plans in a manner that compliments transport planning. The County is committed to the long-term integration between policy, priorities and network management and maintenance.

Dorset County Council aims to achieve the best value for money from the highway maintenance funds available, through a number of means including partnerships with its agent authorities and external service providers. The County is committed to examine the scope for greater efficiencies in its operations program through embracing the concept of Transport Asset Management Planning and setting in motion the production of an Asset Management Plan not just for the new road but all roads.

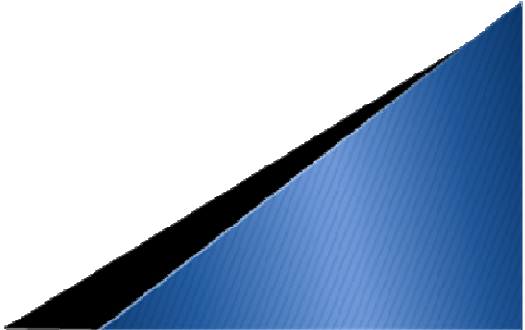
Managing transport networks so as to make best use of existing infrastructure and arresting and reversing the decline in the quality of roads, structures and street lighting through planned maintenance and replacement has been a long standing commitment by the County.

Attracting external investment and funding to help finance improvements has been difficult but the Olympic sailing event has been a welcome source of funds.

“Delivering the Benefits of Accruals Accounting for the Whole Public Sector”, which described how the Whole of Government Accounts (WGA) program is introducing accruals accounting across all public sector bodies. The document noted that local government has yet to adopt an approach to accounting for the local roads network that is in line with the rest of the public sector. On a national basis proposals to address this issue, based on using current values and renewals accounting, are under consideration.

Dorset is committed to producing an asset management plans for all categories of its infrastructure. The new road to Weymouth is being constructed on the principal objectives of highway asset management to ensure the safety of the public is promoted, to maintain the asset value of a fit for purpose highway at minimum cost over time, to ensure that sufficient priority is given to the control, protection and aids to the movement of traffic and where appropriate to recognize and enhance the environmental contribution made by the highway and minimise its impact on the environment.

The Network Management Policy plan adopted in April 2004 contains policies that aimed to meet the corporate aims of the County Council and to address the Government’s objective of arresting the deterioration in the condition of the road network by 2005 and removing the backlog of repairs by 2010.



A range of investment models and funding options continue to be considered to determine and apply the best-targeted maintenance strategies.

Dorset County Council has welcomed the introduction of the national framework for asset management that will build on the foundations already in place.

One aspect of the new road project has been to develop and accurately define the target level of service to be provided by the new road both in respect of asset condition and demand aspiration (customer satisfaction). Defining these aspirations has been a composite of indicators that reflect the social, economic and environmental goals of the community

The improvement to the road network will provide a means of improved access to communities and is essential for the future wellbeing of communities. While improved accessibility and inclusion will depend largely on other services, particularly the provision of appropriate public transport, a well maintained road network is essential in assisting the County deliver services.

County staff consider that development of this new road in partnership with the Agency Authority of Christchurch and Weymouth & Portland Borough Councils and the UK Government will deliver a project that is supported by the key stakeholders and fulfils the County's asset management objectives.

The process for the delivery of the road project was endorsed by the stakeholders that we met during our visit to Dorset County Council.

On the next page is a diagram detailing the objectives and associated activities of this project.





CONSTRUCTION

OBJECTIVES

ACTIVITIES

OBJECTIVES		ACTIVITIES	
0	Establishing Service need	PMG	Key processes and milestones
Strategic assessment of service needs.		Needs and aspirations defined and approved for further consideration.	
1	Definition of Project Concept	PMG	Key processes and milestones
Approval of Project Concept - Service Directorate defines its key Project aims.		PMG agree that the need justifies a project and authorisation is given to undertake an Options Appraisal and / or Masterplan.	
2	Technical Appraisal	PMG	Key processes and milestones
Technical appraisal of possible project solutions to ensure that most appropriate option/s were investigated further based on the Project Business Case.		An Options Appraisal and / or Masterplan is undertaken and reviewed by PMG. PMG approve the investigation of the feasibility of the preferred Option/s and / or recommends an application for Outline Planning Permission. Technical issues referred to BCG for review when directed by PMG.	
3	Recommendation to Cabinet based on Feasibility Study	AMG	Key processes and milestones
Feasibility of most appropriate option/s is/are investigated further. Feasibility Study informs AMG's bid and AMG recommends, or otherwise, to the Cabinet that design is further developed.		The Feasibility Study (incorporating Outline Design Proposals) is reviewed and signed off by PMG. The Feasibility Study, Agreed Brief and Strategic Plan are signed off by the Project Manager, Service Directorate and End User. AMG 1 is submitted to AMG.	
4	Cabinet approves investment	Cabinet	Key processes and milestones
The Cabinet commits to invest in design development based on the Project Business Case in accordance with the Brief used to inform the AMG1.		AMG recommends to the Cabinet on the basis of the AMG 1, or otherwise. The Cabinet prioritises and approves the Project. Authorisation given to undertake further design development.	
5	Design approval	Service Dir.	Key processes and milestones
Approval of design proposals and publication of Final Agreed Brief.		The Outline Design Proposals and the Agreed Brief are developed so they are reflective of each other and in line with the approval received from Cabinet. The resultant Detailed Design Proposals and Final Agreed Brief are signed off by the Project Manager, Service Directorate and End User. Consequently the project is submitted for Full Planning Permission.	
6	Cabinet approval to construct	Cabinet	Key processes and milestones
AMG recommends to Cabinet that it invests in the project construction work. Cabinet approves construction.		Report is presented recommending the investment in the construction works. Cabinet approves. Cost, time, quality, risk and sustainability is managed and any exceptions to Cabinet approval are reported.	
7	Project delivery	PM & Service Dir.	Key processes and milestones
Construction activity		Construction works are undertaken. Health and Safety File is published including as built information. Post Project Appraisal is organised. Project Closure activities are timetabled. The Project is handed over to the Service Directorate.	
Project closure	PM	Key processes and milestones	
Completion of contract, full site knowledge obtained.		Defective work has been rectified, the Final Account has been completed, outstanding site information has been provided to the Property Database Team and lessons learnt have been logged and disseminated.	

GHD and The Institute of Asset Management

I arranged to visit the London offices of the consultancy, GHD, on Monday 24 September. GHD shares an office with the Institute of Asset Management [www.iam-uk.org], (IAM) and I took the opportunity to learn more about asset management in the UK.

GHD has an extensive client base in the UK working mainly on water asset management plans. There is however a growing interest from local government on infrastructure and the development of asset management plans and systems.

The existence of the IAM demonstrated to me the interest and importance of infrastructure and asset management in the UK. IAM is the independent organisation for professionals dedicated to furthering knowledge and understanding of asset management

The management of physical assets (selection, maintenance, inspection and renewal) plays a key role in determining the operational performance and profitability of industries that operate assets as part of the business. IAM aims to advance the knowledge and understanding of asset management and to represent and promote asset life-cycle management at national and international levels.

The discussion with these asset management professionals was very informative. My study topic questions were however answered in a practical way at the APWA Congress and in my visit to Dorset County Council.



Conclusion

Public works professionals in the USA and UK face similar challenges to local government engineers in Australia to provide and maintain infrastructure that delivers the level of service required by the community. Asset management plans are a valuable tool to enable the necessary works to be prioritised and undertaken. The infrastructure challenges are however not solely a local government problem and support from the Federal and State Governments is essential. We must convince these levels of government to take a whole of government approach to managing our existing and new infrastructure.

The STEP Program in Victoria has raised the profile and importance of asset management at all levels of local government. Implementation of a similar approach to other levels of government has begun but needs to apply to new projects.

There needs to be a more holistic approach to delivery of projects that takes into account the principles of the STEP Program around asset management.

The most 'successful' infrastructure project delivery model we experienced was where there was a strong partnership between all stakeholders but particularly Federal, State and Local Governments. A successful project should be determined by a range of factors including the delivery of a high quality service through out the life of the project rather than the narrow view of whether it was completed on time and on budget.

Some modifications to our traditional project delivery would be worthwhile.

▲ Establish Service Need

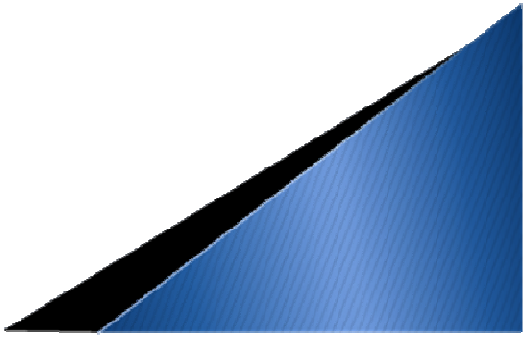
Establish the strategic assessment of the service need and community aspirations. A project team (or individual) usually defines the needs of the community and it is highly desirable that the team be represented at every stage, all the way through to the completion of the project.

▲ Stakeholders

Identify all the stakeholders and engagement levels required to obtain ownership of the decisions made during the project.

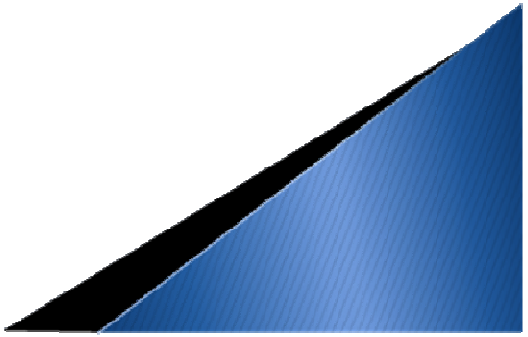
▲ Definition of Project Concept

Consult with the stakeholders to develop the scope of the project. It maybe appropriate to obtain independent technical data or social impact assessment as part of developing the scope to assess validity or impact of the stakeholder input. Confirm the scope of the project with the stakeholders. A MasterPlan maybe required if the scope of the initial project is seen as a first stage of a larger project.

- ▲ **Risk**
Undertake risk assessment for the project. What are the risks? When might the risk/s occur? What is the potential impact? How can the risks be avoided and/or mitigated?
 - ▲ **Technical Appraisal**
Technical appraisal of the project options is required to ensure that the most appropriate option/s are investigated. Funding requirements for the 'whole of the project life' should be determined and funding options assessed and finalised.
 - ▲ **Feasibility Study**
The options should be assessed and the preferred option approved. Responsibilities in the project delivery model should be determined including financial responsibilities.
 - ▲ **Design Development and Approval**
Design proposals should be developed, a preferred design approved and a project overview and detailed design released to the community.
 - ▲ **Tender**
The tender process for State and Local Government infrastructure should be open and transparent. This process should provide the opportunity for creative project delivery models to be submitted.
 - ▲ **Project Delivery**
Notwithstanding the delivery options it is important to remember that the project goes beyond the construction period. Modifications to the designed works should be assessed to ensure that the 'fix' does not impose a maintenance burden on the project in the future.
 - ▲ **Project Closure and Handover**
Beyond the rectification of defects, finalisation of accounts etc. comes a debrief of the stakeholders to ensure that the project is fit for purpose, can be maintained, will satisfy the service need. It is obvious but quality 'as constructed plans', final contract documents, maintenance schedules, etc must be presented to the responsible authority.
 - ▲ **Maintenance**
A maintenance regime should be established for the project and the responsible authority should ensure plans for the project renewal are in place including adequate funding is available as determined during the assessment of the funding of the 'whole of the project life'.
 - ▲ **Review**
At all stages of a project there should be a check to ensure that the original service need is being satisfied.
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Recommendations

That Councils:

- ▲ Have comprehensive records on its infrastructure including what the asset, the condition, maintenance program and annual costs.
 - ▲ Adequately fund the renewal program.
 - ▲ Understand the whole of life cost of a new project.
 - ▲ Ensure adequate funding is available to ensure that the infrastructure is maintained at a standard that ensure an appropriate level of service is delivered.
 - ▲ Work with the Federal and State Government on developing the scope of any infrastructure project, the whole of life cost, identify the responsible authority for the maintenance of the project, and the area.
 - ▲ Seek Federal and State Government funding for renewal and new infrastructure works.
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