

University of Southern Queensland
Faculty of Engineering and Surveying

**Management of Physical Assets –
Advanced Asset Management Planning**

A dissertation submitted by

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ABSTRACT

This dissertation develops theories on asset management practices within local government in Australia. The main goal of the dissertation is to develop a generic systematic approach for the preparation of advanced asset management plans that can be used within local government. Its intent is to enable local government to be proactive in providing a sustainable future for generations to come. This can be achieved by starting the improvement process of past detrimental environmental and social impacts that previous poor management has attributed to. It will optimistically see local government being in a much better financial position and hence see the benefits of such, flow through to the natural and built environment.

Research into the current status of asset management practices within local government will be followed by defining the most common asset management processes that exist in local government and in particular a regional council in Northern New South Wales, Richmond Valley Council. A way forward for improvement in asset management will be defined for this council and a procedure to enable advanced asset management will be produced. Results indicate that local governments across Australia are in crisis and face a mountain of backlog works to bring their assets up to a safe standard. There are movements in place to rectify this situation before it gets further out of reach of local government authorities. Richmond Valley Council is itself in this predicament and must find a way to operate in a sustainable manner. The advanced asset management procedure developed in this dissertation is designed to help them achieve this goal.

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I further certify that the work is original and has not being previously submitted for assessment in any other course or institution, except where specifically stated.

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Signature

Date

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CHAPTER 1 - INTRODUCTION

‘We must improve asset management and financial management. Councils that plan and manage their assets effectively are councils that can deliver value for money to their communities.’

(Rudd, 2009)

1.1 Aims and Objectives

The above statement suggests the need for Local Government to address its shortfalls in asset and financial management and hence create sustainable environments for all Australians in both the near and distant future.

To assist with this, the main purpose of the dissertation is to develop a generic systematic approach for the preparation of Advanced Asset Management Plans that can be used within Richmond Valley Council and hopefully in the Local Government sector.

The initial starting point will be to research the current state of knowledge of asset management within local government, with an emphasis on advanced asset management. This will help provide the building blocks on which the dissertation can be built around. The research will mainly concentrate on current asset management practices within Australia and New Zealand. Thus enabling a dissertation to be written that is more applicable to our region.

Once the research is undertaken it will give the chance to describe and define the most common current asset management processes for local government. Once this is completed it is envisioned that these processes will then be compared against the current processes of a small regional council in New South Wales, Richmond Valley Council, and any shortfalls will be noted.

This comparison will lead to the development of a desired future position in relation to advanced asset management planning for Richmond Valley Council. In turn this strategy will help them in their mission to be a council that is determined to be proactive in providing a sustainable future for generations to come.

To enable Richmond Valley Council's advanced asset management strategy to be realised quickly and efficiently, a generic systematic approach and procedure for the preparation of advanced asset management plans is to be developed and implemented. It is envisioned that the standard procedure will be able to be used across all asset classes and be concise enough that it could be a template for other small regional councils to use to implement advanced asset management planning in a cost effective and efficient manner.

On completion of this procedure, and if within timeframes, an advanced asset management plan will be produced for Richmond Valley Council. This will involve consultation with the various stakeholders and then the selection of an appropriate asset class to analyse and report on.

1.2 Background Information

There are many definitions pertaining to asset management in today's society. One of the most common ones cited comes from the International Infrastructure Management Manual which states:

'The goal of infrastructure asset management is to meet a required level of service, in the most cost effective manner, through the management of assets for present and future customers.' (IPWEA 2006, p. 1.3)

This encapsulates the theory that asset management relies on many disciplines working together to provide a better future for the countless people that rely on the infrastructure that surrounds them. It requires commitment and understanding from all parts of the community from Mayors to Councillors to council staff to ratepayers.

In regard to asset management, local governments within New South Wales are governed by the *Local Government Act 1993* (New South Wales), the *Local Government (General) Regulations 2005* (New South Wales) and other various legislation. These legal documents provide the framework that councils need to adhere to when they are to manage their infrastructure assets in a more efficient and effective manner. High quality infrastructure management is the key for council's who want to provide a safe and functional environment for its community.

Asset management is very diverse and its scope extends from the appropriate identification of service level targets which should match legal requirements and the expectations of stakeholders to producing policies and procedures which enable the daily operations of council's facilities to meet these defined levels of service.

There are usually two methods of asset management that are used in local government. These are the core approach and the advanced approach. The core approach is adopted by most council's when they first start out on the asset management journey. This initial phase of the planning process is usually done so councils can abide by any legislative or organisational requirements. Asset management plans that are based on the core approach give an indication of current levels of service, current funding levels and a projection of the state of the infrastructure if funding were to be held at this level in years to come. (IPWEA 2006)

The advanced approach involves taking the core approach and evolving it into an advanced plan. This can ultimately give council the direction they need to take for the next 10-20 years to ensure their current infrastructure will be functional and financially viable for generations to come. Among other things this is achieved by; setting agreed and affordable levels of service that are made in consultation with the various stakeholders, risk based strategies, whole of life costing and the management of growth. (IPWEA 2006).

The road map for preparing an Asset Management Plan as described in the International Infrastructure Manual 2006 and illustrated in Figure 1.1 below, presents the view of asset management planning in a simply structured process.

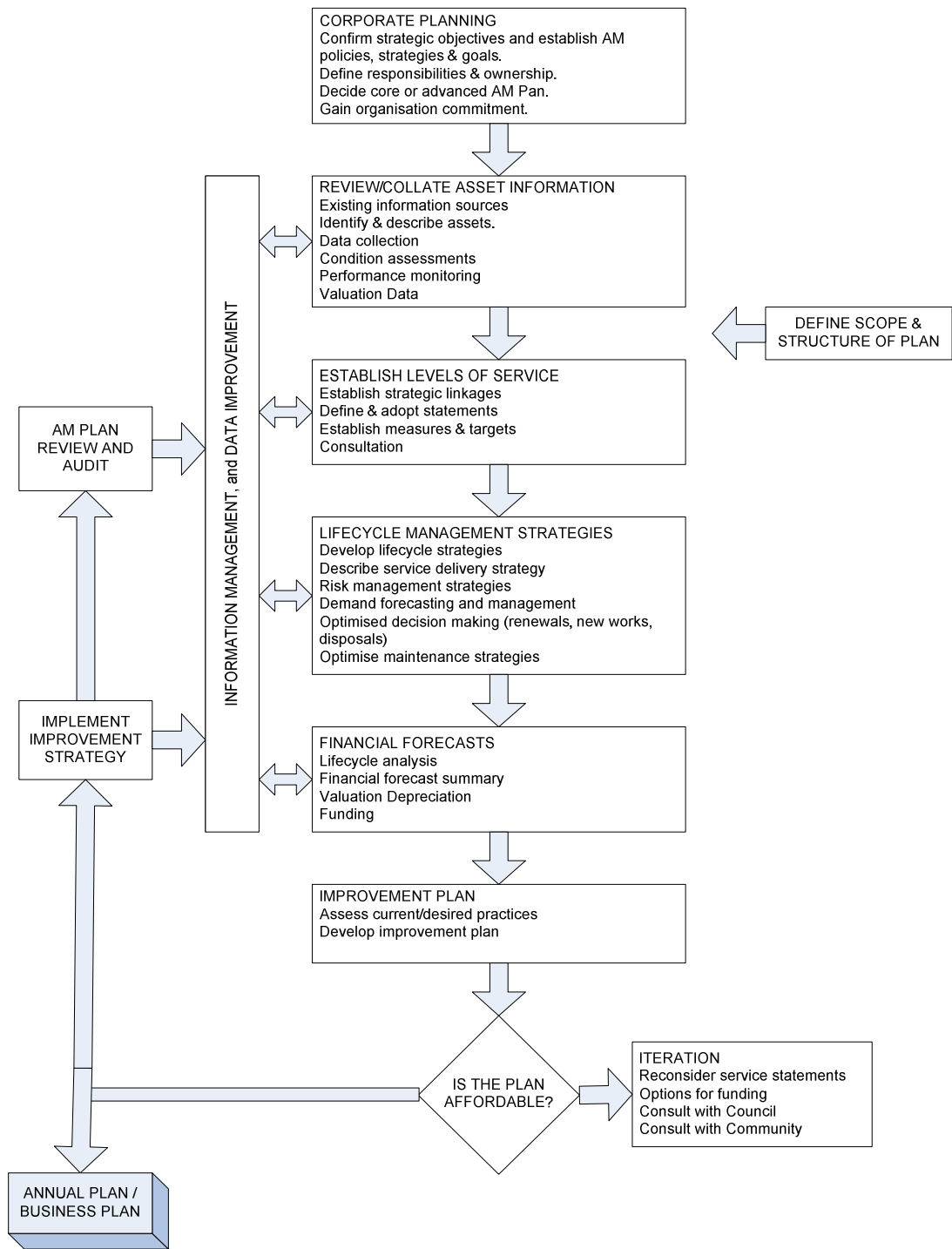


Figure 1.1: Road Map for preparing an Asset Management Plan (IPWEA 2006, Figure 1.5.1, p 1.11)

1.3 Sustainable Asset Management

Sustainability is not always just environmentally focussed. It can also be applied to infrastructure and other non-natural entities. Sustainability is a key focus of core and advanced asset management. Communities want a sustainable future to look forward to, so council's current infrastructure needs to stand the test of time. Infrastructure is built up over hundreds of years and represents a major investment for most council's. It ensues that the best management practices need to be applied to ensure financial and infrastructure sustainability. Local government sustainability can be achieved when its infrastructure and finance capital can be maintained over the long term.

Financial sustainability for councils is defined;

‘...as being able to manage likely developments and unexpected financial shocks in future periods without having at some stage to introduce substantial and economically significant or socially destabilising income or expenditure adjustments.’ (DLGPSR 2007, p. 22)

By implementing asset management councils should see a huge improvement in its usage of finite resources and waste production. It can also start the improvement process of past detrimental environmental impacts that previous poor management has attributed to.

It is anticipated that the projectwork will have a positive impact on the way councils implement advanced asset management in an efficient and effective manner. The flow on effect from this in future years will hopefully see local government in a much better financial position then it is currently and hence see the benefits of such flow through to the natural and built environment.

A great deal of information and knowledge has been gathered on this topic and it has been proven in a variety of organisations how effective asset management planning can be. The need for action is strong but the need for action despite incomplete or uncertain knowledge does not apply to this projectwork.

All citizens will be impacted upon when implementing advanced asset management. Hence this process will involve the participation of all concerned citizens in defining

levels of service and any environmental issues that these will have an impact on. A plan for their involvement will be detailed in the final dissertation.

By structuring the project appreciation and consequently the dissertation appropriately it is trusted that it will be easily accessible and readily understandable to the general community. This will be achieved by community consultation throughout the process of producing an advanced asset management plan and the use of appropriate layman terminology within the documents.

It is desired that when a greater number of councils implement advanced asset management it will improve the standard of living across the broader community. It will not necessarily have an impact on reducing the poverty status of individuals but will bring together the various minority groups within a community that will be benefiting from improved infrastructure such as community halls, sporting facilities, leisure centres and the like.

It would be extraordinary if the sustainability aspects of the projectwork could be utilised in all parts of the world. This would be achieved more so in developed countries as it is mainly directed at the various forms of local governments which are rare to find in undeveloped countries. But since this projectwork will be more applicable to regional councils it would be unlikely that it would be taken up on an international level.

1.4 The Problem

Years of underfunding and the creation of new assets without maintaining the existing stock has led to Richmond Valley Council's infrastructure assets approaching their ultimate life and plans need to be put into place to enable the renewal or replacement of these assets. Advanced asset management planning has been tabled as a way forward so Council can address these issues.

Current funding levels are not sufficient to sustain a renewal and replacement program that would see the assets maintained to a standard appropriate for the community. Council's financial management practices need to be reassessed to allow this to happen.

1.5 Conclusions

Investigation and research into Richmond Valley Council's current asset management and financial practices and status will provide the background information required to instigate Councils discussions on practising sustainable governance.

Advanced asset management planning will be presented as a solution to Councils predicament regarding its future sustainability. If this is agreed upon by Council then progress can be made on producing these plans once an appropriate process and flowpath is established.

CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction

This chapter will review literature to establish the need for the development of a generic systematic approach for the preparation of advanced asset management plans within the local government sector. It will focus on publications released in Australia to provide an understanding of the state of knowledge in the localised area.

After doing the review this chapter will consider the importance of advanced asset management for local government to achieve sustainability.

2.2 Status of Local Government Sustainability

New South Wales councils are in the middle of an infrastructure crisis and face over \$6 Billion worth of backlog renewals. There is a general view that within 15 years, if current management practices continue, this figure will rise to over \$15 Billion. There is a clear indication that the majority of councils in New South Wales are not practicing sustainable management (LGI 2006).

Burns, Hope and Roorda (2001) report on the state of South Australian councils indicates that on average councils are under funding the renewal backlog by up to \$100 Million per annum. Lack of effective asset management for over 40 years has left South Australian local government in an unsustainable position. This position was supported by the Financial Sustainability Review Board which found that over one-third of the state's population is serviced by councils who are fundamentally financially unsustainable (FSRB 2005).

WALGA (2006) reported that a \$1.7 Billion infrastructure backlog exists across all councils and approximately 58 percent of councils are financially unsustainable. This situation is mainly prevalent in regional councils with smaller populations.

The Tasmanian Government received the report by Access Economics (2007) into the financial sustainability of its councils which provided an overview that only 20 percent of councils, serving 8 percent of the population were deemed unsustainable.

Infrastructure backlogs at the moment seem quite manageable but could grow disproportionately if not kept in check.

In 2007 the Queensland Treasury Corporation released their report into the financial sustainability of local council. Approximately 40 percent of councils were found to be in a 'financially weak', 'financially very weak' or 'financially distressed' position. This analysis implicates that the majority of councils were unsustainable when the report was commissioned. Since this report Queensland council have undergone major reform with forced amalgamations (QTC 2007).

On the national front, PricewaterhouseCoopers (2006) estimate that the national renewal backlog for all councils is in the vicinity of \$14.5 billion and an under funding of this by \$1.1 billion per annum is occurring. In addition to this it estimates that 35 percent of councils are unsustainable.

Across the board it appears that Australian councils have continually neglected to maintain their existing infrastructure and instead focus on new capital expenditure. This exasperates the already existing problem of far too many unsustainable Australian councils.

Asset management plays a key role in helping Australian councils become financially sustainable. As stated by Burns, Hope and Roorda (2001 p. i),

‘Clearly a radical change in the way assets are managed must occur... With better understanding and a positive attitude to asset management there is a ‘wealth of opportunities’ for councils to improve their position...’

2.3 Asset Management and Sustainability

The Australian Infrastructure Financial Management Guidelines strongly conveys that asset management is a fundamental process that councils need to do to provide a sustainable environment for communities to live in. This publication concentrates on financial sustainability and has numerous examples of how asset management and sustainability are interdependent (IPWEA 2009).

IPWEA (2006) describes the sustainable use of physical resources as a key element of infrastructure asset management. It also states that improving an organisations asset management will deliver more sustainable decisions. Considered one of the leading asset management guidelines available its content is regarded as above reproach.

FSRB (2005) attributes deficiencies council's asset management practices as a leading factor in the states council's financial predicament. It also recommends that councils actively commit to South Australia's Strategic Plan and the State Government's Strategic Infrastructure Plan.

According to PricewaterhouseCoopers (2006) the definition of financial sustainability includes, '...ensuring infrastructure renewals/replacement expenditure matches forward looking asset management plan expenditure needs...'. This is a good example of how asset management ties in with the financial forward planning of council in the long term.

WALGA (2006) states that to obtain financial sustainability mandatory asset management practices should be phased in over time and additional requirements should be added progressively.

The above literature all correlate best practice asset management with successful financial and infrastructure sustainability.

2.4 Advanced Asset Management

IPWEA (2006) describes advanced asset management as a "bottom up" approach which includes the gathering of asset information at an individual level and applying this information to optimise the programmes of agreed service levels. This differentiates from the core approach where a "top down" approach is used and assets are assessed on a network level. Most councils would begin with the core approach to produce their first asset management plans and then evolve these into advanced plans.

IPWEA (2009) recognises advanced asset management as a continuance of the core plans and organisations practising this should have demonstrated capabilities in key areas such as but not limited to;

- agreed levels of service involving community consultation
- a wide knowledge of asset ownership, condition, performance, capacity
- predictive modelling
- whole of life costing
- maintenance activities
- advanced risk management

Both the IPWEA (2006) and IPWEA (2009) have systems to help councils develop core and advanced asset management plans. They both have a variety of information and case studies on each process and are similar in the direction they pursue.

2.5 Conclusions

Most states in Australia have completed studies into the current sustainability of its local governments. It is no surprise that each of these states have an unacceptable amount of councils that are unsustainable. The national study reinforces this notion and places the local government sustainability issue in a national spotlight which gains considerable attention from the federal government. It is stated in these studies that the renewal backlog can be contributed to the lack of asset management practices within local government.

Asset management and sustainability go hand in hand with each other. Best practice on either front is not achieved exclusively. It is in the best interests of local government to produce asset management plans which feed into long term financial plans and community strategic plans. This will generate sustainable councils which can provide stable infrastructure that will be better maintained, safer and of greater use to the community.

Advanced asset management is the pinnacle that councils can achieve. It will provide a clear understanding on council's position both present and ten to twenty years into the future. For councils who are willing to go to this level this journey will start with the production of core plans and evolve into the advanced versions.

A structured procedure to prepare advanced asset management plans would be possible to produce. This can be achieved by focussing on the advanced topics in the literature

and finding the common links between these. A pattern will start to appear on what most publications believe is important in the advance approach and these will be used to start formulating a generic procedure that can be used within local government.

CHAPTER 3 – PROJECT METHODOLOGY

3.1 Introduction

The following methodology is based on the tasks that are detailed in the initial Project Specification in Appendix A. The methodology to be adopted will initially begin with researching the current state of knowledge of asset management in Australia and New Zealand. The research undertaken will have an emphasis on advanced asset management within the local government sector and provide the backbone of the literature review and the dissertation.

The research will enable the identification of the most common current practices for asset management within local government and hence provide a benchmark from where to begin. An in-depth analysis of Richmond Valley Council's asset management practices will follow with the purpose of assessing their current position in relation to the industries best practices.

Discussions with Richmond Valley Council's management will then proceed to identify their current shortfalls and the direction they would like to go in to start setting council up to benefit from advanced asset management planning. This would involve meetings with the various stakeholders in council to develop a framework to follow and to ensure a budget is available for any costs that could be incurred.

Confident that a commitment from council will be given, the next step will be to start developing a procedure for the preparation of advanced asset management plans for council. The procedure produced will be applicable across all asset classes to ensure a systematic approach can be adopted and enable the completion of the plans to be done in the most efficient and cost effective method available.

As time permits it would be ideal if an advanced asset management plan could be produced and adopted by council for a selected asset class. This would include discussions with management on the appropriate asset class to select, budgetary constraints, timeframes, resources and other issues.

If this procedure is proven to be successful it can be made available to other councils to help them to implement a system that will eventually lead them to be a financially sustainable organisation.

3.2 Risk Assessment

A risk assessment is to be carried out to ensure the dissertation proceeds without any undue delays or unforeseen problems.

Risk Management is defined in AS/NZS 4360; 2004 as:

“...the culture, processes and structures that are directed towards realising potential opportunities whilst managing adverse effects...”

Risk management involves risk identification, risk analysis and risk treatment. The final risk assessment is shown Appendix B – Risk Assessment.

3.2.1 Risk Identification

Potential risks associated with the dissertation will be identified and these risks, what can happen, when, possible causes, existing controls and credibility are shown in Appendix B – Risk Assessment.

3.2.2 Risk Analysis

Risk analysis involves analysing the risks which were identified during the risk identification stage. This will involve an assessment of the likelihood and consequences of such events. The qualitative descriptors for each of the assessments are shown below in Tables 3.1 and 3.2.

Table 3.1: Risk Assessment Likelihoods (HB 436:2004, Risk Management Guidelines, Table 6.3 p. 53)

Likelihood	Descriptor	Probability of Occurrence
Rare	May occur only in exceptional circumstances	More than 20 years
Unlikely	Could occur at some time	Within 10-20 years
Possible	Might occur at some time	Within 3-5 years
Likely	Will probably occur in most circumstances	Within 2 years
Almost certain	Expected to occur in most circumstances	Within 1 year

Table 3.2: Risk Assessment Consequences (HB 436:2004, Risk Management Guidelines, Table 6.4 p. 54)

Consequences	Description
Insignificant	No injuries, low financial loss (less than \$10,000)
Minor	First aid treatment, on-site release immediately contained, medium financial loss (\$10,000 - \$50,000)
Moderate	Medical treatment required, on-site release contained with outside assistance, high financial loss (\$50,000 - \$200,000)
Major	Extensive injuries, loss of production capacity, off-site release with no detrimental effects, major financial loss (\$200,000 - \$1,000,000)
Catastrophic	Deaths, toxic release off-site with detrimental effect, huge financial loss (more than \$1M)

The risk assessment then proceeds comparing the likelihood of an event occurring against the consequences of that event. A risk rating is then worked out using Table 3.3.

Table 3.3: Risk Matrix (HB 436:2004, Risk Management Guidelines, Table 6.6 p. 55)

Risk Rating					
Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	L	L	M	M	H
Unlikely	L	L	M	M	H
Possible	L	M	H	H	H
Likely	M	M	H	H	VH
Almost Certain	M	H	H	VH	VH

3.2.3 Risk Treatment

The risk treatment will involve identifying the appropriate actions for each type of risk identified and implementing these actions. The risk rating will be used to determine the appropriate risk treatment from the table below.

Table 3.4: Risk Treatment (HB 436:2004, Risk Management Guidelines, Table 6.9 p. 60)

Risk Rating		Action Required
VH	Very High Risk	Immediate corrective action
H	High Risk	Prioritised action required
M	Medium Risk	Planned action required
L	Low Risk	Manage by routine procedures

3.3 Resource Planning

Due to the theoretical nature of the dissertation, the resources required will mainly consist of human resources, computers, data and software.

Human resources are likely to consist of:

- Anthony Magarry – Project author. Efficient management of my time is critical in assuring that the dissertation is produced within the given timeframes. This will be achieved by adhering as close as possible to the project timelines and minimising outside disturbance.
- Richmond Valley Council staff – Constant communication with the staff will be essential to ensure the project can proceed smoothly and within timeframes. Regular meetings and discussions will be held with the staff involved in asset management within Richmond Valley Council.
- University of Southern Queensland (USQ) staff – Communication with the Examiner and Supervisor will deliver a dissertation that is acceptable to the Universities policies and procedures. Library staff will also be of help. As an external student communication will mainly be done by email which will enable an audit be done if required.
- Various stakeholders – It is likely that are human resources from different organisations will also be contacted to gain their views on proposed processes.

All human resources will be critical at different stages in the project. The most critical will be myself as if I am not available the project will fall behind schedule which will have major consequential effects. Richmond Valley Council staff are available at the majority of times, as are USQ staff.

Computer and data resources:

- Access to councils computers and there network will enable the appropriate information to be collected and disseminated. As an employee of council there should be no issue with this matter.

This will become a critical matter if access is denied or the network is unavailable for extended periods of time. This scenario is not expected to occur.

Software Resources:

- This will include appropriate word formatting, asset management, spreadsheet, project and publishing software. These are all available at any time at council's offices and at my place of residence. There should be no issue with this matter.

The software resources are not considered to be a critical matter as there are various sources available for this.

It is not anticipated that there will not be any direct cash costs involved or material supplies required.

3.4 Project Timelines

Project timelines form an essential part any major project. They are used extensively in all forms of engineering and surveying to ensure projects stay within timeframes and budget and appropriate resources are allocated. Projects are broken up into individual tasks which can then represent the major milestones of the projects. These tasks can either overlap other tasks or stand alone when they depend on other tasks being completed before them.

The project timelines developed for this dissertation can be found in Appendix C – Project Timelines and are based upon the initial project specification found in Appendix A.

CHAPTER 4 – CURRENT STATE OF KNOWLEDGE OF ASSET MANAGEMENT

4.1 Asset Management within Local Government in Australia

Asset management practices across Australia vary quite differently from state to state. There is no national generic approach to asset management which could bring all the states and territories under the same umbrella and hence no easy way to compare the current status of local government from state to state or even nationally.

On the National front, PricewaterhouseCoopers (PwC 2006) estimate that the national renewal backlog for all councils is in the vicinity of \$14.5 billion and an under funding of this by \$1.1 billion per annum is occurring. In addition to this it estimates that 35 percent of councils are unsustainable.

In 2004 The Institute of Public Works Engineering Australia (IPWEA) re-established the National Asset Management Strategy Australia (NAMS.AU). Since then the committee has been involved in numerous national asset management projects including the project management and publishing of the Australian Infrastructure Financial Management Guidelines in September 2009. As noted in the *NAMS.AU Corporate Plan and Business Plan 2010/11 – 2012/13*,

‘The principal purpose of the IPWEA NAMS.AU is to provide national leadership and advocacy in the sustainable management of public works infrastructure, community assets and services.’ (IPWEA 2010, p. 2)

It provides a wealth of information for asset management practitioners across Australia.

In an effort to rectify some of the national asset management problems the Institute of Public Works Engineering Australia through NAMS.AU developed the NAMS.PLUS program. Through training and other tools the program is designed to assist council’s in writing their own core asset management plans. It is based on the IPWEA’s Infrastructure Management Manual 2006.

4.1.1 New South Wales

New South Wales (NSW) councils are cumulatively responsible for approximately \$50 billion worth of assets. The majority of these assets are provided for the benefit of the community, both present and future, and need to be maintained in the most economical and practicable way possible. (DLGNSW 2006).

Asset management practices in the New South Wales (NSW) local government sector vary greatly from council to council. There are certain requirements, mainly contained in the NSW Local Government Act, which councils are obliged to adhere to in regards to asset management. These requirements are the only consistency that exists across NSW councils. The majority of these requirements indicate how councils need to proceed with current reporting requirements and are only recently starting to focus on pertinent asset management practices. (DLGNSW 2006; JRA 2006).

The NSW Local Government Act, Section 8 describes the council's charter and provides some insight on how council should apply asset management planning in its basic form to council's operations. Among other items it specifies that council's need:

- 'to provide directly or on behalf of other levels of government, after due consultation, adequate, equitable and appropriate services and facilities for the community and to ensure that those services and facilities are managed efficiently and effectively.
- to have regard to the long term and cumulative effects of its decisions.
- to bear in mind that it is the custodian and trustee of public assets and to effectively plan for, account for and manage the assets for which it is responsible.
- to engage in long-term strategic planning on behalf of the local community.'

(Local Government Act 1993, Chapter 3, Section 8)

These points are only really guidelines and do not openly direct a council to apply sound asset management practices across its organisation.

In 2004 the then Department of Energy, Utilities and Sustainability (abolished in April 2007) released the *Best Practice Management of Water Supply and Sewerage Guidelines, 2004* which obligated councils to undertake asset management planning in relation to water supply and sewerage assets (DLGNSW 2006). This requirement was at least an acknowledgement that councils were falling behind in the proper management of assets and needed a government directive to adhere too to start pushing them in the right direction. Without this directive NSW councils would still not have put the required resources into the first steps towards water and sewerage asset management planning.

In NSW a number of inquiries, reports and studies have been conducted over the last 5 years which give an indication of the health of NSW councils in regard to good asset management planning.

In September 2005 the Local Government and Shires Association of NSW (LGSA) commissioned the Independent Inquiry into the Financial Sustainability of Local Government in NSW (Local Government Inquiry, LGI) which culminated into the report *Are Councils Sustainable, Final Report: Findings and Recommendations*. This is also known as the Percy Allan report after Percy Allan AM who was the chair and research director for the inquiry. Other panel members included Libby Darlison and Dianna Gibbs. Released in May 2006 it substantiated the belief that local government in NSW does not have the financial capacity to underpin the increased demand that will be seen from population increases for essential services and infrastructure. (Local Government Shires Association 2010a).

One of the recommendations emanating from the report is:

‘The State Government provide financial incentives and technical assistance to enable all councils within three years to adopt a total asset management (TAM) system with consistent asset accounting practices.’ (LGI 2006 p. 28).

As part of the preceding report (LGI 2006), Jeff Roorda and Associates (JRA) provided the specialist report on local government infrastructure titled *Local Government Infrastructure, Sustainability and Practice*. When released in 2006 it provided a more

in-depth view into current asset management practices of NSW council's. As detailed in this report:

'Local Councils provide the bulk of essential services to local communities, including recreation, transport, culture, and drainage and in some cases water and wastewater. Most Councils do not have a complete understanding of the assets that underpin these services. Only 20% of Councils have adopted asset management plans for services. A further 30% of Councils intend to have asset management plans completed within the next one to two years. The remaining 50% have no current intent to prepare asset management plans.' (JRA 2006 p. 11)

Sadly this depicts the situation across NSW that councils were still not getting the message that asset management planning needs to be addressed before substantial improvements can be made to vital infrastructure.

More recently the NSW Department of Local Government (DLG) sought to amend the NSW Local Government Act 1993 to establish a new framework of strategic planning. This is known as the Integrated Planning and Reporting (IPR) reform. The bill was introduced and passed by the NSW Parliament on 23 September 2009. (Local Government Shires Association 2010b). This was the first step in requiring council's to apply best practice in asset and financial management and provides a major milestone for NSW council's to move forward from.

According to Local Government Shires Association (2010b) some of the main developments contained in the IPR framework are that, councils are required to develop:

- A 10 year community strategic plan.
- A resourcing strategy to implement the strategies within the community strategic plan. This will include asset management planning, long term financial planning and a workforce management strategy.
- A four year delivery program covering a council's term in office which indicates what activities it will undertake to implement the strategies.

The IPR framework will be phased in over three years with the final council's having to complete the requirements by 30 June 2012.

4.1.2 Queensland

Concerned about the financial and sustainable future of local government in Queensland (QLD), the Local Government Association of Queensland in 2005 raised the need for local government reform with help from the state. An initiative known as the Size, Shape and Sustainability (SSS) program was founded to investigate council's long term future. A total of 118 council's joined the program but it was unsuccessful in providing any significant reform. (Department of Infrastructure & Planning 2010)

Two years later in March 2007, the councils involved in the SSS were questioned about the status of the SSS and whether they thought reform could be achieved. The council responses undoubtedly indicated that any reform process was not going to be achieved before 2008. (Department of Infrastructure & Planning 2010)

The Queensland Treasury Corporation (QTC) then released their report into the financial sustainability of local council. It found that approximately 40 percent of councils were found to be in a 'financially weak', 'financially very weak' or 'financially distressed' position. (QTC 2007).

In 2007 the Queensland Government reduced the amount of councils from 157 to 73.

More major reform for QLD local government came with the implementation of the *Local Government Act 2009* commencing from 1 July 2010. One of the main principles of the Act contained in Section 4 is:

‘...sustainable development and management of assets and infrastructure and delivery of effective services...’ (Local Government Act (QLD), Section 4)

It is clear that the new Act will require councils to undergo best practice financial and asset management.

4.1.3 Victoria

Victoria's *Local Government Act 1989* does not stipulate any requirement for council's to engage in asset management planning. Victoria's *Road Management Act 2004* does however require that road management plans be completed by each council. The purpose of the *Road Management Act 2004* was to coordinate and establish a public road management system which would provide a safe and efficient road network across Victoria. (DLGNSW 2006).

In 2002 the Municipal Association of Victoria (MAV) initiated the Step Asset Management Program. The main objective of this program was to help council's to have an agreed set of asset management processes in place by 2004. Its participation rate was extremely successful with all 79 Victorian councils taking part in the program. (DLGNSW 2006).

Council's first attempts at asset management plans under the Step Asset Management program were found to be difficult without reliable financial information on asset renewal. Hence the MAV Renewal Gap project was initiated in 2005 to provide this information for all asset classes. (Local Government Shires Association 2010a)

The key asset classes it focussed on were roads, bridges, drainage, buildings and recreation. The results from the program indicated that the annual funding gap for the period 2007-2011 was approximately \$275 Million per annum for all 74 councils that participated. The results for each individual council were then input into their own asset management plans. (South East Australian Transport Strategy 2010).

4.1.4 South Australia

Recent studies done on the current state of local government in South Australia have provided a good insight into their future sustainability. One of the main reports that have initiated the implementation of best practice in asset and financial management planning is *Rising to the Challenge: Towards Financially Sustainable Local Government in South Australia 2005*, supported by the Local Government Association of South Australia (LGASA).

Indications are given that over one-third of South Australia's population are governed by Councils that are classed as financially unsustainable. This translates to a total of 26 out of the 68 councils in the state (FSRB 2005). The breakdown for the other South Australian Councils is shown in Figure 4.1.

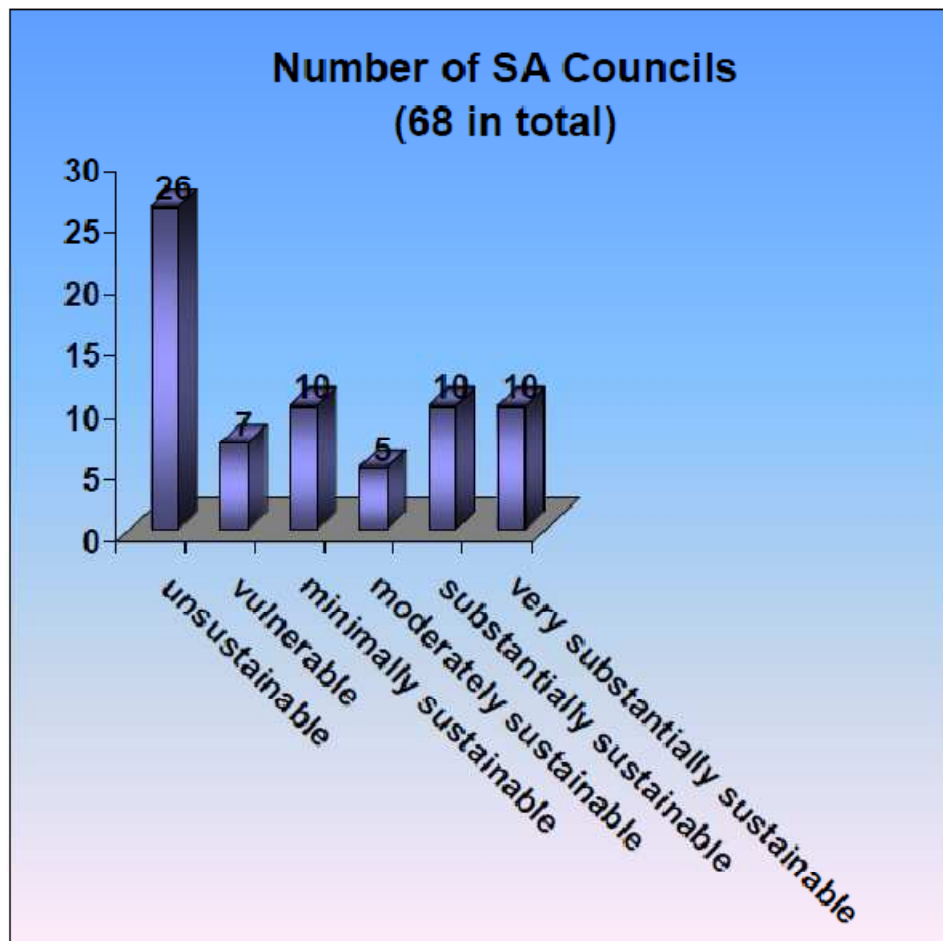


Figure 4.4: SA Councils by Financial Sustainability Category (FSRB 2005, p. 2)

To maintain the state's \$10 Billion of ailing infrastructure it seems rate rises and spending cuts are foreseeable even with increased state or federal funding. Further amalgamation is not foreseen to alleviate these problems and indiscriminate funding grants for new capital works could well exasperate the situation (FSRB 2005).

The LGASA resolved to give its full or in principle support to the sixty two recommendations given in the final report (DLGNSW 2006).

The inquiry managed to highlight a number of shortcomings and the implementation of a number of programs and projects were initiated. These included the *Financial Sustainability Program* and the *Financial Sustainability Program “Sustainable Asset Management”* project. These initiatives helped councils meet the requirements of the *Local Government (Financial Management and Rating) Amendment Act 2005 (SA)*, (DLGNSW 2006).

‘The *Local Government (Financial Management and Rating) Amendment Act 2005 (SA)* requires all councils to incorporate long term financial plans and asset management plans in their strategic plans, establish audit committees, and to consult with their communities on annual programs and budgets.’ (DLGNSW 2006 p. 24)

I believe this to be a significant step forward in recognising best practice asset and financial management for South Australian local government and hopefully pave the way for the sustainability of current and future generations.

4.1.5 Western Australia

Probably the most pertinent report done regarding local government sustainability in Western Australia was commissioned by the Western Australian Local Government Association (WALGA) in 2006 and titled *Systematic Sustainability Study: In Your Hands – Shaping the Future of Local Government in Western Australia*.

The mining boom in Western Australia has seen the State economy growing at a faster rate compared to the other Australian states. This has put upward pressure on demand for new infrastructure and heightened levels of service which has exposed most Councils inability to maintain even their existing stock of assets and levels of service without having to worry about new acquisitions (WALGA 2006).

Conflicting findings regarding the financial sustainability of Western Australian councils are contained in the report where earlier findings indicated around 83 councils were considered financially unsustainable. More recent studies conducted for the final

report was done with a different methodology and found that just over fifty percent were considered to be financially stressed. This equates to approximately seventy councils. Some of the councils dispute these findings and have performed self assessments resulting in better and sometimes worse results while other councils believe the results are underestimated and a much bigger infrastructure backlog is likely. Forty-one recommendations have been made (WALGA 2006).

Using either result, all indications point to the concern that West Australian Councils are in the same predicament as their state counterparts and need to find a way to combat their current financial unsustainability.

The Systematic Sustainability Study Taskforce was established by WALGA to oversee the recommendations made in the report *Systematic Sustainability Study: In Your Hands – Shaping the Future of Local Government in Western Australia*. This seems to be an ongoing project still currently in progress which provides engagement processes and regular bulletins to stakeholders on the progress of the recommendations.

There does not seem to be any legislative requirements that specifically require best practice asset and financial management for Western Australian councils.

4.2 Asset Management within Local Government in New Zealand

Asset management processes in New Zealand have been evolving over a long period of time. During this time Governments have been introducing major reforms which have markedly improved the services needed to successfully manage all types of infrastructure. These reforms included acknowledging that the effective management of infrastructure required a more business oriented approach than was previously done. Another major development was enacting legislation through the *Local Government Act 2002* (New Zealand) which required mandatory reporting that brought asset management to the forefront (IPWEA 2006).

4.3 Conclusions

Across Australia a recurring theme of inaction has emerged regarding asset management. For far too many years Council's have neglected their obligation to the community to maintain and renew existing infrastructure to the point where the situation has now become nearly unassailable. An enormous amount of effort and funding is required to ensure current infrastructure assets are still operational and in an acceptable standard for the next generation and beyond.

All the States have now seemed to realise their past mistakes and are trying to move forward with mandatory financial and asset management processes by either legislation or departmental directives. Sadly though, this has been done mainly in isolation from each other instead of on a broad National level. Federal Government has realised the situation is dire and have recently provided funding directly to Local Government, bypassing the State Governments, but I see this as adding to the dilemma as most of these funds are directed at new capital works and not on renewal or maintenance projects. Hence once again Councils will need to find the funds required to maintain these new assets.

New Zealand has forged ahead with asset management improvements and Australian States can learn a lot from the New Zealand asset management journey. It has shown it is years ahead of Australian asset management processes due to strong local government legislation and a willingness from local government to improve its services.

CHAPTER 5 – ASSET MANAGEMENT PRACTICES

5.1 Core Asset Management Approach

There are usually two methods of asset management that are used in local government. These are the core approach and the advanced approach.

The core approach is adopted by most council's when they first start out on the asset management journey. This initial phase of the planning process is usually done so councils can abide by any legislative or organizational requirements. Asset management plans that are based on the core approach give an indication of current levels of service, current funding levels and a projection of the state of the infrastructure if funding levels were to be held at this level in years to come. (IPWEA 2006)

Core plans are predominately done at an assets system or network level. Their development relies on the best current information available and can include the identification of critical assets using simple risk assessments. They are based on current levels of service and how Council is performing against these. (IPWEA 2006)

A projected capital works program can be achieved using the data from the core plans. Although it would be based on simple criteria such as remaining life, it can be a useful starting point to begin inspections and risk assessments on the assets that present high on the capital works program.

Improvement plans can be a great positive feature that comes out of the core plans. They provide the processes of which Council will need to follow to ensure that future plans, whether core or advanced are more accurate and effective in their deployment.

The cost-effectiveness of core plans is very appealing to council's and often prevails over the desire to put off any sort of planning until data is stronger or improved processes and systems are in place. Due to some council's asset data and processes being weak and fragile, the first core plans can often be simple and brief concentrating on the data available and current systems capabilities.

5.2 Advanced Asset Management Approach

The advanced approach involves taking the core approach and evolving it into an advanced plan. This can ultimately give council the direction they need to take for the next 10-20 years to ensure their current infrastructure will be functional and financially viable for generations to come. Among other things this is achieved by: setting agreed and affordable levels of service that are made in consultation with the various stakeholders, risk based strategies, whole of life costing and the management of growth. (IPWEA 2006).

Advanced plans are predominately done at an individual assets level; hence for example studies are more focused on each individual reservoir rather than the reservoir system as a whole. Condition assessment of individual assets is a critical part of the advanced plans. This is very time consuming task and can take valuable council resources away from other important projects.

A high confidence in asset data is essential in these plans. The data needs to be detailed enough that any assumptions made are minimal. Construction dates and other major attributes need to be established to high degree of accuracy.

Another important feature of advanced plans is well defined and agreed levels of service. While core plans concentrate on current levels of service which are usually governed by the current expenditure, advanced plans require consultation with the community to derive the levels of service and a commitment from the council to fund them.

Integration with software systems which contain a council's asset information, financial information and document management software can help enormously in advanced planning. This alone can be a large task requiring a monetary commitment from the council and assistance from the various vendors of the software programs. An Information Technology team within council that can provide the appropriate solutions, advice and equipment is essential in realizing this goal.

5.3 Status of Asset Management for Richmond Valley Council

5.3.1 General Background Information

Richmond Valley Council (RVC) is a local government area located on the far north coast of New South Wales in the area known as the Northern Rivers. It was formed out of the amalgamation of the Richmond River Shire and the Casino Municipality in February 2000. RVC's main town of Casino is situated approximately 800 km north of Sydney and 260 km South of Brisbane. Other main towns within the council area include Evans Head, Broadwater, Woodburn and Coraki which are an integral part of the Richmond Valley catchment of over 3050 km².

The area is abundant with natural assets which encompass the Pacific Ocean at Evans Head and the Richmond River running through most of its major towns. The cultural significance of the area is embraced through strong ties with the indigenous community and non-indigenous alike. It includes a wealth of indigenous sacred sites such as Bundjalung National Park and non-indigenous heritage sites such as the Evans Head Memorial Aerodrome which was a training facility for the Australian Armed Forces in World War II. (Regional Development Australia 2010).

Richmond Valley Council has a broad range of businesses that are crucial for the financial sustainability of the region. It is proud to be known as the Beef Capital of New South Wales and its main single employer of the region is the Northern Co-Operative Meat Company Ltd which operates out of the main town of Casino. The Co-operative is an Australian livestock processing facility and tannery employing over 400 people. Other industries which play a part in the worth of the region are timber, dairy, grain, fruits and fishing.

As of 2009 the population sits at approximately 22,900 people and the last five years has seen a strong growth rate of 1.2%. This growth was recognised by the New South Wales State Government when it released the *Far North Coast Regional Strategy* (2006) which indicated over 9,000 new homes would be needed by 2031. (Regional Development Australia 2010).

A geographical representation of the Richmond Valley Council local government area is depicted in Figures 5.1 and 5.2.



Figure 5.1: Location of Richmond Valley Council in New South Wales (2007)



Figure 5.2: Richmond Valley Council Map (2010)

5.3.2 Financial Environment

Richmond Valley Council has over \$660 Million dollars worth of assets, with Roads, Bridges & Footpaths being the majority of that with approximately 42% of asset value. The other asset classes are split up as shown in the Figure 5.3.

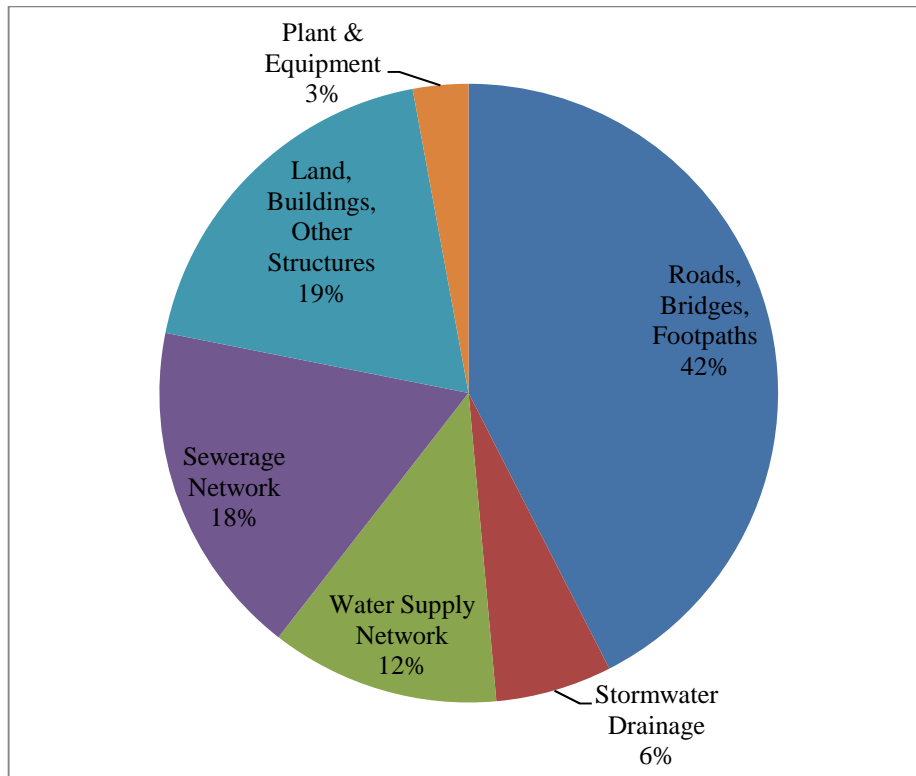


Figure 5.3: Richmond Valley Council Proportion of Value by Asset Type

The major components of the Integrated Planning and Reporting regime are the Community Strategic Plan, Delivery Plan, and Operational Plan. Underpinning all of these is the requirement of a resourcing strategy to make these plans work. The resourcing strategy must be developed including provision of long-term financial planning, workforce management planning and asset management planning. The requirement for a financial plan is now mandated by Section 403 of the NSW Local Government Act.

From a financial management perspective it is prudent to have a long term financial plan to ascertain the affordability of future service levels and asset renewal. It is also to break the traditional mould of thinking of only the short term without considering implications for the long term. Generally Richmond Valley Council historically focused on a financial sense from one year to the next. It is now moving towards the requirements of *Local Government Amendment (Planning and Reporting) Act 2009* and implementing a 10 year long term financial plan.

Some of the core ingredients to the long term financial plan are:

- It must have as a minimum a 10 year duration.
- It must be able to project income, expenditure, balance sheets and cash flow statements for each year.
- It must incorporate planning assumptions used to develop the plan such as inflation, the local government cost index, estimated rate increases, interest rates applicable for investing and borrowing, population growth, assessment growth, etc.
- It must incorporate the funding requirements to manage the Council's significant infrastructure assets (hence good asset management planning).
- It must be able to predict results due to changes in circumstances i.e. sensitivity analysis.
- It must be able to provide for modelling of different scenarios such as planned, optimistic, and conservative.
- It must be able to assist in monitoring financial performance i.e. budget reviews.

The indicative underfunding of Council infrastructure in the General Fund is \$14,000,000. The 2010/2011 budget has been adopted with a close enough deficit of \$500,000. On the assumption everything else remains equal regarding other revenue sources and current levels of expenditure, there is potentially a funding shortfall of \$14,500,000. (Fordham, D 2010, pers. comm., 2 September).

Council is estimated to levy close to \$8,000,000 in general rates in 2010/2011. If the current operations were maintained and assets addressed, Council needs to collect another \$14,500,000 per annum. If this was funded from rates alone, Council would need to levy \$22,500,000 in rates, not \$8,000,000. To recover the shortfall in a one off

increase Council would need a 281% increase. Or in other words general rates would need to nearly triple. The overall average general rate for RVC for 2010/2011 is \$776.00; it would need to be \$2,190.00. Over four years including compounding and rate peg announcements it would need to be at least 30% per annum. (Fordham, D 2010, pers. comm., 2 September).

Clearly a 30% general rate increase per annum over four years raises questions about affordability for ratepayers. Looking at a fully serviced assessment, assuming other charges remain constant, a ratepayer will need to contribute close to \$4,000 per annum or about \$80 per week. These numbers are pure averages and would vary significantly between rate categories and those assessments with higher land values. (Fordham, D 2010, pers. comm., 2 September).

How then can these issues be addressed as it is obvious Council does not have sufficient revenue to manage its infrastructure let alone maintain existing service levels?

5.3.3 Asset Management Strategy

Richmond Valley Council adopted its Asset Management Strategy in December 2008 with no reviews since. A major review is due in 2011.

The Strategy was drafted as part of the Local Government Better Practice Program enabled by the Local Government Reform Program in New South Wales. The strategy along with an Asset Management Policy demonstrates how Council's asset portfolio will meet the service delivery needs of its communities into the future.

The Asset Management Strategy and the individual asset management plans that will be developed as a result of the strategy will provide Council with detailed comprehensive information and knowledge to assist it with its short and long term planning to achieve its vision for Richmond Valley Council.

As part of the NAMS.PLUS asset management program and Council's ongoing commitment to sustainable asset management, information on asset inventory, renewal costs, renewal expenditure, asset life and intervention criteria is being documented and consolidated into Council's asset management system, AssetMaster. This will enable

further analysis to be performed to determine the current and future infrastructure funding gap levels.

The identification of the renewal gap will allow Council to predict how much money needs to be spent for the long term on maintenance of Council's assets. The strategy will be an important part of future budget planning.

5.3.4 Asset Management Policy

Richmond Valley Council adopted its Asset Management Policy in December 2008 with a review occurring in September 2009. For the most part it was adapted from the asset management policy template provided by the IPWEA through its National Asset Management Strategy Committee (NAMS.AU).

It was drafted and adopted as one of the strategic documents that were needed to bring asset management 'out into the open' and pave the forward for the adoption of the core asset management plans.

Some of the main principles of the policy include:

- Provide an Asset Management Strategy to implement asset management best-practice throughout Council.
- Adhere to any legislative requirements and integrate asset management principles with other Council processes.
- Ensure adopted asset management plans and long term financial plans are fully funded each year.
- Full life cycle costs are to be reported for any new service or amenity.

The review in 2009 allowed the General Manager to approve the transferring of funds from a maintenance program to a capital works program preceding a quarterly budget review. This was done so Council could start better understanding where it was spending its money.

5.3.5 Core Asset Management Plans

In the 2009/2010 financial year Richmond Valley Council set out to define its current status with regard to its major infrastructure assets.

To date Richmond Valley Council has 4 draft core asset management plans in place for: Transport, Buildings, Land Improvements & Other Structures, Water Supply and Sewerage Services. The Stormwater Drainage asset management plan is in the process of being completed.

These represent the major infrastructure asset groups within council.

The core plans are based on the templates issued through the NAMS.PLUS program through the Institute of Public Works Engineering Australia.

Life cycle costs and sustainability indexes give an indication to council's long term position in sustaining its current asset renewals and levels of service.

'The objective of lifecycle costing is to determine the total costs of ownership over the life of an asset...' (IPWEA 2006, p. 3.115)

For the purpose of the following core asset management plans the life cycle costs are calculated by adding the Average Annual Asset Consumption (depreciation expense) to Councils current maintenance expenditure.

The sustainability ratio (index) is calculated by dividing the lifecycle expenditure (current maintenance expenditure plus renewal expenditure) by the lifecycle costs. An index ratio of 1.0 indicates that Council is renewing its assets in a sustainable manner.

The following Sections (i – iv) are extracts taken from Richmond Valley Councils core asset management plans (Magarry 2009a, 2009b, 2010a, 2010b) which are based on the templates provided by the Institute of Public Works Engineering Australia

(i) Core Transport Asset Management Plan (Magarry 2009a)

The following information contained in Section (i) are extracts taken from Magarry (2009a).

The technical register carries a total renewal value for transport assets of \$277.6M

The analysis of life cycle cost for these infrastructure assets is estimated at \$12.8 million per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is \$5.15 million which gives a life cycle sustainability index of 0.40

The transport infrastructure assets are in good overall condition, however there is significant renewal expenditure required over the next 20 years. The average annual expenditure required in the next 20 years is \$17.1 million per annum giving a 20 year sustainability index of 0.30. A target ratio of 1.0 is desired.

This ratio is likely to improve as data in the transport register is continued to be improved, particularly in relation to further reassessing the useful life of these assets.

It is also common that the separation in actual expenditures between operations, maintenance and renewal is not highly developed, and this also will have a significant impact on improving the sustainability ratios.

It is important to continue to reassess this situation as the current ratios indicate that the current level of service being provided cannot be maintained.

The following assets are covered under the Transport core plan:

Table 5.1: Assets Covered by the Transport Core Asset Management Plan (Magarry 2009a, p. 3)

Asset Category	Dimension	Replacement Value (\$M)
Bridge	124 Bridges	\$43,374,853.12
Bus Shelter	108 Bus Shelters	\$957,101.53
Footpath Cycleway	Length of 49,101 m Area of 94,143 m ²	\$11,761,299.32
Guard Rail	315 items 11.5 km	\$1,355,096.25
Guard Terminal	358 items 2.7km	\$2,128,400.00
Major Culvert	22 Major Culverts	\$1,008,520.61
Minor Culvert	2209 Minor Culverts	\$11,410,625.11
Road Seal	Length of 521 km Area of 2,740,181 m ²	\$30,245,579.18
Roadside Furniture	10977 Items	\$660,184.85
Sealed Pavement	Length of 520 km Area of 2,735,131 m ²	\$123,686,505.59
Sign Panel	6,045 items	\$373,446.29
Sign Structure	3,990 items	\$318,324.20
Surface Drainage	128 km	\$25,606,229.20
Traffic Management	216 Items	\$4,097,272.80
Unsealed Pavement	Length of 549 km Area of 2,325,411 m ²	\$20,662,421.40
	TOTAL	\$277,645,859.42

This inventory has been compiled from the best data currently available and provides an indication of the value and components comprising Richmond Valley Council's transport assets.

Figure 5.4 represents the proportion of value by asset type.

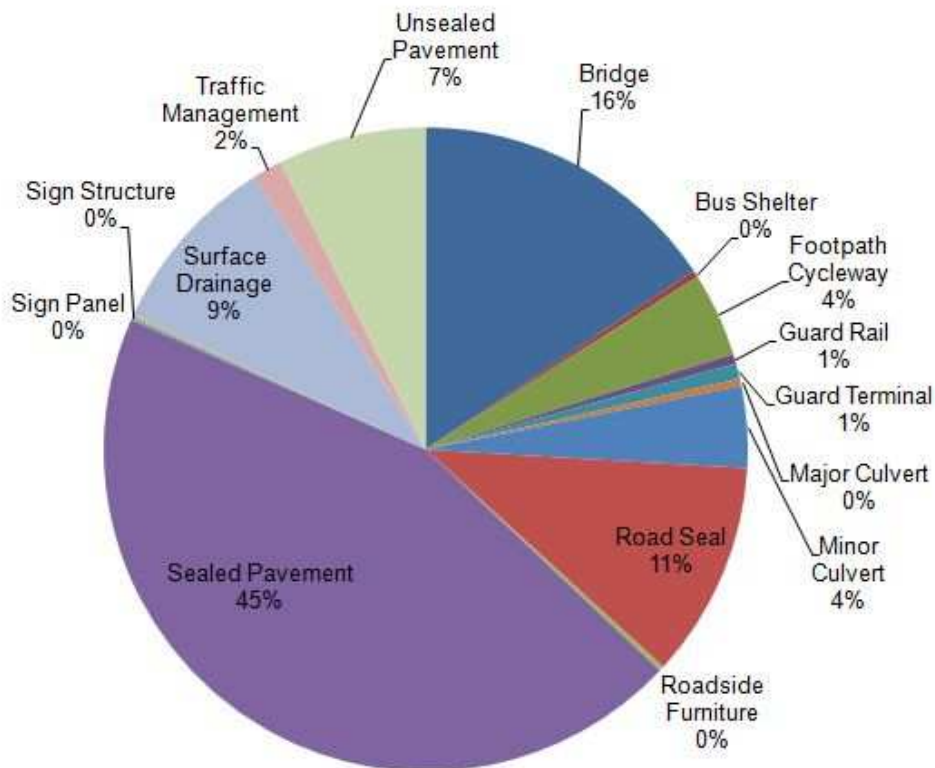


Figure 5.4: Proportion of Value by Transport Asset Type (Magarry 2009a, p. 17)

The age profile of infrastructure assets as depicted in Figure 5.5 shows that significant construction took place in the post World War 2 time period. It is likely that much of this infrastructure will be well through its useful life, and will require renewal in the near future. Whilst this is quite satisfactory for broad analysis further refinement of this data will improve the quality of information available for future planning decisions, in particular for developing a program of works for the 10 year long term financial plan.

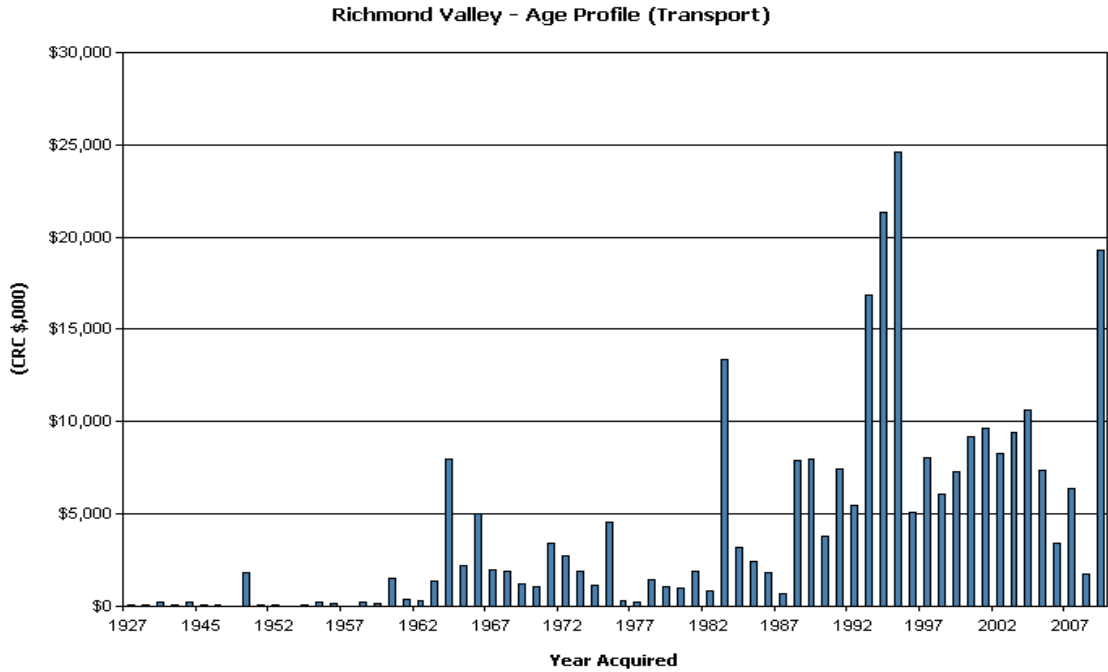


Figure 5.5: Richmond Valley – Age Profile Transport (Magarry 2009a, p. 17)

The average condition profile of Council’s transport assets is shown in Figure 5.6. It identifies that most asset groups are in good to average condition. This is important to monitor as these assets are well through their useful life.

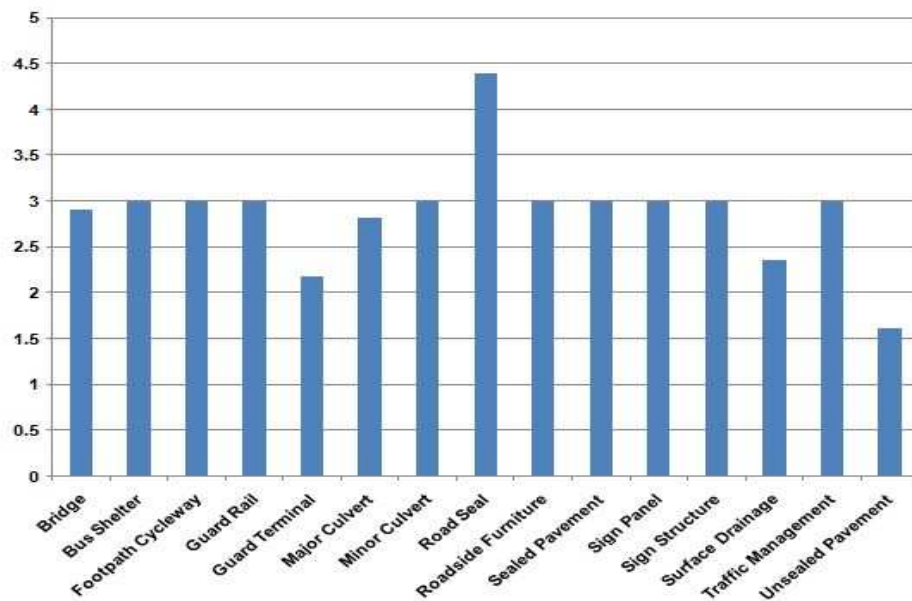


Figure 5.6: Transport Asset Condition Profile (Magarry 2009a, p. 19)

Condition is measured using a 1 – 5 rating system. This is shown in Table 5.2.

Table 5.2: Condition Grading System (IIMM 2006, Appendix B, p B:1-3 (‘cyclic’ modified to ‘planned’))

Rating	Description of Condition
1	Excellent condition: Only planned maintenance required
2	Very good: Minor maintenance required plus planned maintenance
3	Good: Significant maintenance required
4	Significant renewal/upgrade required
5	Poor: Unserviceable

The value of the infrastructure assets included in this asset management plan is summarised below. The value of assets is based on Council’s technical asset register. Revaluation of these assets is required by the NSW Department of Local Government to meet ‘Fair Value’. The Transport assets are valued at ‘greenfield rates’.

Current Replacement Cost	\$277,645,859
Average Annual Asset Consumption (AAAC)	\$8,741,493
Depreciated Replacement Cost	\$138,689,066

A comparison is given below indicating Councils current sustainability in relation to asset consumption, asset renewal and annual upgrade/expansion.

Asset Consumption	3.1 %
Asset Renewal	0.4 %
Annual Upgrade/expansion	0.77 %

The projected capital renewal expenditure is summarised in Figure 5.7. Note that all costs are shown in current 2009 dollar values.

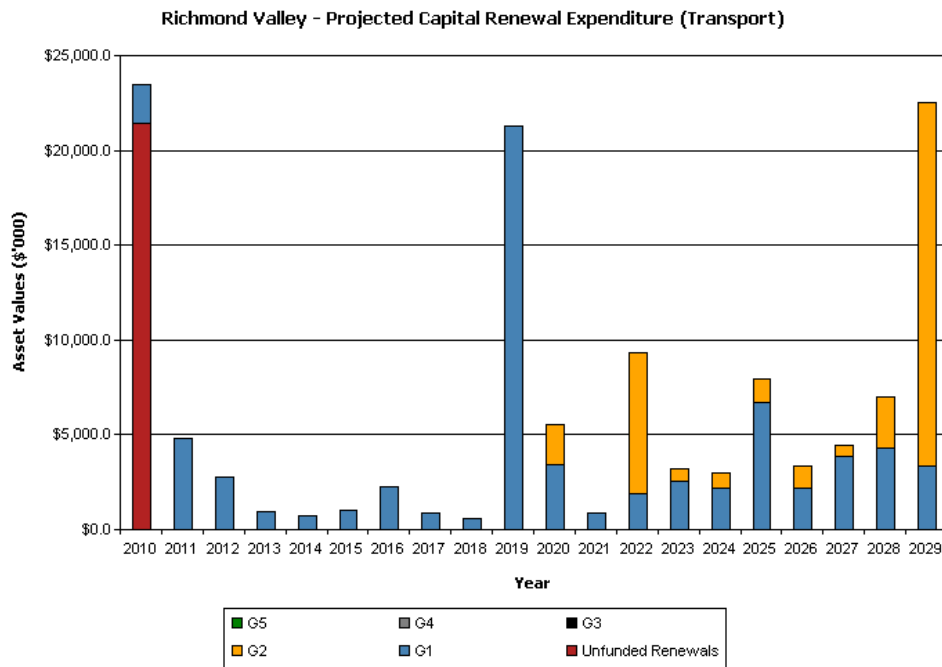


Figure 5.7: Richmond Valley – Projected Capital Renewal Expenditure Transport (Magarry 2009a, p. 25)

The high value of ‘Unfunded Renewals’ in the first year of the planning period indicates assets which have exceeded their theoretical useful life. This provides a useful starting point for reviewing the current asset data inventory and determining whether and when these assets should be renewed. This decision will be a balance between cost, desired service levels and risk. This review will also provide valuable information to validate and improve the useful lives used in the asset inventory.

Unfunded Renewals, i.e. those assets identified for renewal and not scheduled for renewal in capital works programs, should also be included in the risk assessment process in the risk management plan.

(ii) Core Buildings, Land Improvements and Other Structures Asset Management Plan

The following information contained in Section (ii) are extracts taken from Magarry (2009b).

The technical register carries a total renewal value for buildings, land improvements and other structures of \$79.9M.

The analysis estimates that the long term life cycle cost for these assets is \$2.36M per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is \$695,790

The long term life cycle gap for services covered by this asset management plan is \$1,668,328 per annum and the life cycle sustainability index is 0.29. A target ratio of 1.0 is desired.

This ratio is likely to improve as data in the building and land improvements register is continued to be improved, particularly in relation to further separating the buildings into their main components and reassessing the useful life of these components.

It is also common that the separation in actual expenditures between operations, maintenance and renewal is not highly developed, and this also will have a significant impact on improving the sustainability ratios.

It is important to continue to reassess this situation as the current ratios indicate that the current level of service being provided cannot be maintained.

The following assets are covered under the Buildings, Land Improvements and Other Structures core plan:

Table 5.3: Assets Covered by the Buildings, Land Improvements and Other Structures Asset Management Plan (Magarry 2009b, p. 2)

Asset Group	Asset Category	Current Replacement Value
Buildings Land Improvements Other Structures	Buildings	\$55,960,251.95
Buildings Land Improvements Other Structures	Land Improvements	\$6,260,160.51
Buildings Land Improvements Other Structures	Non Depreciable Land Improvements	\$1,183,218.51
Buildings Land Improvements Other Structures	Other Structures	\$16,455,531.04
	TOTAL	\$79,859,162.01

This inventory has been compiled from the best data currently available and provides an indication of the value and components comprising Richmond Valley Council’s buildings, land improvements and other structures assets.

Figure 5.8 represents the proportion of value by asset type.

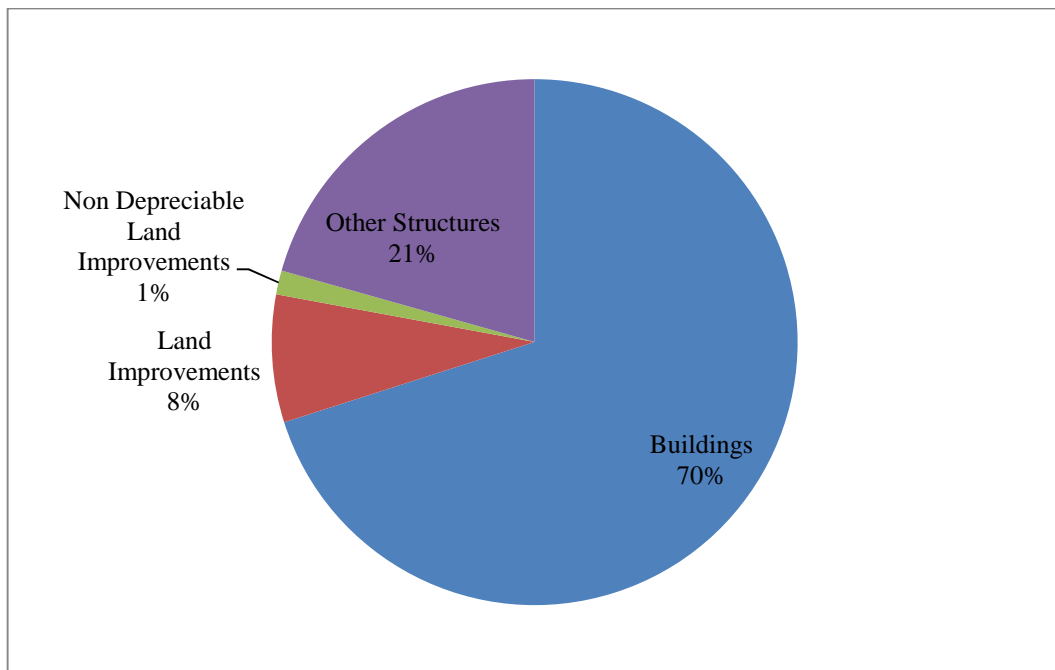


Figure 5.8: Proportion of Value by Buildings, Land Improvements and Other Structures Asset Type

To assist in understanding and communicating the overall service delivery provided by the council buildings, a “Star Rating” methodology has been utilised. This was prepared by council staff managing buildings, and having an extensive knowledge of both the condition and use of buildings.

The “Star Rating” methodology used is based on estimating a desired or target star rating for each building, and then comparing this with the perception of how the building is currently performing. This is a powerful tool as this considers not just condition, but the overall experience provided by the building.

A rating of 1-5 (5 being highest, 1 being lowest) has been applied to each of the buildings. The difference between the target rating and the current rating provides an indication of where attention should be focussed.

An assessment of the actual star rating was made for each and aggregated for and compared for each building category. The results are shown in Figure 5.9.

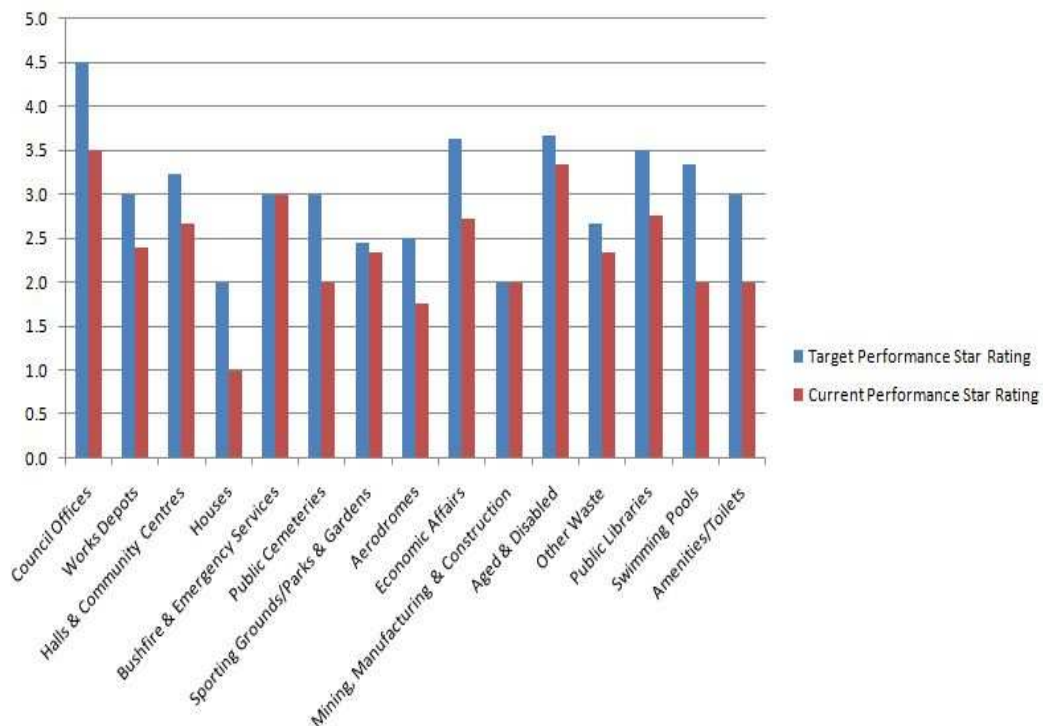


Figure 5.9: Building Star Ratings – Target / Current by Building Category (Magarry 2009b, p. 14)

The star rating gap indicates that the majority of Building groups have a star rating service gap of less than 1. The only area exceeding this is Swimming Pools. This is shown in Figure 5.10.

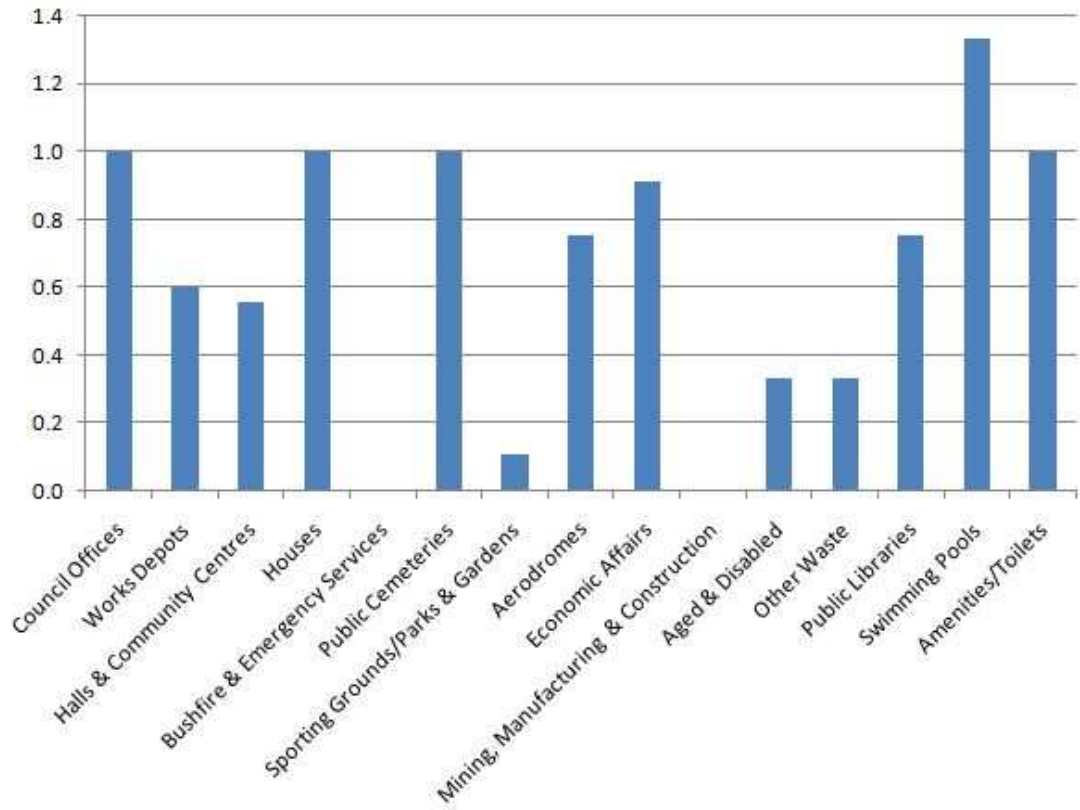


Figure 5.10: Building Star Rating Gap (Magarry 2009b, p. 15)

The age profile of building assets as shown in Figure 5.11 shows that a significant proportion of the building infrastructure is well through its useful life and will require higher levels of maintenance and renewal to retain current service levels and management of risk.

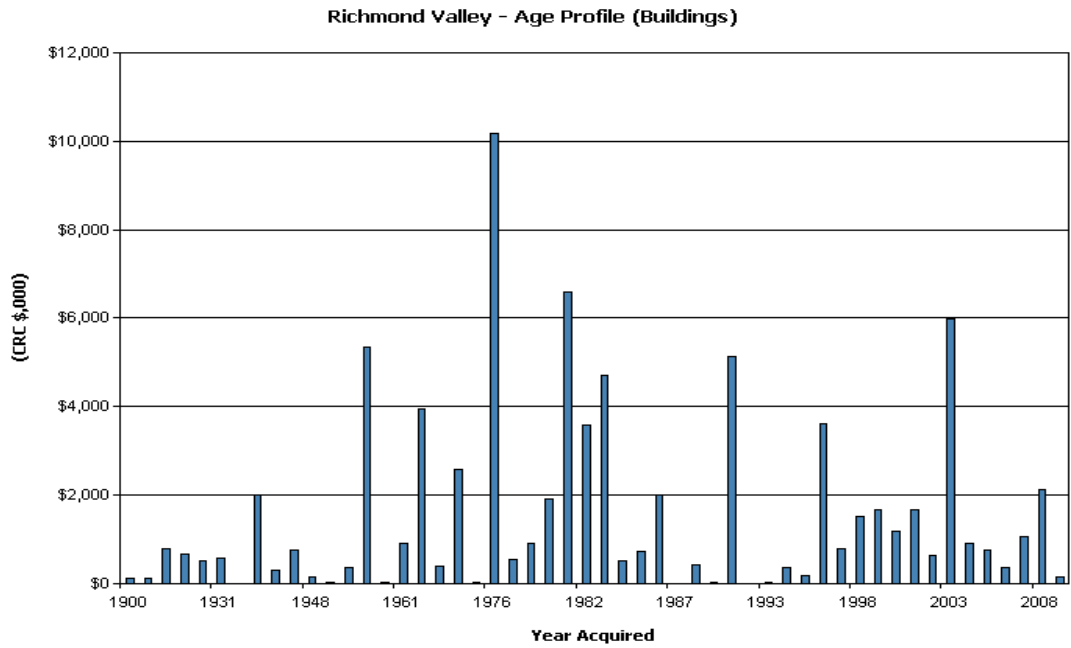


Figure 5.11: Richmond Valley – Age Profile Buildings (Magarry 2009b, p. 21)

The average condition profile of Council’s Buildings, Land Improvements and Other Structures assets is shown in Figure 5.12. It identifies that most asset groups are in good to average condition. This is important to monitor as these assets are well through their useful life.

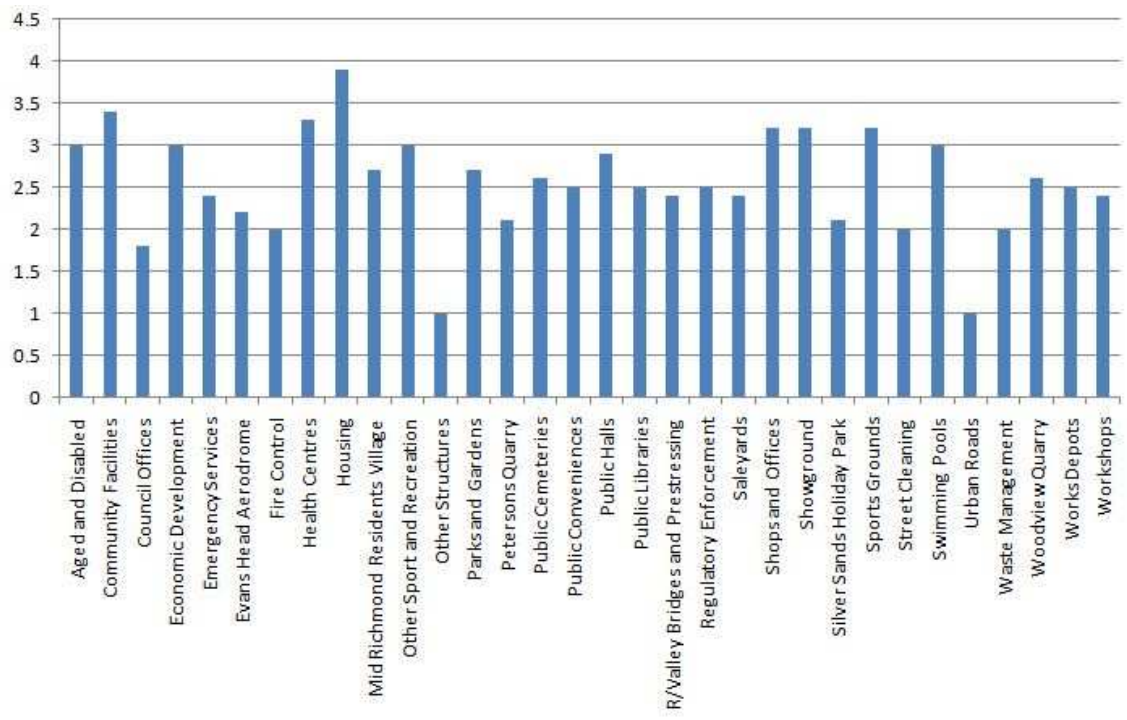


Figure 5.12: Buildings, Land Improvements and Other Structures Asset Condition Profile (Magarry 2009b, p. 22)

The value of the infrastructure assets included in this asset management plan is summarised below. The value of assets is based on Council’s technical asset register. Revaluation of these assets is required by the NSW Department of Local Government to meet ‘Fair Value’. Assets are valued at ‘greenfield rates’.

Current Replacement Cost	\$79,859,162
Average Annual Asset Consumption (AAAC)	\$1,824,353
Depreciated Replacement Cost	\$42,708,235

A comparison is given below indicating Councils current sustainability in relation to asset consumption, asset renewal and annual upgrade/expansion.

Asset Consumption	2.3 %
Asset Renewal	0.2 %
Annual Upgrade/expansion	1.2 %

The projected capital renewal expenditure is summarised in Fig 5.13. Note that all costs are shown in current 2009 dollar values.

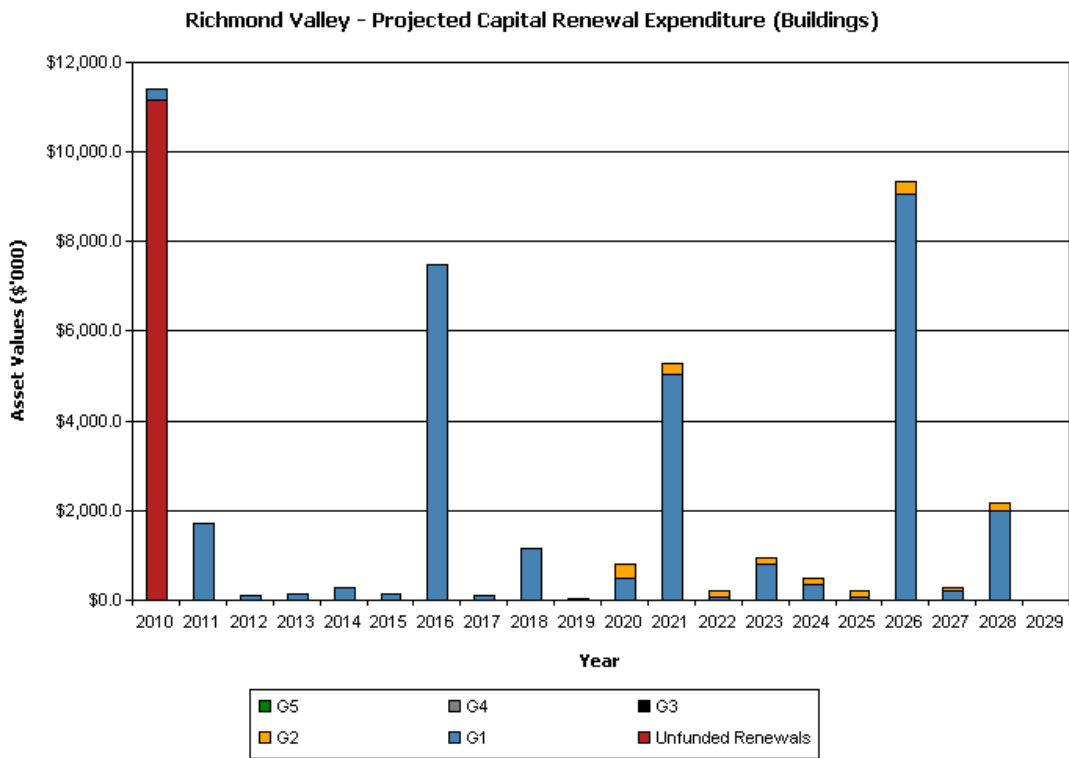


Figure 5.13: Richmond Valley – Projected Capital Renewal Expenditure Buildings, Land Improvements and Other Structures (Magarry 2009b, p. 27)

(iii) Core Water Supply Asset Management Plan

The following information contained in Section (iii) are extracts taken from Magarry (2010a).

The technical register carries a total renewal value for Water Supply assets of \$77.5M.

The analysis estimates that the long term life cycle cost for these assets is \$1.53M per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is \$1.5M.

The long term life cycle gap for services covered by this asset management plan is \$28,000 per annum and the life cycle sustainability index is 0.98. A target ratio of 1.0 is desired.

This ratio currently focuses on renewal of water supply assets, so does not fully account for additional expansion of the network.

Richmond Valley Council Water Supply is comprised of two separate systems.

The Casino system is comprised of one weir, one water filtration plant and raw water pumping station, four reservoirs, water supply pumping stations and a network of pipes and valves that distributes water to Casino customers.

The Lower Richmond River reticulation system distributes water purchased from Rous Water. Council's system is comprised of ten reservoirs (one decommissioned), water supply pumping stations and a network of pipes and valves that distributes water to the towns and villages of Evans Head, Broadwater, Woodburn, Riley's Hill and Coraki.

The following assets are covered under the Water Supply core plan:

Table 5.4: Assets Covered by the Water Supply Asset Management Plan (Magarry 2010a, p. 1)

Asset	Description
Reservoirs – Broadwater	Fischer Street – 0.60 ML River Street – 0.23 ML
Reservoirs – Evans Head	Wirraway Avenue – 4.0 ML Boomerang Street – 0.5 ML Cypress Street - Decommissioned
Reservoirs – Coraki	Donaldson Street – Low Zone – 0.9 ML Donaldson Street – High Zone 1 – 0.12 ML Donaldson Street – High Zone 2 – 0.12 ML Donaldson Street – Buildings & Structures
Reservoir – Rileys Hill	Bells Road – 0.01 ML
Reservoirs – Casino	Summerland Way North No 1 – 1.82 ML Summerland Way North No 2 – 4.61 ML Summerland Way North No 3 – 11.3 ML Hare & Walker Street South – 3.26 ML
Reservoir – Woodburn	Langs Hill – 2.27 ML
Weir - Casino	Jabour Weir – Richmond River – 903 ML
Pump Station – Evans Head	Wirraway Avenue
Pump Station – Broadwater	Fischer Street
Pump Stations – Coraki	Donaldson Street – Pump Station 1 Donaldson Street – Pump Station 2
Pump Stations – Casino	Colches Street – Booster Pump Station Summerland Way – River Intake
Water Filtration Plant - Casino	Summerland Way – Buildings & Structures
Water Supply Lines – All Areas	Various Dimensions and Materials – 190 km
Water Supply Valves – All Areas	Various Dimensions and Types
Water Supply Service Lines – All Areas	Various Dimensions and Materials – 6350
Water Supply Meters – All Areas	Various Size Water Meters – 6350

The replacement value of these assets is summarised in Table 5.5 as follows:

Table 5.5: Replacement Value of Assets Covered by the Water Supply Asset Management Plan (Magarry 2010a, p. 2)

Asset Subcategory	Replacement Value
Plant	\$35,574,043.95
Water Connections	\$4,653,905.40
Water Fittings	\$35,593.95
Water Hydrant	\$3,359,919.50
Water Meter	\$1,251,345.00
Water Pipelines	\$31,239,395.68
Water Swabbing Pits	\$13,862.86
Water Valve Pits	\$1,837.50
Water Valves	\$1,329,960.75
Total	\$77,459,864.59

This inventory has been compiled from the best data currently available and provides an indication of the value and components comprising Richmond Valley Council’s Water Supply assets.

Figure 5.14 represents the proportion of value by asset type.

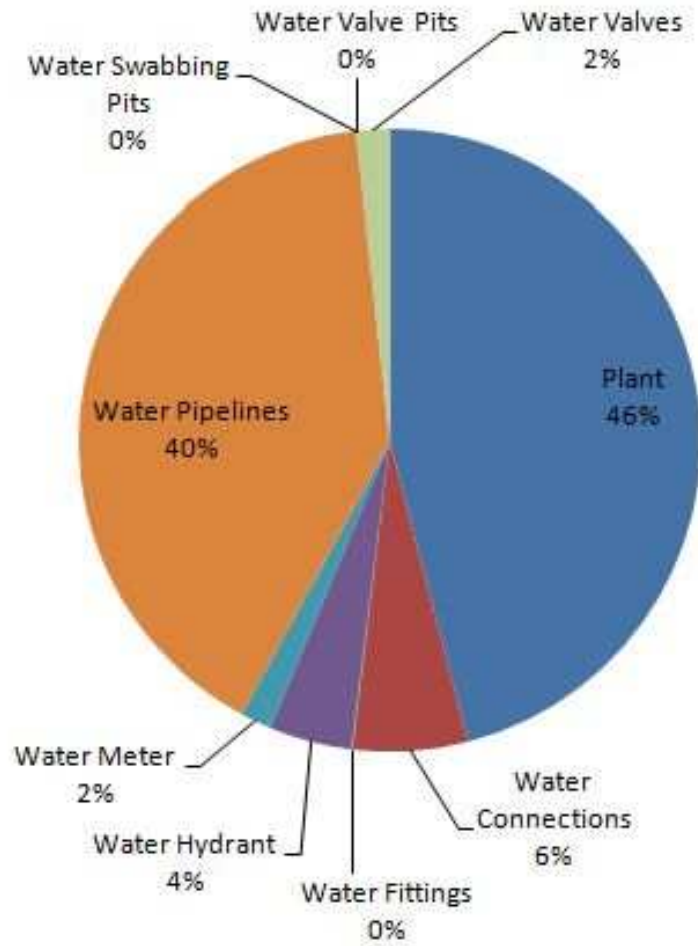


Figure 5.14: Proportion of Value by Water Supply Asset Type (Magarry 2010a, p. 12)

The age profile of infrastructure assets shown in Figure 5.15 indicates that significant construction took place in the post World War 2 time period. It is likely that much of this infrastructure will be well through its useful life, and will require renewal in the near future.

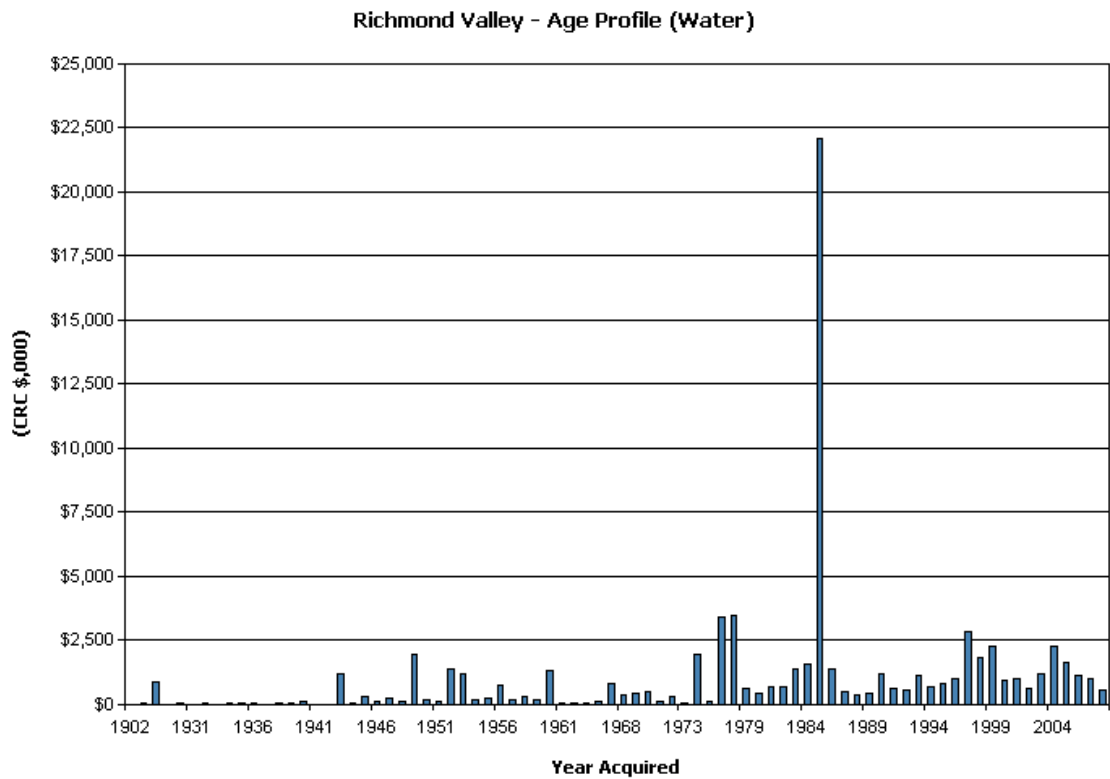


Figure 5.15: Richmond Valley – Age Profile Water (Magarry 2010a, p. 13)

Council has a range of Water Supply assets with some particular problems outlined below.

Casino

Council has four reservoirs located within Casino. Three of these are situated in North Casino with their install years varying from 1914 to 1977, while the fourth is situated in South Casino with an install year of 1943. Little maintenance has been carried out on these structures since initial construction with the maintenance of these reservoirs over their life being mainly reactive with defects being fixed as they occur. Reservoir 1 at

North Casino has easily eclipsed its useful life while the one at South Casino is approaching the end of its useful life. All reservoirs require safety works to be carried out to conform to current Australian Standards.

Jabour Weir, constructed in 1972, has been raised twice, with the final weir raising constructed in 1976. The structure is generally in good condition with no signs or movement or major deterioration. The condition of the existing rockbolts is unknown and Council should consider installing new re-stressable rock anchors as the rockbolts contribute significantly to the stability of the structure. The structure is not considered stable for the flood operating condition unless the stabilising load in the existing rockbolts reaches ultimate capacity. The life expectancy of the structure would increase significantly if new anchorage was installed.

Council's two pump stations at Colches Street and the Richmond River intake were both commissioned in 1985. Maintenance of these pump stations since initial construction has mainly been reactive with defects being fixed as they occur.

Council's Water Filtration Plant was constructed in 1985 (which replaced the old water filtration plant at South Casino). The filtration plants performance is satisfactory although there have been some taste and odour complaints issues in the Casino area with fluctuations in the water quality. Fluctuating parameters include taste and colour, blue-green algae occurrence, residual chlorine levels and high manganese levels. A potassium permanganate dosing plant will be installed at the raw water pump station in the future to alleviate some of these problems. Maintenance on the Water Filtration Plant is carried out according to a schedule by the appropriate staff.

Lower River

Council has ten reservoirs located within the Lower River district with one of these, situated at Evans Head being decommissioned. Their construction dates vary from 1949 to 2007. Little maintenance has been carried out on these structures since initial construction with the maintenance of these reservoirs over their life being mainly reactive with defects being fixed as they occur. Evans Head low zone reservoir situated at Wirrawee Avenue requires a new roofing structure while all reservoirs require safety works to be carried out to conform to current Australian Standards.

Council's four pump stations within the Lower River district were commissioned between 1990 and 2005. Maintenance of these pump stations since initial construction has mainly been reactive with defects being fixed as they occur.

Casino and Lower River

Council's reticulation mains are of varied age, condition and material. Council's asset register can generate a replacement programme based on the date of construction, assumed asset life and type of material. Although this may appear to bring items up for replacement, in reality it is a means of highlighting the asset for a more detailed assessment. If the asset is not in need of repair/replacement, then an extended asset life can be chosen. Projects to replace aged mains and the upgrading to a minimum diameter of 100 mm of other mains, both with uPVC (Blue Brute) pipes are continually in progress. A network analysis of Council's water supply system needs to be carried out to ensure the system meets service requirements in terms of pressure, flow and reliability.

Fire Hydrants and Stop Valves are subject to quarterly inspections, but at this stage it is unknown how many hydrants or stop valves get inspected within the time allocated. Maintenance is carried out after these inspections and on a reactive basis.

Water Meters are inspected quarterly when the meters are read for billing purposes. Any defects are noted at this time and fixed accordingly.

Other valves at this stage are not inspected. Maintenance of these valves is mainly reactive with defects being fixed as they occur.

Water service lines have no replacement or maintenance schedule with the maintenance of these lines being reactive with defects fixed when they occur.

The average condition profile of Council’s transport assets is shown in Figure 5.16. It identifies that most asset groups are good to average condition. This is important to monitor as these assets are well through their useful life.

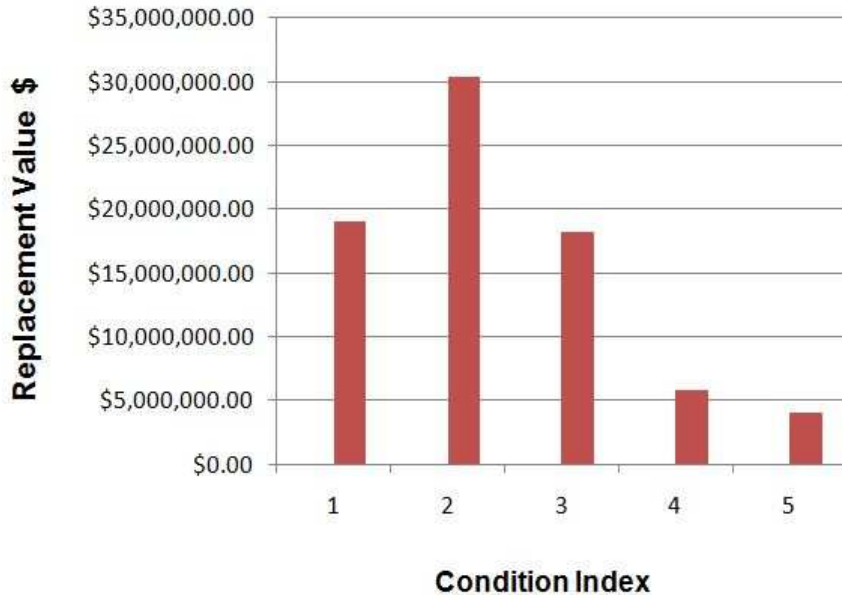


Figure 5.16: Asset Condition Profile – Replacement Values of Assets (Magarry 2010a, p. 16)

The value of the infrastructure assets included in this asset management plan is summarised below. The value of assets is based on Council’s technical asset register. Revaluation of these assets is required by the NSW Department of Local Government to meet ‘Fair Value’. Assets are valued at ‘greenfield rates’.

Current Replacement Cost	\$77,459,864
Average Annual Asset Consumption (AAAC)	\$1,228,812
Depreciated Replacement Cost	\$44,979,276

A comparison is given below indicating Councils current sustainability in relation to asset consumption, asset renewal and annual upgrade/expansion.

Asset Consumption	1.5 %
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Asset Renewal 1.5 %

Annual Upgrade/expansion 1.0 %

The projected capital renewal expenditure is summarised in Figure 5.17. Note that all costs are shown in current 2009 dollar values.

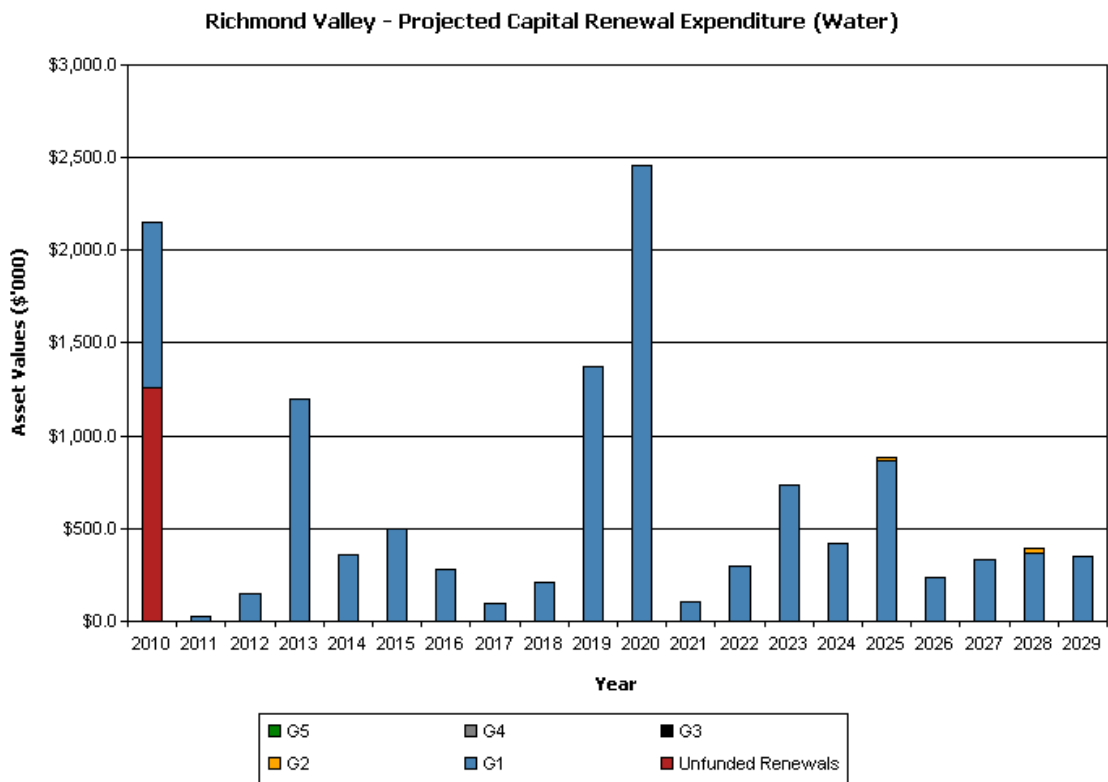


Figure 5.17: Richmond Valley – Projected Capital Renewal Expenditure Water (Magarry 2010a, p. 22)

(iv) Core Sewerage Services Asset Management Plan

The following information contained in Section (iv) are extracts taken from Magarry 2010b.

The technical register carries a total renewal value for sewerage service assets of \$106.4M

The analysis of life cycle cost for these infrastructure assets is estimated at \$3.1 million per annum. Council's planned life cycle expenditure for year 1 of the asset management plan is \$1.6 million which gives a life cycle sustainability index of 0.51

The sewerage infrastructure assets are in good overall condition, however there is significant renewal expenditure required over the next 20 years. The average annual expenditure required in the next 20 years is \$5.6 million per annum giving a 20 year sustainability index of 0.28. A target ratio of 1.0 is desired.

It is important to continue to reassess this situation as the current ratios indicate that the current level of service being provided cannot be maintained.

The following assets are covered under the Sewerage Services core plan:

Table 5.6: Assets Covered by the Sewerage Services Asset Management Plan (Magarry 2010b, p. 2)

Asset	Description
Sewerage Treatment Plant - Casino	Spring Grove Road
Sewerage Treatment Plant - Evans Head	Broadwater Evans Head Rd
Sewerage Treatment Plant - Coraki	Box Ridge Rd
Sewerage Treatment Plant - Rileys Hill	Rileys Hill Rd
Pump Stations Casino	Pump Station 1 - Wheat St Pump Station 2 – Lennox St Pump Station 3 – Campbell St Pump Station 4 – Hotham St Pump Station 5 – Robinson Ave Pump Station 6 – Canterbury St Pump Station 7 – Irving Dr Pump Station 8 – Johnston St Pump Station 9 – Lennox St Pump Station 10 – Pratt St Pump Station 11 – Sextonville Rd Pump Station 12 – Lakeside Dr Pump Station 13 – Lakeside Dr Pump Station 14 – Fairway Dr Pump Station 15 – Neville Bienke Dr
Pump Stations - Evans Head	Pump Station 1 – Park St Reserve Pump Station 2 – Teak St Pump Station 3 – Stan Payne Oval Pump Station 4 – Flame St Pump Station 5 – Silver Sands Caravan Park Pump Station 6 – Cassia St Pump Station 7 – Bundjalung Rd - Boat Ramp Pump Station 8 – Currajong St Pump Station 9 – Carrabeen St
Pump Stations - Coraki	Pump Station 1 – Union St Pump Station 2 – Allwood St

Pump Stations - Woodburn	Pump Station 1 – Kent St Pump Station 2 – Pacific H’way South Pump Station 3 – Duke St Pump Station 4 – Woodburn Evans Head Rd
Pump Stations Rileys Hill	Pump Station 1 – Rileys Hill Rd Pump Station 2 – Rileys Hill Rd
Package Pump Station Coraki	Bridge St – Windsor Park
Comminutor Casino	Queen Elizabeth Park
Sewer Rising Mains All Areas	Various Diameters and Materials – 40.1km
Sewer Gravity Mains All Areas	Various Diameters and Materials – 142.8km
Sewer Service Lines All Areas	Various Diameters and Materials
Sewer Manholes All Areas	Various Diameters and Depths - 2450
Sewer Fittings >Ø300 All Areas	Various Diameters and Materials
Telemetry All Areas	Various Types

The replacement value of these assets is summarised in Table 5.7 as follows:

Table 5.7: Replacement Value of Assets Covered by the Sewerage Services Asset Management Plan (Magarry 2010b, p. 15)

Asset Subcategory	Description	Replacement Value \$
Plant	Pump Stations	\$15,153,220
Plant	Treatment Works	\$38,715,563
Sewerage Connection	Sewerage Connection	\$3,140,312
Sewerage Fittings	Sewerage Fittings	\$66,150
Sewerage Headwalls	Sewerage Headwalls	\$233
Sewerage Junctions	Sewerage Junctions	\$738,212
Sewerage Manholes	Sewerage Manholes	\$10,916,841
Sewerage Pipelines	Sewerage Pipelines	\$37,554,530
Sewerage RM Valves	Sewerage RM Valves	\$3,675
Sewerage Valve Pits	Sewerage Valve Pits	\$141,960
Sewerage Vent Stacks	Sewerage Vent Stacks	\$18,711
	Total	\$106,449,407

This inventory has been compiled from the best data currently available and provides an indication of the value and components comprising Richmond Valley Council's Water Supply assets.

Figure 5.18 represents the proportion of value by asset type.

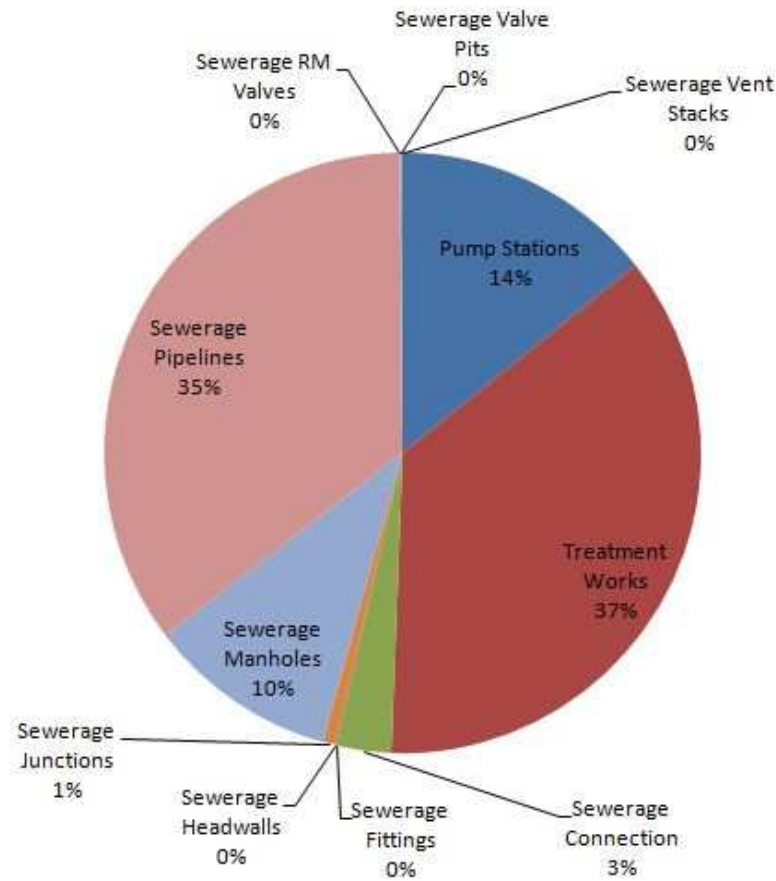


Figure 5.18: Proportion of Value by Sewerage Services Asset Type (Magarry 2010b, p. 16)

The age profile of the sewerage infrastructure assets is shown in Figure 5.19. It is likely that much of this infrastructure will be well through its useful life, and will require renewal in the near future.

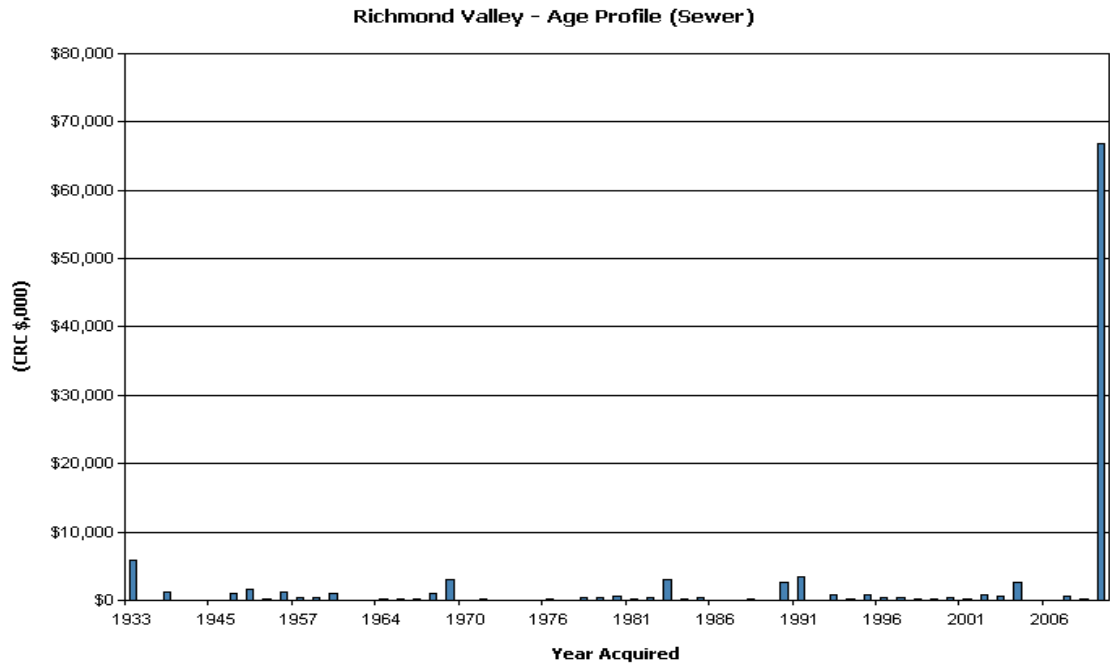


Figure 5.19: Richmond Valley – Age Profile Sewer (Magarry 2010b, p. 16)

Richmond Valley Council Sewerage system comprises four sewerage treatment works (STW) located at Casino, Evans Head (which currently receives raw effluent from Woodburn), Coraki and Rileys Hill.

Casino STW

This treatment works comprises three trickling filters and an extended aeration tank (EAT) which operates in parallel under higher flows. The treated effluent is discharged into a tertiary pond and then into a constructed wetland area within the STW site. The transport system includes 15 pumping station and a network of rising mains and gravity reticulation mains. The Casino system also comprises a comminutor to macerate raw effluent prior to transfer under the Richmond River via a dual pipe inverted siphon system.

Evans Head STW

The Evans Head STW received a major augmentation in 2007 with an Intermittently Decanted Extended Aeration Tank (IDEAT) replacing the trickling filters. New inlet works for flow reception, fine step screen, grit arrestor, flume and flow division, together with a deodorisation bed, a balance/catch tank attached to aeration tanks, chemical dosing systems and two new sludge tanks, and a sludge dewatering area, and UV disinfection.

The Evans Head transport system includes nine pumping stations and the Woodburn transport system includes four pumping stations together with a network of rising mains and gravity reticulation mains. The augmentation was required to accommodate the growth in the area and to meet stringent licence requirements for effluent management with effluent re-use and excess effluent release. Secondary effluent is discharged via an open drain to natural wetlands that drain into Salty Lagoon during heavy rain.

Coraki STW

Coraki STW comprises a trickling filter and two tertiary maturation ponds. The transport system includes two pumping stations and a network of rising mains and gravity reticulation mains. Effluent from the final maturation pond is discharged via a concrete outfall pipe onto adjacent swampland and drains into the Richmond River.

Rileys Hill STW

This is an activated sludge plant incorporating UV disinfection and phosphorus removal. The transport system includes one pumping station and a network of rising mains and gravity reticulation mains. Effluent discharge is directly into the Richmond River.

Others

The town of Broadwater and villages of Rappville and Fairy Hill currently utilise on-site systems for the treatment of their wastewater. Investigations, planning and design work have been completed to provide Broadwater with a reticulated sewerage service in the future, however Council does not intend to provide Rappville and Fairy Hill with reticulated services in the foreseeable future.

The average condition profile of Council’s sewerage assets is shown in Figure 5.20. It identifies that most asset groups are good to average condition. This is important to monitor as these assets are well through their useful life.

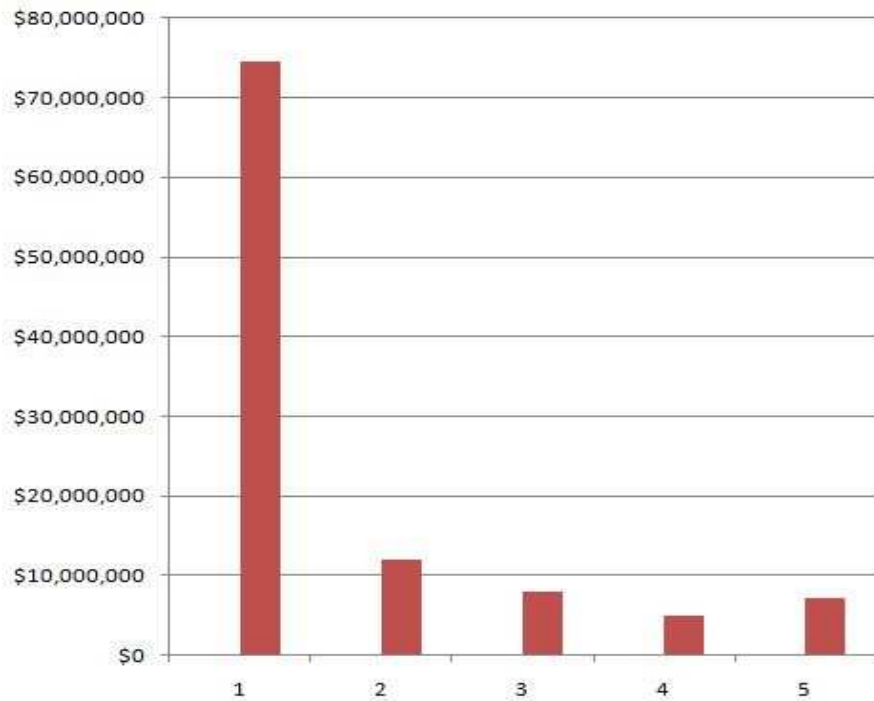


Figure 5.20: Asset Condition Profile – Replacement Values of Sewerage Assets (Magarry 2010b, p. 18)

The value of the infrastructure assets included in this asset management plan is summarised below. The value of assets is based on Council’s technical asset register. Revaluation of these assets is required by the NSW Department of Local Government to meet ‘Fair Value’. Assets are valued at ‘greenfield rates’.

Current Replacement Cost	\$106,449,407
Average Annual Asset Consumption (AAAC)	\$1,708,113
Depreciated Replacement Cost	\$85,527,207

A comparison is given below indicating Councils current sustainability in relation to asset consumption, asset renewal and annual upgrade/expansion.

Asset Consumption	1.6 %
Asset Renewal	0.15 %
Annual Upgrade/expansion	0.2 %

The projected capital renewal expenditure is summarised in Figure 5.21. Note that all costs are shown in current 2009/2010 dollar values.

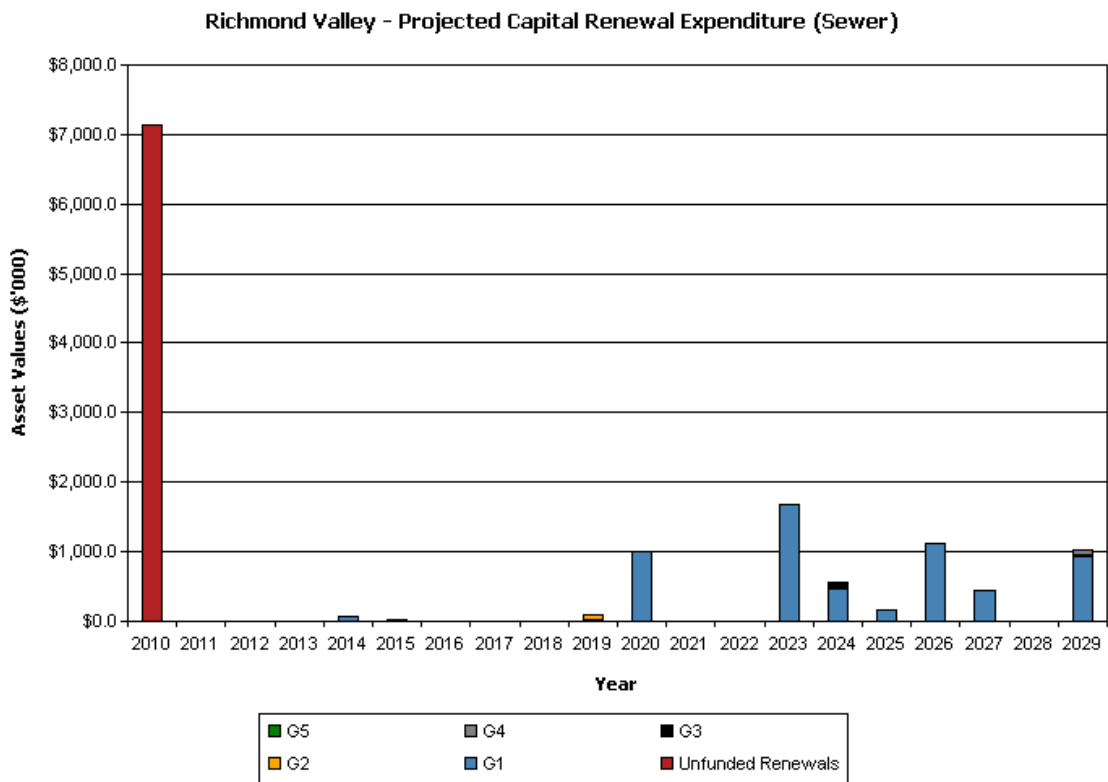


Figure 5.21: Richmond Valley – Projected Capital Renewal Expenditure Sewerage (Magarry 2010a, p. 24)

5.3.6 Asset Management System

Computer based asset management systems are used to store and analyse the significant quantities of asset data collected for asset management purposes. Such systems can also provide connectivity with other corporate information systems and databases. The power of current computing technology enables a comprehensive and cost-effective approach to asset identification, analysis and management. This ability, coupled with

availability of powerful, flexible software, enables complex analysis and reporting functions to be performed.

Richmond Valley Council is responsible for the management of a wide range of physical assets. Its asset base includes assets which are typical to local government such as roads, drains, reserves and buildings as well as assets which are typical to water authorities such as treatment plants, water supply & sewer mains, pump stations and telemetry.

These assets are used to provide a range of services to the Richmond Valley community. The level of service delivered by these assets is largely determined by the manner in which they are maintained and managed.

In order to better manage its assets, Richmond Valley Council is in the stage of implementing an Integrated Asset Management System (AMS) namely AssetMaster by InfoMaster. AssetMaster will allow Council to collect and store asset data and to manage its infrastructure maintenance and replacement programs. The system will also allow Council to monitor the effectiveness of its adopted asset management strategies and adjust them accordingly.

In the current environment AssetMaster is not linked with Council's financial system Fujitsu. This integration is planned for a later date when Council decides on the direction it will take with regard to the future of Fujitsu.

Richmond Valley Council's objectives in the implementation and consequent management of AssetMaster are as follows:

- To have a central repository for all asset data.
- To undertake life cycle management of all Council asset categories.
- To facilitate an asset management culture.
- To reduce the overall costs and risks associated with Council assets.
- To own a system that is flexible enough to accommodate the variations in the management of the various asset categories.

- To provide the ability to add advanced asset management functionality as the Council matures with respect to asset management.
- To have an integrated system that will support the concept of once only data entry and be easily interfaced with other corporate applications.

5.4 Future Position for Richmond Valley Council

The future position of Richmond Valley Council will involve a concerted team effort across the whole of Council. Concentrating on Asset Management and Financial Management objectives will help steer the organisation in the right direction. The astute management of these two facets will set up Council to be in the desired future position of being a fully sustainable council.

5.4.1 Asset Management

Continuous improvement of current information on all assets is required so that more detailed analysis of the current funding shortfalls can be addressed. This can then be fed into the revisions of the core asset management plans or more importantly in the proposed advanced plans. This will require a project level detail analysis to confirm both the scope of the works required and the estimate of the associated costs.

Expenditure reporting should be improved so that the detailed expenditure relating to individual assets can be assessed. In particular, greater knowledge of the proportion of expenditure on maintenance as compared to renewal or expansion is necessary.

Re-analysis of the gap required to fund all assets at the desired service levels, and detailing the consequences on service level and risk should additional funding not be provided. This further analysis will enable the relative costs and priorities to be balanced with the funding provided in Council's Long Term Financial Plan, and for consultation with the community.

A review of useful lives and the depreciation rate used for all assets classes is required. A move away from straight line depreciation and a review on the methodology for determining remaining lives is to be investigated.

Future revisions of the asset management plans will move towards 'advanced' asset management using a 'bottom up' approach for gathering asset information for individual assets to support the optimisation of activities and programs to meet agreed service levels.

5.4.2 Financial Management

The future for Richmond Valley Council regarding financial management requires Council to gain income from other sources and new strategies. If this does not occur Council is in danger of falling into the position of being a maintenance only council forgoing many vital capital works. Needless to say this would be a tragedy for the community at large.

Effective asset management planning alone will not prevent this from happening and the full cooperation from Council is needed to make some hard decisions and recommendations regarding the finances of Council. Some of these decisions and recommendations might include:

- Revisit the funding gap in the asset management plans by reconsidering the useful lives of assets. This would spread out the cost of replacing and renewing assets over a longer period of time.
- Identification of surplus assets that are not required and sell them off. These assets would generally include vacant parks and land under the control of Council and buildings or land improvements where it is uneconomical to maintain in the future and where other sites have been identified which serve the same purpose. This will generate cash for other purpose plus potentially save on maintenance.
- Invest these funds into an infrastructure sinking fund where the principal is preserved but the interest earned is used to finance asset maintenance/renewal. If Council could sell off say \$10,000,000 in surplus assets and reinvest the proceeds at 7.00% per annum – there is an additional \$700,000 in revenue per annum which is equivalent to an 8.75% rate increase. (Fordham, D 2010, pers. comm., 2 September).

- Review the affordability of the sewerage program by reducing the magnitude of works required. A reduction in the sewerage charge could then be utilised in the general fund via a rate increase if approved which will minimise the impact on most ratepayers. (Medhurst, R 2010, pers. comm., 14 September).
- Council needs to determine what its priorities are in terms of service provision. Services that are not priorities are then to be reduced to free up funding for the priority areas.
- Council needs to pursue grants devotedly.
- A rolling rate increase will eventually be required and this is becoming unavoidable. The issue for Council is to determine the balance between how much the community can afford and the amount Council requires to fulfil its obligations. (Fordham, D 2010, pers. comm., 2 September).
- A complete review of the Revenue Policy needs to be undertaken where fees and charges are revamped or increased to provide additional revenue where able too. (Fordham, D 2010, pers. comm., 2 September).
- Council should not create additional assets which require service but concentrate on maintaining and renewing existing assets.
- Endeavour to grow the rate base by also increasing the population and if able to within the reaches of existing infrastructure, i.e. more condensed development. The impact of rate increases is easier if spread across more assessments. (Medhurst, R 2010, pers. comm., 14 September).
- Council needs to look at its operations to see if efficiencies or greater economies can be achieved. (Fordham, D 2010, pers. comm., 2 September).
- Whether the prospect of loan borrowings in the general fund could be considered in future to finance asset renewal. Council will be debt free in the general fund in 2013 and has not borrowed for 7 years in the general fund. (Fordham, D 2010, pers. comm., 2 September).

5.5 Conclusions

Asset Management Practices usually consist of the core or advanced approach with the core approach being the most used throughout Australia. This can be attributed to the general infancy of asset management within Australia and its ease of use compared to the advanced approach. This is consistent with the approach that Richmond Valley Council is presently using in the view of going beyond this and adopting advanced asset management planning.

With the growing population of Richmond Valley Council it is imperative that the core functions of Council are working effectively and efficiently. Even with strong industries within the local government area, an increase in general and business development is needed to secure its future.

The finances of Council regarding asset management are in dire straits with underfunding a major issue which needs to be rectified. The Integrated Planning and Reporting framework is underpinning Council's response to this predicament. A long term financial plan is long overdue to ascertain the affordability of future service levels and asset renewal.

An Asset Management Strategy and Asset Management Policy have been adopted by Council and provide strong foundations on which to build the technical aspects of asset management planning.

Draft core asset management plans are in place for the majority of Council's infrastructure assets. Minor adjustments need to be made before they go to Council to get adopted. These plans show that on current and historic trends Council cannot afford to sustain its asset stock.

An asset management system has been purchased and the asset register has over 50,000 assets input into it. Further work needs to be carried out to bring the rest of Council's assets into the register and resources are required to enable Council to fully realise the potential of this software in regard to work orders, risk management and predictive analysis.

A future position for Richmond Valley Council has been realised and Council is committed to moving forward in this direction. For asset management this involves working towards advanced planning with continuing reviews of asset information, improved expenditure reporting, analysis of any gaps well defined levels of service. An in-depth review of the financial management of Council's assets and revenue raising is required to prevent Council from being a maintenance Council. A number of suggestions have been detailed on how Council might do this and hard decisions need to be made.

CHAPTER 6 – ADVANCED ASSET MANAGEMENT

To enable Richmond Valley Council's advanced asset management strategy to be realised quickly and efficiently, a generic systematic approach and procedure for the preparation of advanced asset management plans is to be developed and implemented. It is envisioned that the standard procedure will be able to be used across all asset classes and be concise enough that it will be used to implement advanced asset management planning in a cost effective and efficient manner.

After consultation with management and staff at Richmond Valley Council it was decided to base the advanced asset management approach around the guidelines of the International Infrastructure Management Manual 2006 (IIMM 2006), in particular *Figure 2.2.4: 'Criteria for Assessing Conformity to 'Core' and 'Advanced' Levels of Asset Management in New Zealand* (IPWEA 2006, pp. 2.11-2.12), and to build upon the current draft core plans. It is not envisioned to be as in-depth as detailed in the IIMM 2006 but enable accurate capital works programs and well defined affordable levels of service to be output to the Councils strategic and long term financial plans.

6.1 Corporate Planning

As part of the Integrated Planning and Reporting framework the advanced plans will provide input into Council's Community Strategic Plan and the long term financial plans which will include the Delivery Plan and Operational Plan. Hence all plans will become intertwined with each other where as previously most of the similar style plans were prepared in isolation without much consultation done with the other departments.

For this to be realised a strong relationship between the 'asset owners' and Council's financial staff is essential. This working connection has been established for a number of years now at Richmond Valley Council with the creation of an asset management team which includes members from the asset owner's group, finance and information technology departments.

Council's other related documents which would have bearing on the advanced plans and vice versa include its Asset Management Policy and Asset Management Strategy. Both

of these are adopted by Council and will most likely require revision once the advanced plans are completed.

6.2 Asset Information

Asset data information is the life and blood of any asset management plan. Council's current asset datasets are very well defined for approximately 75 % of its portfolio. Currently assets are spatially enabled in Council's GIS program MapInfo and then linked to Council's asset management system AssetMaster. These systems enable a high degree of accurate information to be captured about the asset and are fully user definable.

IPWEA 2006 describes the criteria that should be met to achieve advanced plans with regard to asset information as:

'A reliable physical inventory of assets at both an individual asset level and at a network level. This would include:

- physical attributes such as location, material, age etc
- systematic monitoring and analysis of physical condition
- systematic measurement of asset performance (including utilisation/capacity).' (IPWEA 2006, p. 2.11)

Council's current systems are quite capable of capturing information about the assets at this level and also capable of recording any defect or maintenance monitoring that is required. AssetMaster has the ability to also link assets as a parent and child relationship to enable a network level repository of information.

Assuming the core criteria have been met, the procedures for the advance asset management plan for Asset Information would include:

- Ensure all data for the asset class in question has the pertinent information as required.
- Ensure this information has a high degree of accuracy by best means possible.

- Ensure procedures are in place within the asset management system to enable condition assessments of the asset class to be automatically generated according to predefined inspection regimes nominated in Council's Asset Management Strategy.
- Ensure asset performance is measured by utilising the Work Order system within AssetMaster to track any works or inspections generated against the asset.
- Ensure an assets capacity is analysed and documented in AssetMaster.

6.3 Levels of Service

Well defined levels of service are crucial for the achievement of advanced asset management plans. While core plans are based on what Council currently is achieving with levels of service the advanced plans need to reflect a balance of the desires of the community and the funding of these levels that Council can afford.

Currently Council has nominal adopted levels of service that they need to adhere to. This can cause great angst to ratepayers and Council staff alike as neither knows where they stand when it comes to understanding what standard of service the community is entitled too. Defining levels of service involving consultation with the community and other stakeholders is going to be one of the defining attributes separating the core and advanced plans. It will be resource hungry and can potentially take over the project if not kept in check.

Assuming the core criteria have been met, the procedures for the advance asset management plan for Levels of Service based upon IPWEA (2006, Figure 2.2.4, p. 2.11) would include:

- Evaluate current available level of service options available to Council taking into account funding and resourcing constraints.
- Undertake consultation with the pertinent community groups and stakeholders in regard to the level of service options developed previously.
- Adopt the agreed levels of service including any funding and resourcing requirements needed.

- Make the adopted agreed levels of service available to the wider community.
- Ensure AssetMaster is setup to be able to track Councils adherence to the agreed levels of service through customer requests and in-house generated work orders or maintenance programs.

6.4 Growth Management

As detailed in Section 5.3.1, it is anticipated that the Richmond Valley Council area will experience significant population growth in the years to come. Management of this growth in regard to asset maintenance, renewal, expansion and upgrades can be of significant importance when preparing corporate planning documents.

Assuming the core criteria have been met, the procedures for the advance asset management plan for Growth Management based upon IPWEA (2006, Figure 2.2.4, p. 2.11) would include:

- Ensure asset maintenance schedules, renewals, expansions and upgrades that are included in any outputs of the advance plan reflect the growth and demand forecast analysed in the plan in regard to capacity, relativeness and life cycle costs.

6.5 Risk Management

Risk management provides the means by which a Council can measure its risk exposure and take actions to reduce this risk.

‘Risk management is increasingly being viewed as a core business driver that influences all decision making, rather than an activity undertaken as an isolated process.’ (IPWEA 2006, p. 3.53)

This can’t be truer for Councils who own assets that are crucial for the safety and endurance of the community as a whole.

Considering the type of assets Councils own it is imperative that a risk analysis is completed for each asset class so critical assets can be identified and risk management procedures put in place.

Assuming the core criteria have been met, the procedures for the advanced asset management plan for Risk Management based upon IPWEA (2006, Figure 2.2.4, p. 2.11) would include:

- Risk management procedures are to be consistent with the Australian Standard AU/NZS4360 and Council's Risk Management Policy
- Ensure a risk analysis is carried out on the asset class on an individual and network level using AssetMaster's Risk Management module as the main information repository.
- Identify all critical assets analysed in the risk analysis.
- Ensure risk treatment analysis is completed in AssetMaster.
- Ensure tracking, reporting and continual assessment of the risks entered into AssetMaster is setup to be automatic.

6.6 Optimised Decision Making

A gap analysis which indicates the difference between current funding levels and the funding required to meet agreed service levels is a core ingredient in asset management planning. Initial gap analysis on a network level will be completed in the core plans. This needs to be refined to an individual asset class level for the advanced plans. For example: The initial gap analysis will concentrate on the assets as a group such as all transport assets, for the advanced plans the gap needs to be re-analysed for individual asset classes on their own such as sealed roads.

Council needs to be able to recognise this shortfall and develop solutions for the problem. This can be achieved by a review of the agreed service levels and current funding levels. The decisions made by Council need to be justifiable and in the best interest of the community. Hence evaluation techniques that can justify the selection of major capital works in the long term financial plan need to be determined.

Assuming the core criteria have been met, the procedures for the advance asset management plan for Optimised Decision Making based upon IPWEA (2006, Figure 2.2.4, p. 2.11) would include:

- Using a combination of asset condition assessment, asset age profile and risk analysis develop a forward capital works program for input into the long term financial plan.
- Conduct a gap analysis on the individual asset class. This is to be done in reference to the funds required that enable the agreed levels of service to be implemented and the forward works programs to be funded.
- Using AssetMaster apply predictive modelling tools to provide input into the long term financial plan.
- Conduct a cost benefit analysis of the outcome and review the agreed levels of service and forward works program if required.

6.7 Completion of Advanced Asset Management Plan

The previous sections in this chapter outlined the major research and milestones required to enable the completion of an advanced asset management plan as required by Richmond Valley Council. They are not a procedure on how to write the plan from start to finish and they are not intended to be. Their main purpose is to provide direction to Council staff on the major requirements they need to complete first before an effort can be made on writing and adopting an advanced plan, i.e. the preparation.

The actual completion of the advanced plan will involve the collation and interpretation of the previous information collected and other attributes that will be consistent across each plan.

Ideally the outputs generated from the preparation procedure will be created as an annexure to the associated adopted core plans. This would then be adopted by Council as an amendment to the core plan. This would enable the advanced plans to be done quickly and efficiently as a whole new asset management plan would not have to be created and adopted.

6.8 Conclusions

The preparation and subsequent creation and adoption of an advanced asset management plan can be a time consuming and onerous task. The preparation procedure was created to reduce the impact of advanced plan writing on Council's resources and enable them to be completed quickly and efficiently.

The procedure is to be classed as a 'live' document in the way that continual improvement to the process is considered normal. It provides the starting point for which Council staff can begin developing the essential background information that is required for advanced planning.

A completed version of Richmond Valley Council's Procedure for the Preparation of an Advanced Asset Management Plan can be found in Appendix D.

CHAPTER 7 – CONCLUSIONS

7.1 Introduction

The production of this dissertation has provided a much clearer insight for Richmond Valley Council and myself into best practice asset management. The dissertation has introduced a range of asset management concepts and practices from around Australia and in particular Richmond Valley Council.

The information gathered in the dissertation has been invaluable in understanding where Richmond Valley Council stands in regard to their advancement in asset management. It has enabled a direction to be forged of where Council would like to take their role in asset management. This direction is to be towards advanced asset management planning.

7.2 Conclusions

Research into the current state of knowledge of asset management within Australia has revealed that the majority of Councils across Australia have not introduced best practice asset management or financial management. The situation of asset degradation due to ineffective and naive governance is ominous for the community as a whole and for future generations to come. Councils need to adopt sustainable management practices corporate wide or risk a future where no new infrastructure can be built and even maintenance or renewal on their existing asset stock will be severely underfunded.

In regard to best management practices, New Zealand councils provide a benchmark to which Australian councils should aspire too. A wealth of knowledge including successes and failures can be gained from our trans-Tasman neighbour. Australia needs to learn from these mistakes to ensure a smooth transition is made from years of neglect to best management practices.

The most common asset management processes that exist for Australian local government at the moment seems to be one of reactive maintenance and where levels of service are governed by current expenditure. Only a minority of councils actually have adopted asset management strategies or similar that provide council the necessary

information to alleviate these problems. This can be seen with the extraordinary amount of funding required to bring Australia's infrastructure asset stock to a standard that is acceptable to the community.

When councils do start preparing asset management plans it is usually done according to the International Infrastructure Management Manual 2006 using the core approach. From the research gathered there was little evidence to say that other than New Zealand councils there aren't any councils practising advanced asset management techniques. Legislation and departmental directives have attributed overwhelmingly to the process of enforcing councils to embrace asset management.

Richmond Valley Council has started down the path of best asset and financial management practices to ensure they can get to a sustainable point where they are able to program works without too much worry about funding and other requirements. Their current practices include an adopted asset management policy and strategy and draft core asset management plans. They are in the process of implementing the directives from the Integrated Planning and Reporting framework which include the integration of other corporate documents such as asset management plans.

The future for Richmond Valley Council has been determined. They are committed to providing the community with advanced asset management plans that can deliver agreed levels of service and sustainable governance. Their Community Strategic Plan and long term financial plans are being developed which ensures a future for the community and greater transparency.

A systematic approach to the preparation of advanced plans has been developed for Richmond Valley Council and requires adoption by Council. This will set in place the requirements that need to be adhered to when producing these plans. An ongoing improvement process for the procedure is expected to refine the process even further. At this stage it is not envisioned to be of a satisfactory enough standard to be used out of the Richmond Valley Council organisation.

Due to resourcing constraints at Richmond Valley Council, availability of management at crucial times and my own circumstances the development and adoption of an

advanced asset management plan did not eventuate. Hence implementation of the plan could not occur.

7.3 Further Research and Recommendations

Additional research on the affects advanced asset management planning has had on New Zealand councils would be a great benefit into how Australian councils could proceed to the next level. Also a broadening of the scope to include international councils or their equivalent would give an overall picture on how older countries have dealt with their significantly aging infrastructure.

Follow up studies on the effect of the various sustainability reports have had on individual councils would be of a benefit. It would also be beneficial if the progress of the recommendations that were indicated in these reports were investigated further to obtain an idea of where local government departments and government agencies are heading with asset management directives.

Further work is needed to select an asset class to concentrate on and develop an advanced asset management plan for Richmond Valley Council. Once this plan was completed and adopted by Council the implementation phase would begin.

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APPENDIX A – Project Specification

University of Southern Queensland

FACULTY OF ENGINEERING AND SURVEYING

ENG4111/4112 Research Project

PROJECT SPECIFICATION

FOR: **Anthony John MAGARRY**

TOPIC: **MANAGEMENT OF PHYSICAL ASSETS – ADVANCED ASSET MANAGEMENT PLANNING**

SUPERVISOR: **Dr David Thorpe**

SPONSORSHIP: **Not Applicable**

PROJECT AIM: **To investigate the current state of knowledge of Advanced Asset Management and provide a systematic approach for the preparation of Advanced Asset Management Plans.**

PROGRAMME: Issue A, 23 March 2010

1. Research the current state of knowledge of Asset Management with an emphasis on Advanced Asset Management.
2. Describe and define the most common current Asset Management processes for Local Government and in particular Richmond Valley Council.
3. Develop a future position for Richmond Valley Council involving Advanced Asset Management.
4. Develop a generic systematic approach for the preparation of Advanced Asset Management Plans that can be used within the Local Government sector.
5. Submit an academic dissertation on the research and procedures.

As time permits:

6. Develop an Advanced Asset Management Plan for a selected asset group for Richmond Valley Council.
7. Implement the Advanced Asset Management Plan at Richmond Valley Council.

AGREED: _____ (Student) _____ (Supervisor)
Date: / / 2010 Date: / / 2010

Examiner/Co-examiner: _____

APPENDIX B – Risk Assessment

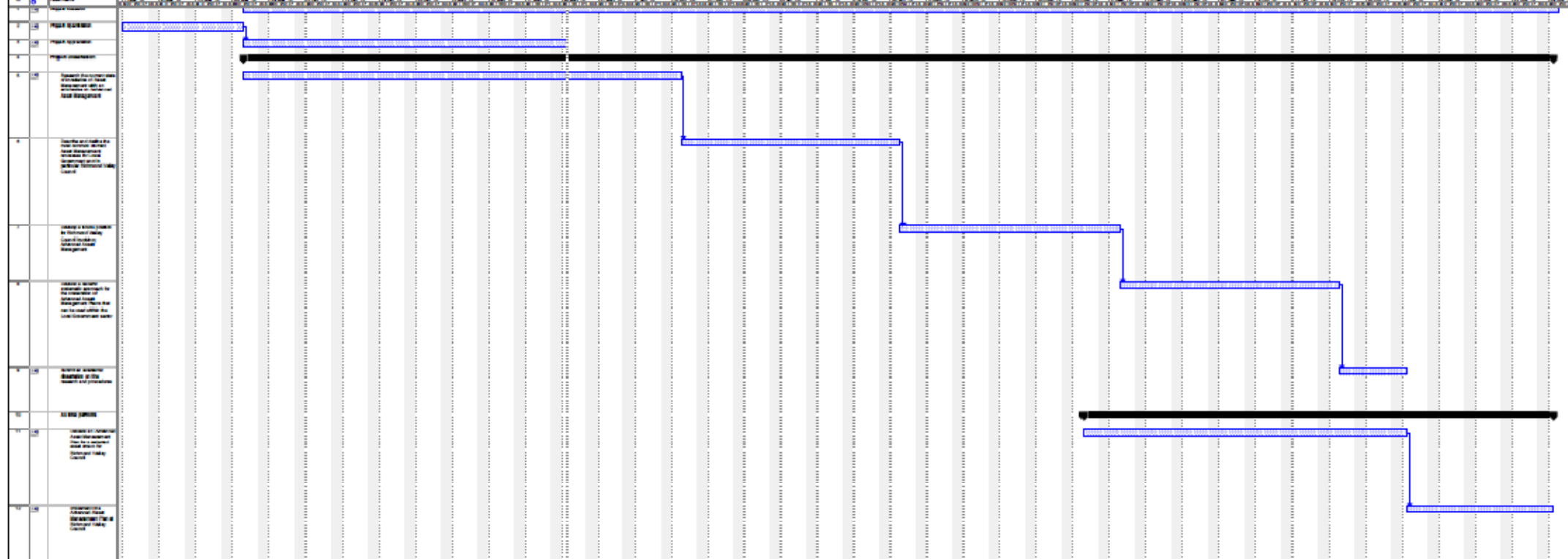
APPENDIX B - Risk Assessment

Project Name	Management of Physical Assets - Advanced Asset Management Planning											
Prepared By	Anthony Magarry - 0050017269											
Date	May 2010											

Risk No.	RISK IDENTIFICATION				RISK ANALYSIS					RISK TREATMENT		
	Hazard Description	What can happen?	When can it occur?	Is risk credible?	Likelihood	Consequences	Risk rating	Action required	Is risk acceptable?	Treatment option(s)	Residual risk	Status
1	Project Appreciation	Loss of time due to unforeseen circumstances	Anytime now	Yes	Possible	Minor	Medium	Planned action required	No	- Plan ahead - Don't plan anything major	Low	Ongoing
2		Unable to submit on time	Anytime now	Yes	Possible	Moderate	High	Prioritised action required	No	- Ensure project timelines are in place - Adhere to project timelines - Advise USQ Supervisor	Low	Ongoing
3	Literature Review	Unable to find sufficient information	Anytime now	Yes	Rare	Major	Medium	Planned action required	No	- More research required - Advise USQ Supervisor	Low	Ongoing
4	Communication	Lack of communication	Anytime now	Yes	Possible	Moderate	High	Prioritised action required	No	- Keep in regular contact with USQ Supervisor	Low	Ongoing
5	Work Commitments	Work commitments interfering with study	Anytime now	Yes	Likely	Major	High	Prioritised action required	No	- Keep work commitments within the hours of work	Low	Ongoing
6	Richmond Valley Council	Unable to provide assistance	Anytime now	Yes	Rare	Catastrophic	High	Prioritised action required	No	- Keep in regular contact with meetings and updates	Low	Ongoing
7		Unwilling to proceed with advanced asset management	Anytime now	Yes	Rare	Catastrophic	High	Prioritised action required	No	- Keep in regular contact	Low	Ongoing
8		Unwilling to provide resources	Anytime now	Yes	Rare	Moderate	Medium	Planned action required	No	- Keep in regular contact	Low	Ongoing
9		Unable to make resources available	Anytime now	Yes	Possible	Moderate	High	Prioritised action required	No	- Keep in regular contact - Ensure resources are available elsewhere	Low	Ongoing
10	Scope of project too large	Run out of time for submission	Anytime in the future	Yes	Possible	Catastrophic	High	Prioritised action required	No	- Keep reassessing position - Advise USQ Supervisor	Low	Ongoing
11	Personal injury	Incapacitated and unable to complete dissertation	Anytime in the future	Yes	Rare	Catastrophic	High	Prioritised action required	No	- Remain healthy - Avoid dangerous situations	Low	Ongoing

APPENDIX C – Project Timelines

APPENDIX C - Project Timelines



**APPENDIX D – Richmond Valley Council Procedure
for the Preparation of an Advanced Asset Management
Plan**

Richmond Valley Council Procedure for the Preparation of an Advanced Asset Management Plan

Asset Information

- Ensure all data for the asset class in question has the pertinent information as required.
- Ensure this information has a high degree of accuracy by best means possible.
- Ensure procedures are in place within the asset management system to enable condition assessments of the asset class to be automatically generated according to predefined inspection regimes nominated in Council's Asset Management Strategy.
- Ensure asset performance is measured by utilising the Work Order system within AssetMaster to track any works or inspections generated against the asset.
- Ensure an assets capacity is analysed and documented in AssetMaster.

Levels of Service

- Evaluate current available level of service options available to Council taking into account funding and resourcing constraints.
- Undertake consultation with the pertinent community groups and stakeholders in regard to the level of service options developed previously.
- Adopt the agreed levels of service including any funding and resourcing requirements needed.
- Make the adopted agreed levels of service available to the wider community.
- Ensure AssetMaster is setup to be able to track Councils adherence to the agreed levels of service through customer requests and in-house generated work orders or maintenance programs.

Growth Management

- Ensure asset maintenance schedules, renewals, expansions and upgrades that are included in any outputs of the advance plan reflect the growth and demand forecast analysed in the plan in regard to capacity, relativeness and life cycle costs.

Risk Management

- Risk management procedures are to be consistent with the Australian Standard AU/NZS4360 and Council's Risk Management Policy
- Ensure a risk analysis is carried out on the asset class on an individual and network level using AssetMaster's Risk Management module as the main information repository.
- Identify all critical assets analysed in the risk analysis.
- Ensure risk treatment analysis is completed in AssetMaster.
- Ensure tracking, reporting and continual assessment of the risks entered into AssetMaster is setup to be automatic.

Optimised Decision Making

- Using a combination of asset condition assessment, asset age profile and risk analysis develop a forward capital works program for input into the long term financial plan.
- Conduct a gap analysis on the individual asset class. This is to be done in reference to the funds required that enable the agreed levels of service to be implemented and the forward works programs to be funded.
- Using AssetMaster apply predictive modelling tools to provide input into the long term financial plan.
- Conduct a cost benefit analysis of the outcome and review the agreed levels of service and forward works program if required.