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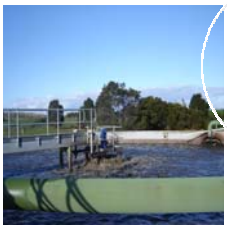

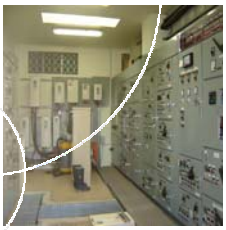

5 Year Strategic Asset Management Plan

Westernport Region Water Corporation

30 July 2007

5 Year Strategic Asset Management Plan

Prepared for

Westernport Region Water Corporation

Prepared by

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Quality Information

Document 5 Year Strategic Asset Management Plan

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Prepared by Sandy Muir and Ollie Kovaljev

Reviewed by Claudio Senese

Revision History

Revision	Revision Date	Details	Authorised	
			Name/Position	Signature
A	25/07/2007		Claudio Senese Associate Director	

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1.0 Overview

1.1 Corporate Vision and Strategy

The 2006 - 2011 Corporate Plan vision for the ***Westernport Region Water Corporation*** is:

> ***That Westernport Water is the preferred multi-utility service provider in the South West Gippsland region.***

The mission statement for WRWC is:

> ***Through being "Customer Driven" and Asset Focused", Westernport Water will provide quality water, wastewater and other utility services as required to the South West Gippsland region.***
>
> ***Through the provision of these essential services Westernport Water aims to enhance the social, environmental and competitive position of the region.***

From the 1 July 2007 Westernport Water officially changed its operating name to ***Westernport Region Water Corporation (WRWC.***. The corporation has established goals to help make its corporate vision a reality, six of these have particular relevance to the effective management of its assets:

- Understand our customers' needs and expectations, communicate and engage them in business decisions, protect their health and well being, treat them with respect and courtesy and inform them expeditiously on issues that are important to them;
- Have superior asset management processes, practices and systems;
- Apply rigour to capital management, focus on "whole of life cycle" costing and cash flow management and ensure returns from investments meet our business objectives;
- Undertake excellence in corporate governance;
- Continuously assess the risks to our business' sustainability and have in place management and response systems; and
- Continuously measure and review actions by asking "how can we do this better?", planning for improvement, investing in business systems to improve productivity and levels of service, developing strategic plans for infrastructure augmentation, refurbishment and replacement and understand intimately our budgets, programs and cost drivers.

The 2008 to 2013 Water Plan strategic intent for WRWC is:

> ***To be a smart company providing quality water services and more.***
>
> ***We value our community, our reputation, our people and outstanding performance.***

WRWC has established objectives driven by stakeholder requirements to support the strategic intent. The objectives of particular relevance to the assets are:

- Focus on the core water services to continually improve the health and well being of our customers and the environment;

- Grow/develop our recycled water activities in a viable and sustainable manner. Research and implement further economically and environmentally viable reuse opportunities;
- Continually listen to our customers and provide them with outstanding service;
- Provide timely and relevant information to our customers and work with them to reduce potable water consumption;
- Manage our business in such a way as to minimize our environmental impact and consumption of natural resources;
- Develop our people to the maximum of their capability;
- Recruit and retain people who will strengthen our culture; and
- Establish a reputation as an organisation with an innovative and vibrant culture.

1.2 Asset Management Policy (draft)

Asset Management Aim
To provide a framework for the management of the Authority's infrastructure assets to ensure the business can most cost effectively deliver its required services at the agreed standards.

Statement of Intent
Asset management is intended to deliver required levels of service in the most cost effective manner through the creation, acquisition, maintenance, operation, renewal, replacement and disposal of assets to provide for present and future customers.

This is achieved by taking a life cycle approach to asset management, having long term management strategies in place, agreeing levels of service and monitoring these, managing risks, operating in a sustainable environment and continuously improving asset management.

1.3 Corporate Planning Context

The following figure illustrates the relationship between the Asset Management Strategy and other corporate documents within the planning context.

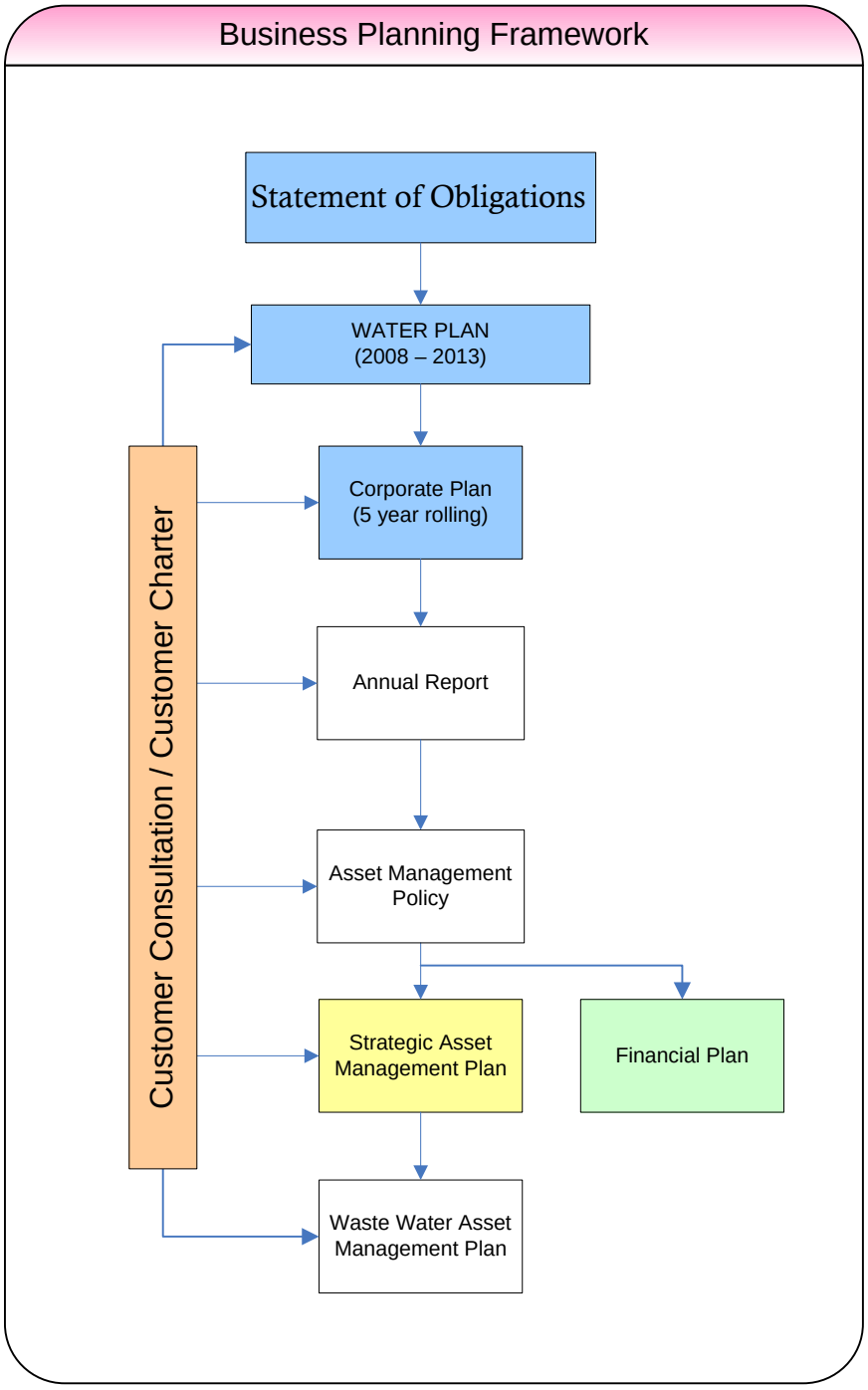


Figure 1 - Location of Strategy in the Planning Process

1.4 Drivers for Asset Management

The Corporate Plan identifies the need for ongoing investment into integrated corporate management systems as a key platform for success of the business.

The drivers that influence how WRWC will operate as a business result from a recognised need at various levels within the business. The internal drivers include:

- Need to deliver consolidated, comprehensive and efficient decision making and reporting across the business;
- Need for leadership in asset management with a focus on service delivery;
- Need to manage risk;
- Need to identify and manage climate risk;
- Need for a consistent and uniform approach to asset management across the business;
- Connectivity between stakeholder requirements and service delivery;
- The ability to respond to the demands of changes in trade in the long term;
- Recognition of the need for long term planning and demonstrable sustainability; and
- Ageing infrastructure.

The major external future driver for asset management will be the development of the Essential Services Commission's reporting requirements for asset management.

The 2008 to 2013 Water Plan outlines the requirements of the next regulatory period and the key outcomes for the plan period are to:

- Improve Customer satisfaction – ***through improved water quality***;
- Improve water quality through upgraded:
  - Raw water quality management
  - Treatment
  - Distribution system operation and maintenance
- To increase the level of water supply security;
- Improve customer service and system performance;
- Increase the ratio of preventative to reactive maintenance ***– for both water and wastewater infrastructure to improve system performance***; and
- Implement Sustainability principles and seek to reduce environmental impact.

1.5 Asset Portfolio and Context

WRWC has responsibility for a vast portfolio of assets with a replacement value of approximately $155 million. The following table identifies the approximate value of each asset group.

ASSET CATEGORY	VALUE
Water Headworks Infrastructure	$21,565,461
Water Distribution Infrastructure	$54,289,646
Wastewater Infrastructure	$79,080,493
Replacement Value TOTAL (as at FY 2004.	**$154,935,599**

Table 1 - Value of Council's Infrastructure

Note: Values included in the above table are extracted from "Asset Valuation and Component Identification as at 1st July 2004" report.

It is critical for the long-term sustainability of assets that WRWC engages in practices that optimise the assets useful lives for the benefit of the South West Gippsland region.

2.0 Organisation Framework

2.1 Key Stakeholders

WRWC is responsible for the operations of the infrastructure and the management of the assets to ensure the delivery of services to its stakeholders. The key stakeholders of WRWC are:

- Department of Environment and Sustainability;
- Essential Services Commission;
- The Board of Directors;
- Environment Protection Authority; and
- The Community.

Other stakeholders with a vested interest in the performance of WRWC are:

- Employees;
- Insurers;
- Bass Coast Shire Council;
- Developers;
- Contractors/Suppliers; and
- Country Fire Authority.

The following table identifies perceived stakeholder requirements.

STAKEHOLDER	POTENTIAL EXPECTATIONS
Government	Well managed infrastructure, transparency of information, provide service to the community, accountability
Board	Community needs are met, sound financial management, good governance
Community	Environment improvements e.g. quality of life, rural lifestyle, equitable service provision, value for money
Visitors	Available services, ease of access, good ambience, safe environment
Utilities/Developers	Regular business, sound working relationship, timely decisions, simple processes
Employees	Continuity of employment, safe working environment, sound relationship with management
Contractors/Suppliers	Continuity of employment, safe working environment, sound working relationship with Council
Insurers	Demonstrated management of risks

Table 2 – WRWC Stakeholder Requirements

2.2 Corporate Relationships

For WRWC to effectively implement AM it needs to recognise the relationships between each of the business units and implement processes to support them. The following table summarises the high level communications and inter-dependencies that need to be accommodated within WRWC's asset management activities.

BUSINESS UNITS	Divisions	ACTIVITIES
Asset Planning and Delivery (AP&D.	Maintenance Planning	Provide support to business units in undertaking daily operations, obtain feedback from them to input into maintenance strategy development and long term infrastructure planning.
	Capital Planning	Identify potential development and provide input into the infrastructure planning process. Provide the senior management team with the advice needed to ensure WRWC has sustainable services and infrastructure both now and in the future.
	Operational Delivery	Provide support to business units in undertaking daily operations, obtain feedback from them to input into operations activities and long term infrastructure planning.
Services	Customer Services	Incorporate infrastructure questions into customer surveys, obtain results of customer surveys, identify community needs and develop strategies to respond to community demands.
	Communication	Provide input to the community consultation and public relations process to ensure that stakeholders are informed of the progress made with this strategy and the benefits obtained in implementing the strategy.
	Maintenance	Provide day-to-day and preventative maintenance services to the operational delivery division and management of customer requests.
	Information Technology	Co-ordinate with I.T. internal requests to ensure that AM tools are supported, staff are trained in the use of the tools, and future systems implemented as required to provide for the needs of staff involved in AM.
	Risk and Environment	Work with AP&D to define and implement an infrastructure risk framework aligned with the corporate risk framework with the objective of identifying infrastructure risks and treatments to mitigate risks.
	Regulation and Administration Analysts	Provide high level input into the infrastructure planning process.

BUSINESS UNITS	Divisions	ACTIVITIES
Finance	Financial Support	Co-ordinate with AP&D to provide long term input into business planning e.g. provide long-term investment scenarios that demonstrate the trade offs between capital and maintenance. Assist in aligning infrastructure investment needs with long-term financial plans.
Organisational Development	Human Resources	Co-ordinate with AP&D to ensure asset management training becomes an integral part of corporate training. Develop a skills matrix and co-ordinate AM training to close gaps in skill levels. Work with AP&D to ensure timing and type of AM training complements AM implementation.

Table 3 - Role of Business Units in Asset Management

3.0 Asset Management

3.1 Westernport

WRWC's Corporate Plan states that the organisations objectives for asset management directly and indirectly are:

- Implement whole of life asset management techniques for cost effective delivery of all services; and
- Develop an integrated suite of management systems that assist managers and employees execute their business and support processes.

WRWC's Water Plan states that drought has been a major driver in influencing how assets are managed including issues relating to:

- Water supply;
- Increased OPEX to provide ongoing community educations and consultation;
- Reprioritisation of CAPEX;
- Increased service interruptions; and
- Increased maintenance.

The implementation of an asset management system has increased the data integrity and improved our ability to plan and implement maintenance programs.

Westernport Water will be implementing a GIS in 2007-2008 that will provide improved reporting of infrastructure performance.

3.2 Asset Management within WRWC

WRWC has embraced an improved understanding of asset management through the implementation of the inaugural Strategic Asset Management Plan and Improvement Program in 2002.

The Corporate Plan adopted initiatives to improve operating and CAPEX efficiencies to improve products and customer service delivery.

In 2006, the corporate management structure was restructured to separate Services from Asset Planning and Delivery. This demarcation is designed to provide greater flexibility within each of the separate business units to clearly focus on their key performance requirements.

Asset Planning and Delivery will be responsible for the long term strategic planning and day-to-day management of water and waste water including planned maintenance and CAPEX activities.

The Services Division will be responsible for managing internal and external stakeholder requirements including delivering maintenance activities.

Over the past five years WRWC has procured and implemented a variety of management systems including an asset management system to co-ordinate asset management activities across the organisation and improve the organisations internal asset management capabilities.

WRWC has worked diligently to implement an integrated approach to asset management however opportunities still exist to improve the interoperation of these systems and provide the functionality required by the field operators to build WRWC's knowledge of its assets and how they are performing.

There is an ongoing opportunity for WRWC staff to improve the use of existing asset data and take a strategic view of future infrastructure requirements.

The following figure identifies WRWC's past and present achievements and future asset management focus.

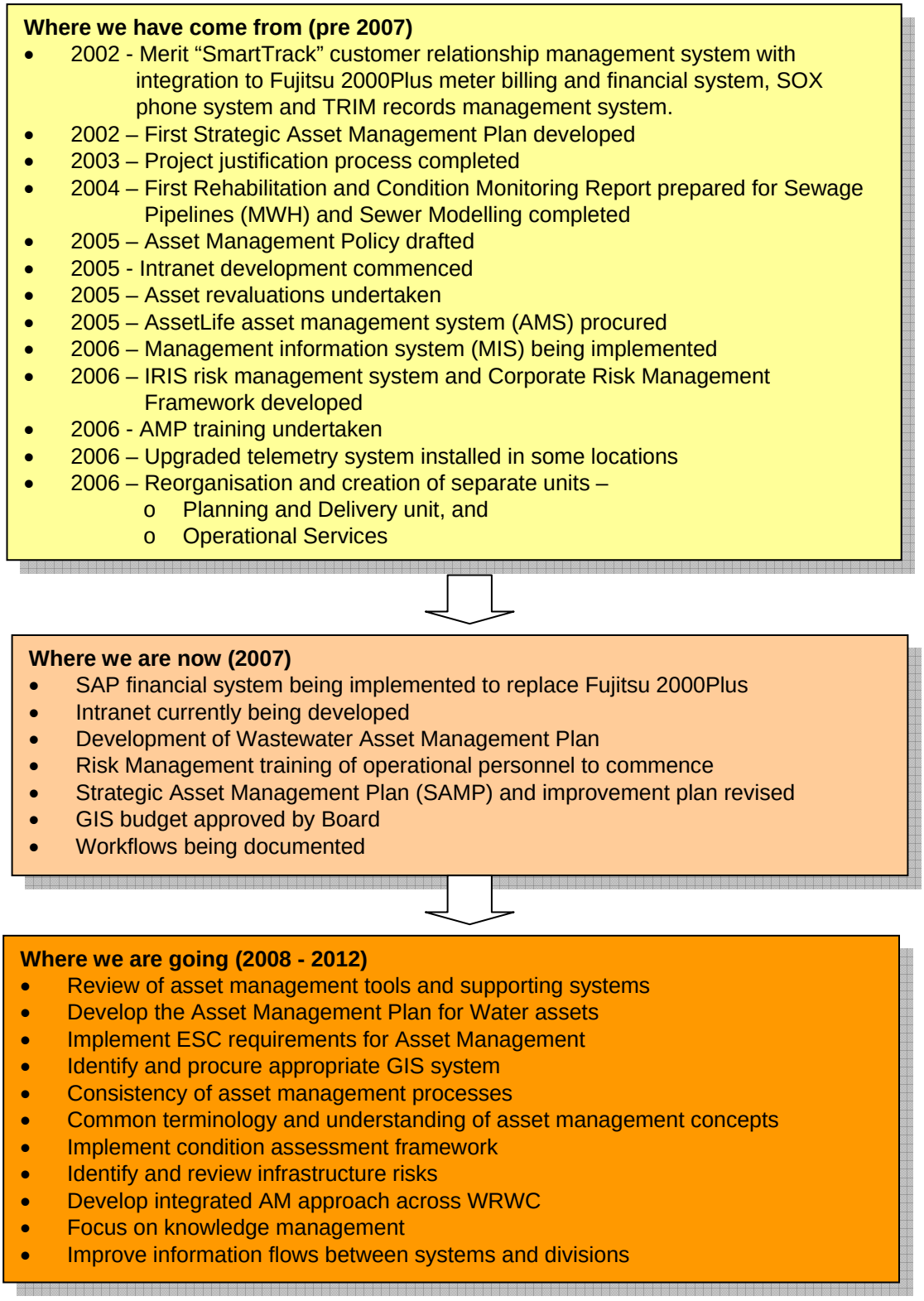


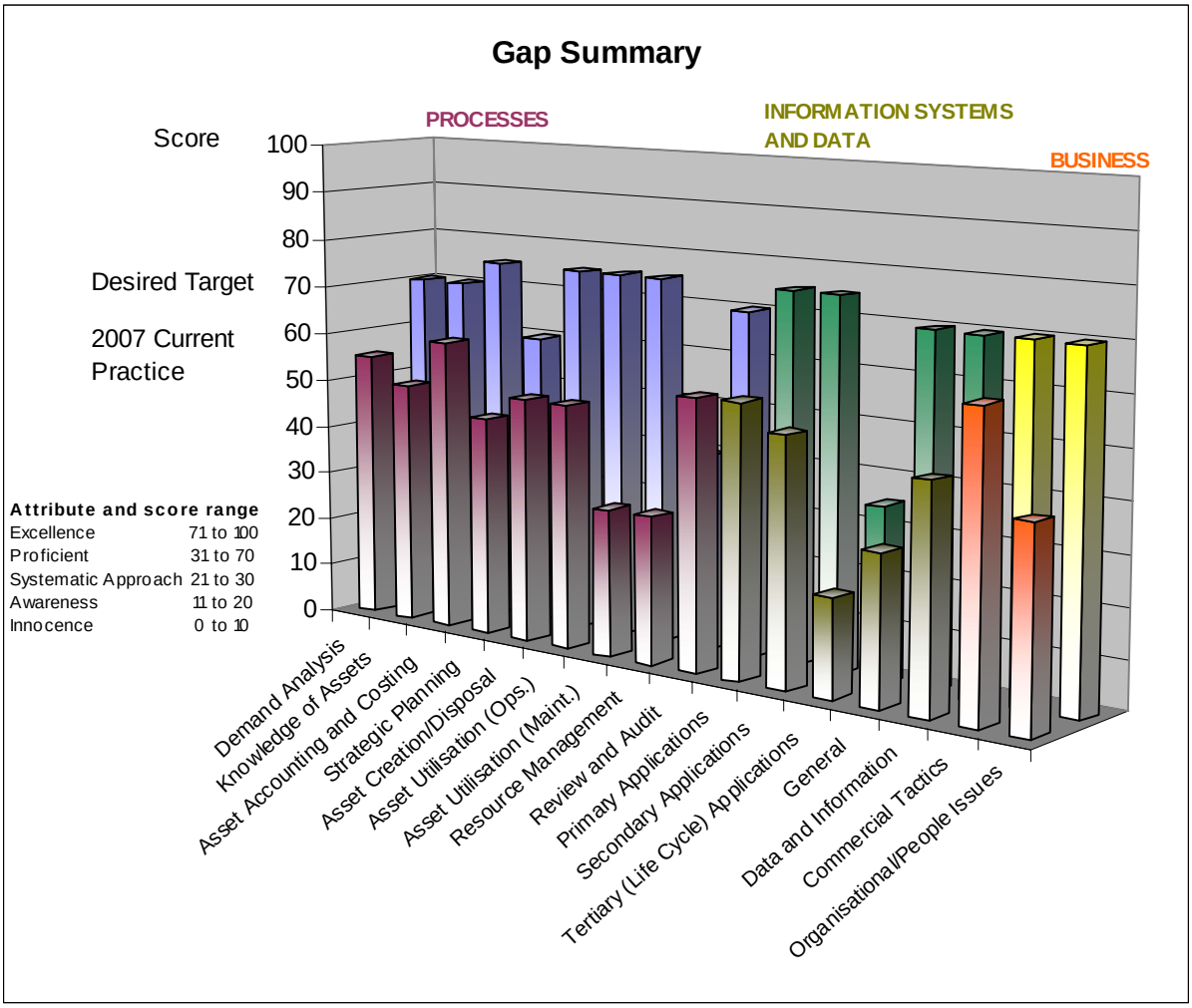
Figure 2 - Asset Management Achievements and Future Vision

3.3 Current Status of Asset Management

The gap analysis was first undertaken in 2002 during the initial AM Strategy. AM Improvements were then identified to assist WRWC to improve the scores for the AM functions.

As a result of the initial strategy the following improvements have been achieved:

- Asset Management Steering Group in place;
- AssetLife strategic asset management system procured and went live November 2005;
- Asset Management Policy adopted by the Board;
- Sewer modelling completed April 2004;
- Asset Management training introduced;
- Asset revaluations undertaken in 2005;
- Project justification process completed in Sept 2003.
- Wastewater Asset Management Plan partially completed;
- GIS procurement approved;
- Procurement and implementation of a Management Information System (MIS.;
- Risk Management Framework developed, and
- Development and documentation of work flow processes being documented.



The Gap Summary further identifies the “desired target” status for WRWC’s AM capability. This defines WRWC’s AM capabilities increasing to ‘Excellence’ and ‘Proficient’ status for AM by 2011.

Appendix A illustrates the gap between current practice and desired practice level and the priority areas for improvement.

Appendix B contains a summary of observations, gap scores and required actions.

3.4 Asset Management Status Findings

AM processes have been implemented across WRWC to varying degrees of sophistication and consistency. These processes include Capital Works Program Management, asset handover processes, work order generation and production, procurement procedures and a set of standard operating procedures including recurrent maintenance work.

In summary, there is significant quantities of asset related data and history across WRWC however it does vary in quality. Specialist systems have been implemented to support specific AM processes to varying levels and use. Processes associated with adopting an improved asset register will require documentation. This will need to be combined with an overall systems review to identify corporate system needs and improved functionality. The challenge now is to consolidate this into a cohesive and high performing asset management organisation.

The following provides an overview of the findings from the gap analysis.

AM MEASURE	FINDINGS
AM Processes	• Risk management processes are currently being reviewed and implemented • Many of the 2002 AM Strategy improvements have been implemented • Master plans produced for the Wastewater Treatment Plant and recommendations implemented where applicable • Development strategies have been produced to assist in planning process for new developments within the Region • Demand analysis and demand management strategies are used to influence demand consumption • Workflow currently being documented for AM processes • SAP is currently being implemented to assist in asset accounting and costing • Inconsistent and ad hoc processes used in asset creation, prioritisation and evaluation • All audits undertaken by external parties • Maintenance is undertaken in a reactive manner and is recorded to suit the needs of operations personnel. The data recorded also needs to be aligned to provide input into strategic planning processes • Water Plan is updated regularly and used as a strategic planning tool • Infrastructure risk process needs to be developed and implemented • Prioritisation process for capital projects within the Asset Group should incorporate risk • Strategic planning for assets needs to be strengthened with defined processes • Current focus on project delivery is not supported with project management guidelines

AM MEASURE	FINDINGS
Information System and Data	• Condition audits are conducted on an informal basis and some data recorded in AssetLife • Limited use of AssetLife to support day-to-day operations • No defined strategy for the implementation and application of AssetLife • Relationship between supporting systems is not supported by defined processes • Internal reviews are not conducted for infrastructure data integrity • Corporate systems are being developed and require interoperational review prior to GIS introduction • Currently implementing a number of systems to improve information flows across the organization • Approval has been obtained to implement a GIS • All available asset data currently in AssetLife • Asset hierarchy has been developed and implemented in AssetLife • Need to review asset hierarchy as constraints exist to the ability to obtain effective reports • Performance data available within AssetLife and other databases • Performance data reported to ESC on ad hoc basis • Water and wastewater models available • Renewal modeling undertaken based on consultant's report and analysis based on asset age • Staff knowledge of assets relied on heavily for works planning
Business	• Communication/Information flow between business units requires improvement • There is significant desire to improve AM capability • AM Steering Committee needs to be part of ongoing improvements • A skills matrix to assist in the identification of skill gaps is yet to be developed • Evidence of good AM processes used in limited groups within the organisation • AM Steering Committee meets on an irregular basis • Improvement tasks are currently monitored but need to be reported to management • Significant support for embedding AM into the organisation's culture at a management and operational level

4.0 Future of Asset Management

4.1 Key Challenges

Key challenges facing WRWC:

Assets Knowledge	• Improve information flows across WRWC • Quantify the confidence level in data and improve the data quality • Introduce seamless data management processes
Information Systems	• Align corporate systems to business needs, e.g. SAP and AssetLife • Implement GIS in addition to current system development • Integrate existing systems • Maximise the use of AssetLife
Operations & Maintenance	• Implement a proactive maintenance regime • Provide operation manuals and tools to assist maintenance personnel in the delivery of services
Capital Planning	• To introduce seamless and visible renewal forecasting and works prioritisation • To introduce infrastructure risk and condition into the planning process
Organisational Issues	• To introduce an ongoing AM training program to support Business Objectives • Initiate continuous review role by the AM Steering Committee

4.2 Key Priorities: The Way Forward

Key priorities for WRWC asset management are:

- Alignment of Corporate Systems;
- Implement ESC requirements for Asset Management ;
- Develop the Asset Management Plan for water assets;
- Structure asset management processes;
- Common terminology and understanding of asset management concepts;
- Implement a condition assessment framework;
- Identify and review infrastructure risks;
- Focus on knowledge management; and
- Review and improve the use of systems and data.

4.3 Current Asset Management Initiatives

- Review of asset management tools and supporting systems;
- Develop intranet to provide access to documentation across the organisation;
- Development of the Wastewater Asset Management Plan;
- Identify and procure an appropriate GIS system;
- Risk Management training of operational personnel; and
- Development and documentation of workflows.

4.4 Desired Future for WRWC

- Make decisions within a “whole-of-life” context;
- Embed AM as a core business discipline within corporate processes (as you would HR, Accounting, Operations, etc..;
- AM should be an integral part of doing work with identifiable inputs and outputs;
- Effectiveness of AM must be measured and subjected to evaluation against key performance measures (KPI’s.; and
- Delivering quality of service – achieving targets and timelines.

5.0 Westernport's Asset Management Strategies

The asset management objectives as defined in the Corporate Plan and the Water Plan and strategies required to address the key challenges identified in section 4.1 are:

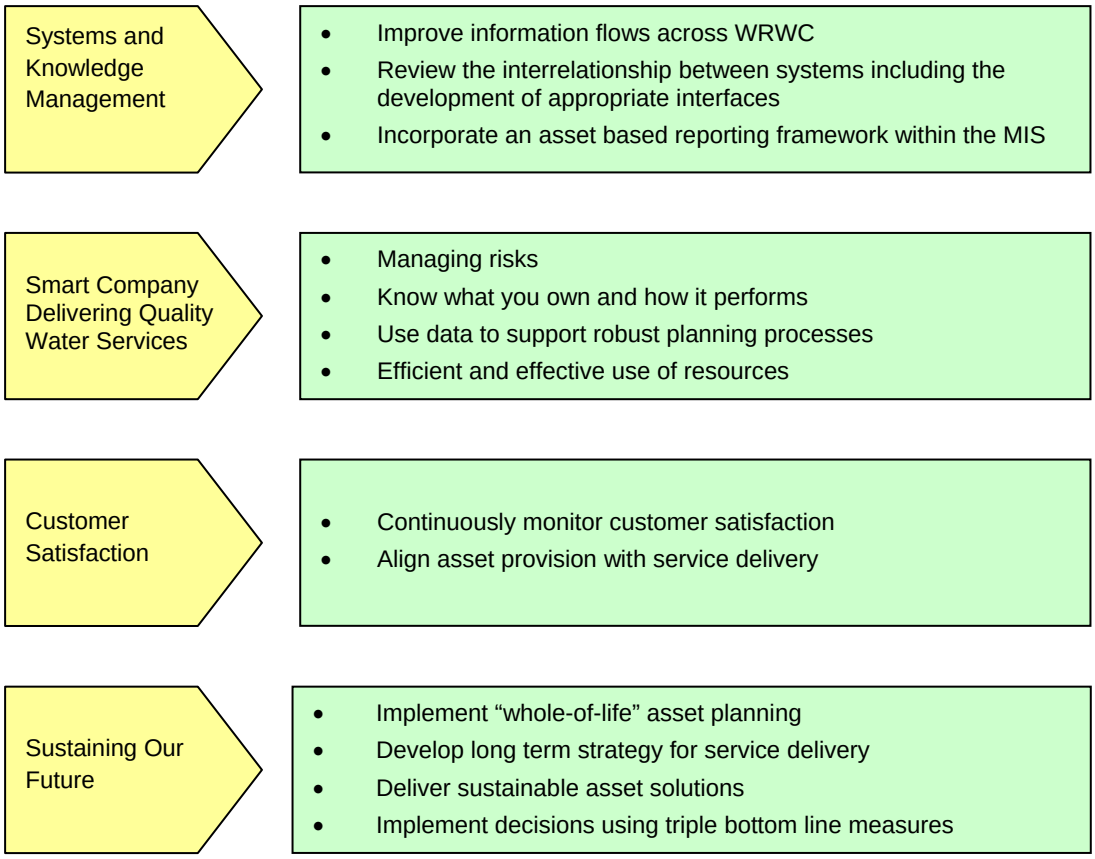


Figure 3 - Asset Management Strategies

5.1 Systems and Knowledge Management

Our overall objectives are to:

- **Develop** processes and applications to meet organisational business objectives;
- **Define** organisational decision making requirements;
- **Enhance** innovation;
- **Improve** knowledge sharing and organisational efficiency through data capture and reporting; and
- **Encourage** our people to develop their maximum capability.

Our initiatives to achieve these objectives will be to:

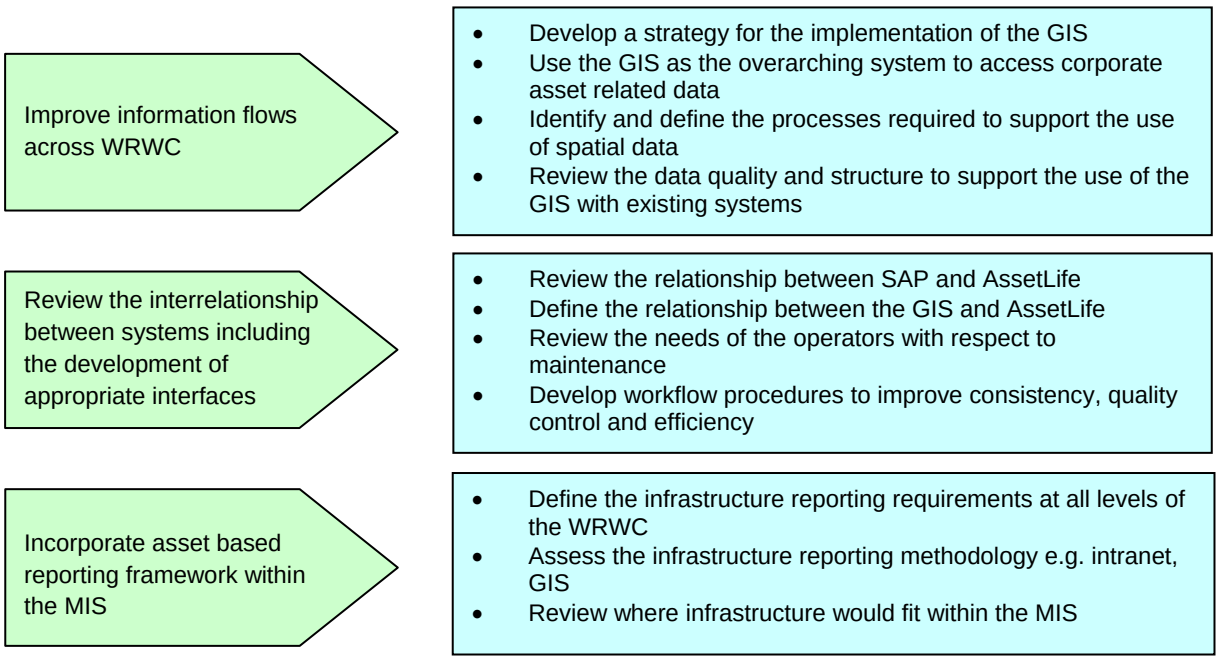


Figure 4 - Systems and Knowledge Management

2007/08 Deliverables

9. Develop and document a GIS strategy by identifying the needs of users.
14. Define the infrastructure reporting requirements and identify the source of reports e.g. AssetLife, SAP, GIS and MIS etc.
10. Document GIS specification and undertake procurement process.

2008/09 Deliverables

3. Identify and implement an interface between AssetLife and the newly acquired GIS
   - identify and define the processes to support the use of spatial data.
4. Establish processes to acquire spatial data for assets.
7. Establish program to improve the use of AssetLife across WRWC by incorporating functions such as risk, condition etc into the system.

20010/11 Deliverables

2. Expand the use of systems for interrogation of data.
5. Continue to document AM processes and incorporate in the intranet.

5.2 Smart Company Delivering Quality Water Services

Our primary objectives are to:

- **Improve** service delivery through water quality, availability and security of supply
- **Improve** system performance by increasing preventative maintenance and long term renewal planning;
- **Develop** flexibility and responsiveness within our planning process; and
- **Optimise** infrastructure solutions based on sound long term requirements.

Our initiatives to achieve these objectives will be to:

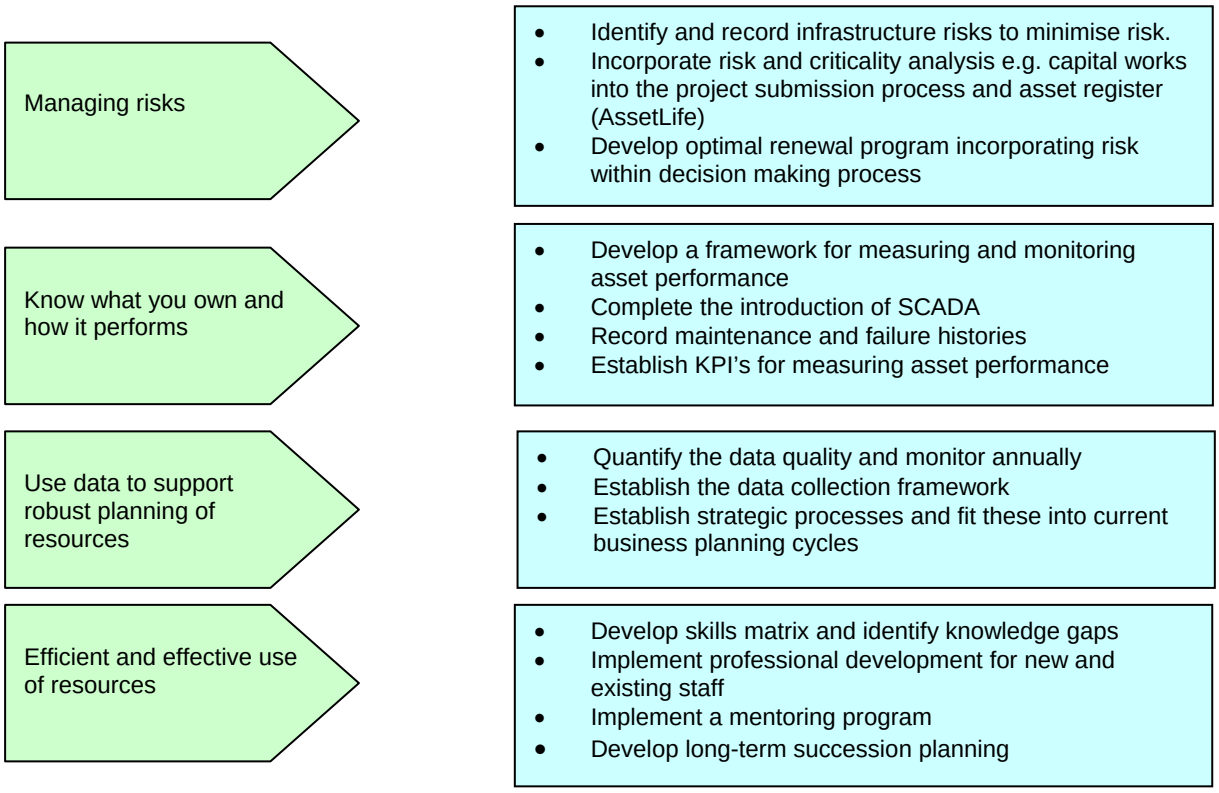


Figure 5 – Smart Company Delivering Quality Water Services

2007/08 Deliverables

5. Document condition manual across all assets.
6. Undertake a formal condition assessment of all above ground infrastructure and develop a renewal profile.
7. Develop a formal criticality assessment and identify critical infrastructure.
8. Review and improve the data structure in AssetLife
   - Quantify the data quality and monitor
12. Work with maintenance staff to identify their needs and apply to AssetLife.
13. Review the relationship between AssetLife and other Corporate systems with the view to developing or formalising processes and interfaces between systems.

2008/09 Deliverables

1. Investigate the use of hand held devices for maintenance personnel.
5. Implement infrastructure risk by establishing the framework and identifying risks and populating an infrastructure risk register.
6. Improve the capital evaluation framework by incorporating risk and triple bottom line.

2010/11 Deliverables

5. Develop skills matrix and identify knowledge gaps.
6. Implement a mentoring program for AM.
7. Implement AM professional development for new and existing staff.
9. Implement hand-held devices for maintenance personnel.

5.3 Customer Satisfaction

Our primary objectives are to:

- **Achieve** cultural change through continued education;
- **Develop** staff competence in responding to customers;
- **Implement** asset management training programs; and
- **Understand** and respond to our customers needs.

Our initiatives to achieve these objectives will be to:

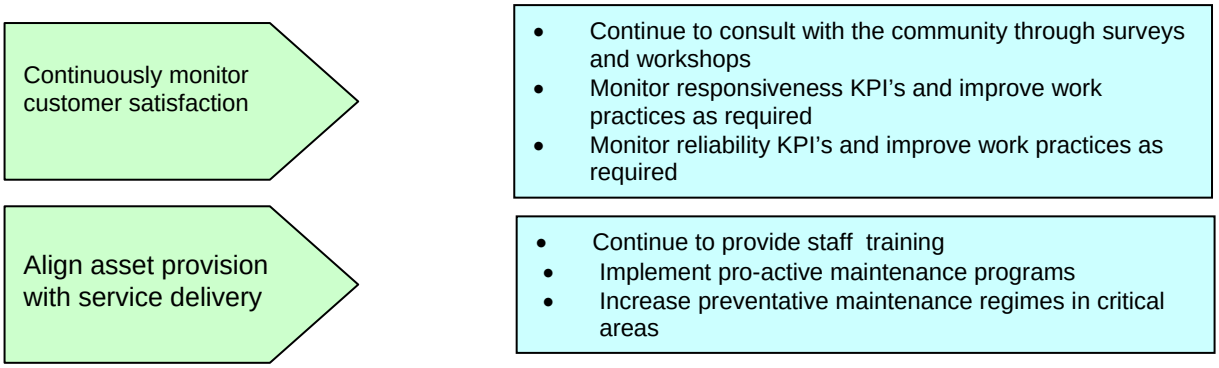


Figure 6 – Customer Satisfaction

2007/08 Deliverables

11. Adopt KPI's within this strategy for measuring asset management performance.

2008/09 Deliverables

8. Implement a formal audit and review process on the Asset Management improvements.

2009/10 Deliverables

1. Deliver an ongoing AM training program.
2. Document a formal AM responsibility and accountability matrix.

2010/11 Deliverables

3. Continue to deliver ongoing AM training.

5.4 Sustaining Our Future

Our primary objectives are to:

- **Report** asset performance to our stakeholders.
- **Establish** priority criteria for performance improvement;
- **Define and monitor** performance measures and targets across all asset classes; and
- **Action and track** performance improvements.

Our initiatives to achieve these objectives will be to:

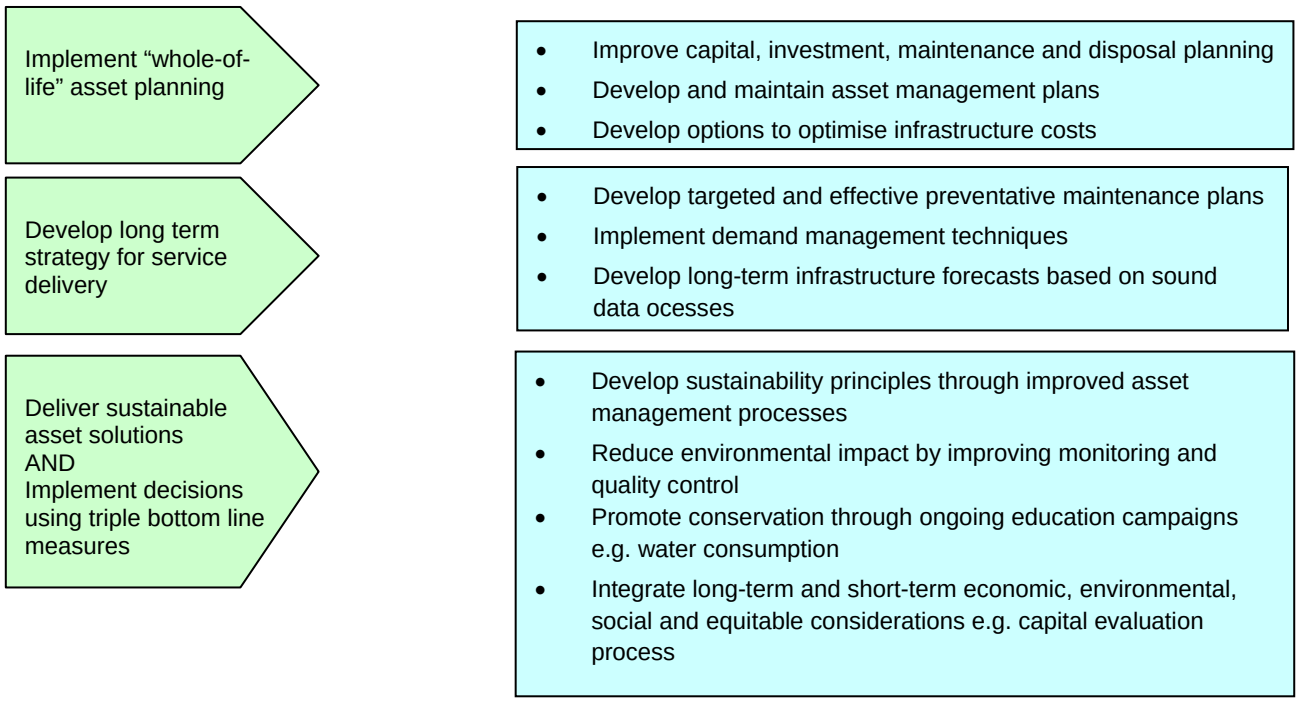


Figure 7 – Sustaining Our Future

2007/08 Deliverables

1. Formalise AM Steering Committee:
   - Develop project charter; and
   - Confirm first 12 month activities.
2. Publish and promote AM Strategy.
3. Complete Wastewater AM Plan.
4. Complete Water AM Plan.

2008/09 Deliverables

2. Implement and internal audit and review process.
9. Establish and implement a preventative maintenance program for infrastructure.

2009/10 Deliverables

8. Review Water and Wastewater AM Plans.

2010/11 Deliverables

1. Monitor and documents AM improvements and benefits.
6. Review the AM Strategy Year 5.

6.0 Implementing the Strategy

6.1 Asset Management Implementation Plan

WRWC's long term objectives for asset management are based on a three stage process being:

- Build awareness and service capability;
- Improved decision making capability; and
- Service excellence and sustainability.

This is illustrated in the following figure.

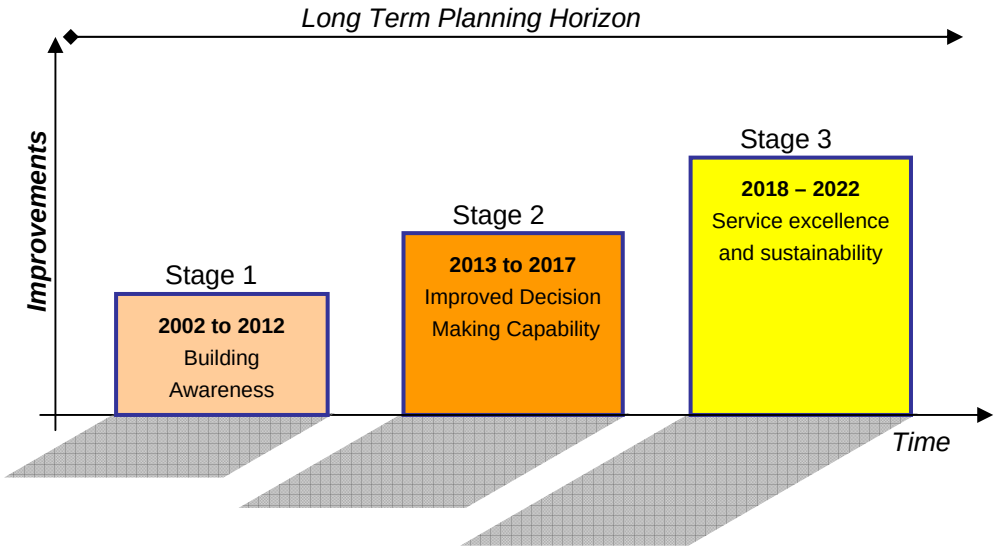


Figure 8 - Long Term Improvement Plan

WRWC commenced Stage 1 in 2002 with a vision to implement new asset management processes to build the foundation for the future direction of the organisation. The first half of stage 1 was a period of change driven by the strategy, legislative requirements and climatic conditions.

The organisation has demonstrated improved asset management capability with the introduction of new systems, training and customer responsiveness. The gap analysis indicates that there are areas of improvement still evident within stage 1.

Stage 2 will focus on understanding the service delivery needs of the community and using the outcomes of Stage 1 to move towards meeting the organisation obligations. Stage 3 will deliver ongoing improvement, sustainable outcomes with respect to service delivery and affordability.

Some of the improvement activities identified for stage 1 over the next 5 years will extend across financial years.

Specific improvements for each asset group are included in the Asset Management Plans for those assets.

6.2 Improvement Activities

The 5 year strategic asset management implementation plan is a continuation of Stage 1. Below is a detailed plan with the activities identified with relevant initiatives cross reference in the following tables:

Timeframe	Deliverables	Initiatives Reference
Year 1 (2007/08)	1. Formalise AM Steering Committee: • Develop project charter; and • Confirm first 12 month activities.	5.4
	2. Publish and promote AM Strategy.	5.4
	3. Complete Wastewater AM Plan.	5.4
	4. Complete Water AM Plan.	5.4
	5. Document condition manual across all assets.	5.2
	6. Undertake a formal condition assessment of all above ground infrastructure and develop a renewal profile.	5.2
	7. Develop a formal criticality assessment and identify critical infrastructure.	5.2
	8. Review and improve the data structure in AssetLife • Quantify the data quality and monitor	5.2
	9. Develop and document a GIS strategy by identifying the needs of users.	5.1
	10. Document GIS specification and undertake procurement process.	5.1
	11. Adopt KPI's within this strategy for measuring asset management performance.	5.3
	12. Work with maintenance staff to identify their needs and apply to AssetLife.	5.2
	13. Review the relationship between AssetLife and other Corporate systems with the view to developing or formalising processes and interfaces between systems.	5.2
	14. Define the infrastructure reporting requirements and identify the source of reports e.g. AssetLife, SAP, GIS and MIS etc.	5.1

Table 4 - 2007/08 Year 1 Improvement Activities

Timeframe	Deliverables	Initiatives
Year 2 (2008/09)	1. Investigate the use of hand held devices for maintenance personnel.	5.2
	2. Implement and internal audit and review process.	5.4
	3. Identify and implement an interface between AssetLife and the newly acquired GIS • Identify and define the processes to support the use of spatial data.	5.1
	4. Establish processes to acquire spatial data for assets.	5.1
	5. Implement infrastructure risk by establishing the framework and identifying risks and populating an infrastructure risk register.	5.2
	6. Improve the capital evaluation framework by incorporating risk and triple bottom line.	5.2

Timeframe	Deliverables	Initiatives
	7. Establish program to improve the use of AssetLife across WRWC by incorporating functions such as risk, condition etc into the system.	5.1
	8. Implement a formal audit and review process on the Asset Management improvements.	5.3
	9. Establish and implement a preventative maintenance program for infrastructure.	5.4

Table 5- 2008/09 Year 2 Improvement Activities

Timeframe	Deliverables	Initiatives
Year 3 (2009/10)	1. Deliver an ongoing AM training program.	5.3
	2. Document a formal AM responsibility and accountability matrix.	5.3
	3. Expand on the use of GIS across the infrastructure by identifying and implementing spatial reporting.	5.1
	4. Review the use of MIS for infrastructure reporting.	5.1
	5. Develop skills matrix and identify knowledge gaps.	5.2
	6. Implement a mentoring program for AM.	5.2
	7. Implement AM professional development for new and existing staff.	5.2
	8. Review Water and Wastewater AM Plans.	5.4
	9. Implement hand-held devices for maintenance personnel.	5.2

Table 6- 2009/10 Year 3 Improvement Activities

Timeframe	Deliverables	Initiatives
Year 4 and 5 (2010/11)	1. Monitor and documents AM improvements and benefits.	5.4
	2. Expand the use of systems for interrogation of data.	5.1
	3. Continue to deliver ongoing AM training.	5.3
	4. Review and re-define AM accountabilities in key managerial and operational roles.	5.2
	5. Continue to document AM processes and incorporate in the intranet.	5.1
	6. Review the AM Strategy Year 5.	5.4

Table 7- 2010/11 Year 3 Improvement Activities

Appendix C provides an improvement plan based on a four-year period to achieve the desired improvements and allow the business to meet its long-term objectives for service delivery.

6.3 Quick Wins

Year 1 contains 14 improvement activities. Many of these activities are critical for the ongoing improvement of AM within WRWC. However it is recognised that a shortage of available resources may make it difficult for WRWC to achieve all improvements within the suggested timeframe. To assist in the delivery of these improvements a series of “Quick Wins” have been identified. These “Quick Wins” are activities that can be completed by Maunsell in consultation with and input from WRWC.

The following “Quick Wins” incorporate the completion of:

- Wastewater and Water Asset Management Plans;
- Condition manual and above ground assessments;
- AssetLife data quality review; and
- GIS needs analysis strategy.

7.0 Moving Forward

WRWC needs to establish a team responsible for the implementation of the strategy initiatives across the business. This team will manage the funding of all tasks and ensure timely delivery of improvements against the adopted improvement plan. The team should be responsible for the co-ordination of all activities in the improvement program. The team will consist of:

- Asset Management Steering Committee;
- Asset Management Co-ordinator;
- Support staff to the Co-ordinator on an activity basis; and
- External Advisor (AM Specialist).

7.1 AM Steering Committee (AMSC)

The role of the AM Steering Committee needs to include those responsible for the implementation of asset management across the business. This AM Steering Committee will be responsible for ensuring all tasks identified as improvement activities are completed in a timely manner to deliver improvements against the adopted implementation plan.

The team should be corporately based and be responsible for the co-ordination of all activities in the improvement programme.

The Asset Management Steering Committee will be led by the nominated Asset Management Coordinator responsible for delivery of required projects within budget and timeframe.

7.2 Role of AM Co-ordinator

An individual should be nominated as the AM co-ordinator (Manager Asset Planning & Delivery. The primary role is the co-ordination of all improvement activities as well as providing the AMSC with sufficient information to assist its role in the decision making process.

The AM Co-ordinator will be responsible for:

- Implement and co-ordinate AM activities;
- Project manage specific projects;
- Liaison with Business Units and Contractors during the improvement programme;
- Implementing the AM Education Awareness programme;
- Undertake internal audits;
- Oversee system improvements and implementation;
- Reporting to the AM Steering Committee; and
- Identifying potential delays and issues to overcome.

7.3 Role of AM Specialist

An external provider could be appointed to provide a holistic approach to AM improvement across the organisation. The use of one primary external advisor who can:

- Advise the manager of Manager Asset Planning & Delivery on specific activities and practices;
- Undertake activities where necessary to enable accelerated completion;
- Impart knowledge to WRWC personnel on each activity e.g. provide training and documentation where necessary and work with personnel to undertake the activities, and assist in the implementation of key processes where necessary;
- Provide change management support for the improvement identified in this strategy;
- Undertake 6 monthly reviews of the improvement plan confirms progress and identify actions to progress improvements; and
- Report to the AMSC on progress and raise identified issues for Executive decision making.

8.0 Measuring AM Performance

The following table provides a summary of the key deliverables and KPI's to measure WRWC's AM performance.

Objectives	KPI	Current	Target[1]	Activity
To ensure WRWC is reducing the Renewal Gap	Renewal Costs as a percentage of Revenue	WW to complete	12%	Run the Maloney model annually. Improve the quality of data used in the model
To monitor renewal expenditure	Sustainability Index per asset class[2] average Renewal expenditure for each asset class as a percentage of Replacement Cost	WW to complete		Monitor the renewal profile based on current condition and growth and report the outcomes.
	Water - Treatment Plant Reticulation	WW to complete	2.5% 1%	
	Wastewater - Treatment Plant Reticulation	WW to complete	2.5% 1%	
Identify WRWC's position in the water industry using the WSAA framework or equivalent as a basis	WSAA framework score	To be determined	70% score for all functions.	Review WRWC against the WSAA framework on a two yearly basis.
Compliance with the ESC framework		All measures are compliant by need improvement	Full compliance	
Demonstrate continuous improvement in AM	Annual improvement in the Gap framework score	WW to complete	To be Identified	Monitor the improvement plan and report outcomes.
To monitor service levels by measuring average condition across the asset classes based on a 0 to 5 (best to worst. rating	Water - Treatment Plant Reticulation	WW to complete		Undertake condition assessments and report outcomes
	Wastewater - Treatment Plant Reticulation	WW to complete		

[1] To be confirmed
[2] Based on average asset life

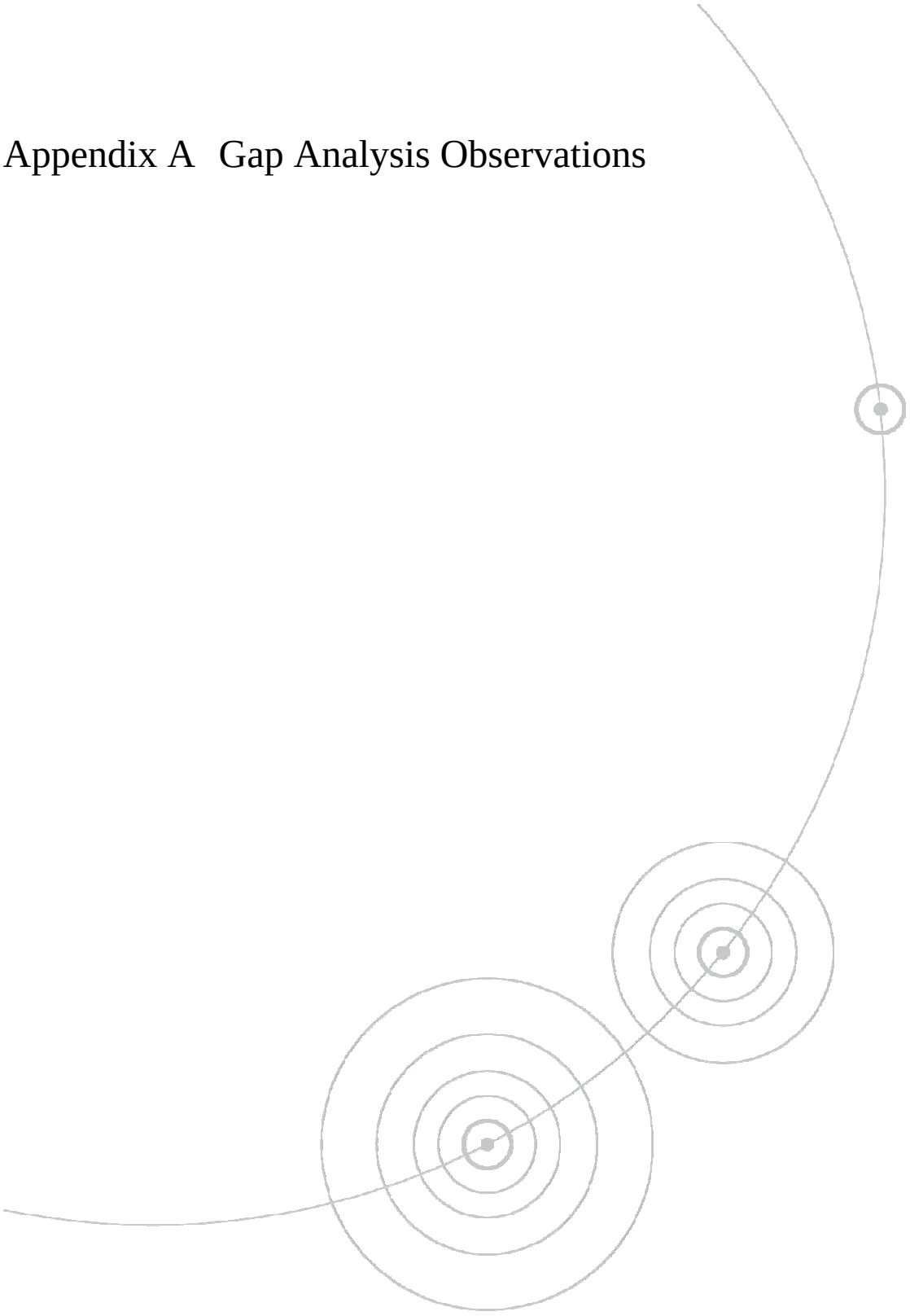
Objectives	KPI	Current	Target[1]	Activity
To reduce the number of faults occurring per annum by measuring the percentage reduction of hazards over time	Water	WW to complete	5% redn. in 3 years	Undertake faults inspections and report outcomes
	Wastewater	WW to complete	5% redn. in 3 years	
To measure the progress in delivering the Strategy	Initiatives completed each year in alignment with the Plan	WW to complete	100%	Monitor and report on the improvement plan's progress

Table 8 - Performance based KPI's

9.0 Recommendations

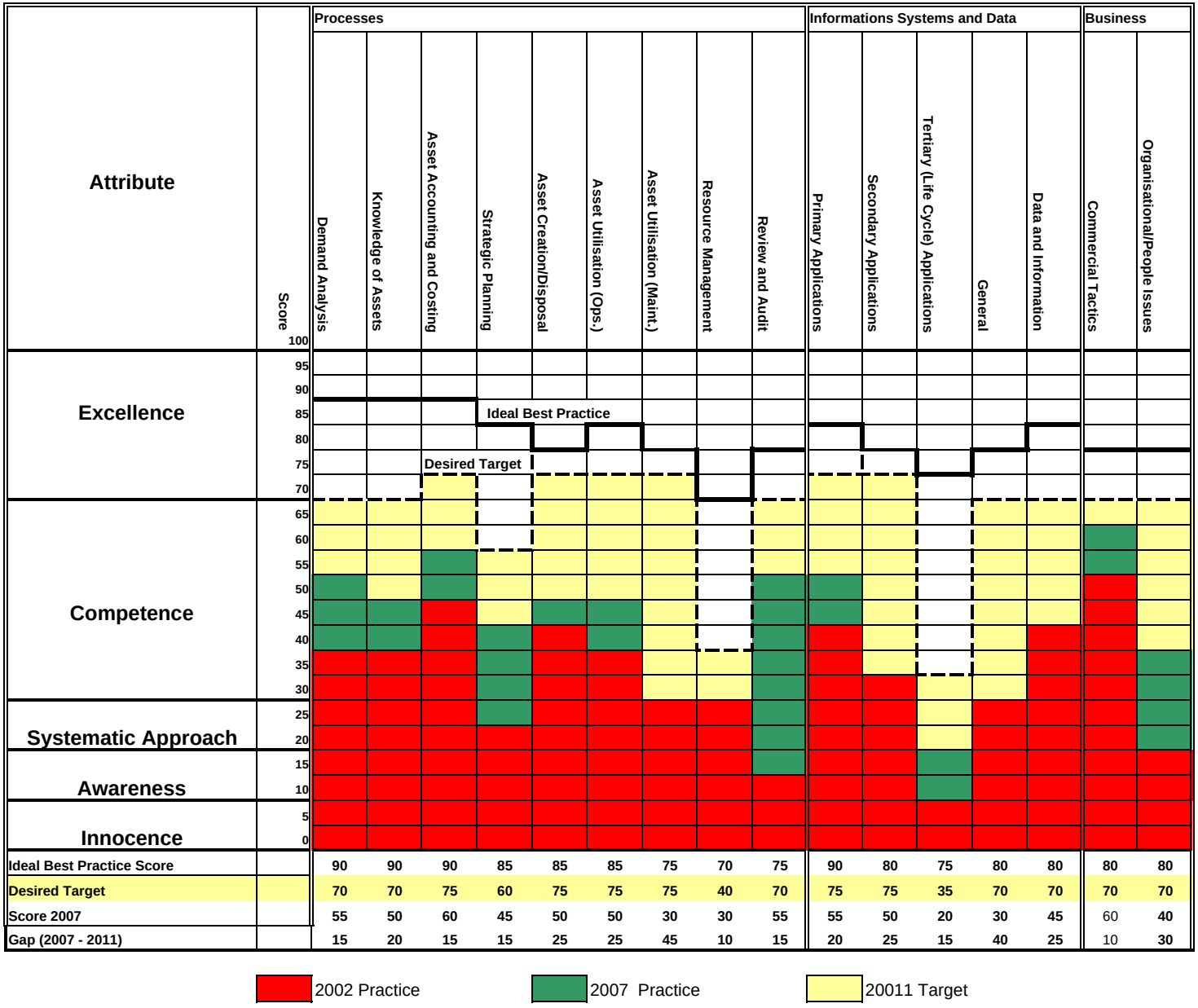
1) Adopt the recommended improvements detailed in this improvement plan
2) Adopt the proposed projects as necessary to achieve the desired level of improvement.
3) Adopt the AM Improvement Structure and appoint an asset management team immediately with responsibility to action the projects
4) Review the logistics of undertaking the projects
5) Immediately implement the program under the general management of the Asset Management Steering Committee
6) Annually review the progress of the improvement programme.

Appendix A Gap Analysis Observations



Westernport Water
Gap Analysis Analysis

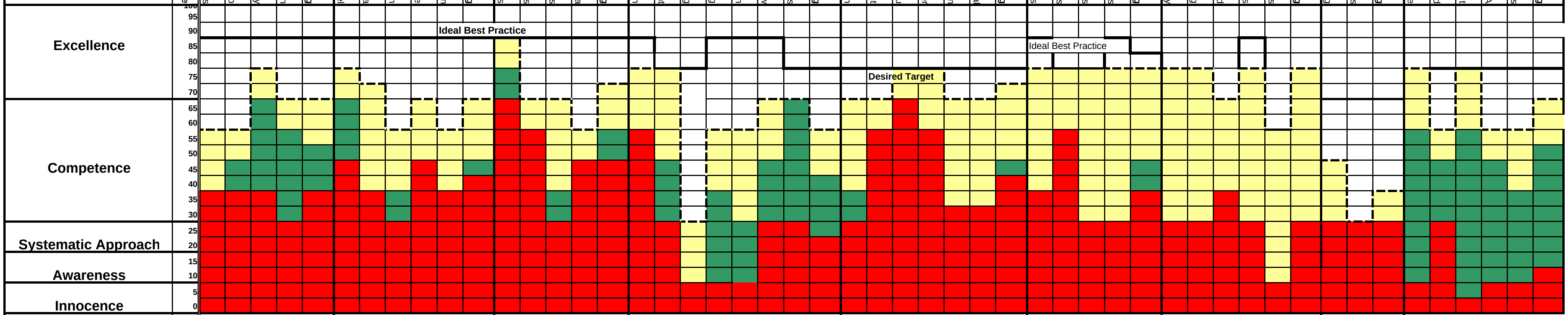
Asset Management Gap Analysis Chart Summary



WW Gap Analysis

PROCESSES

Attribute / Score



Processes

1. Demand Analysis

	Historical Records	Element Break-up	Customer Survey	Trend Prediction	**Overall Rating**
Ideal Best Practice Score	90	90	90	90	**90**
Desired target	60	60	80	70	**70**
Score 2007	40	50	70	60	**55**
Score 2002	40	40	30	40	**40**
Gap (2007 - 2011)	20	10	10	10	15

2. Knowledge of Assets

	Hierarchical Level	Physical Data	Condition	Performance	Capacity/Utilisation	**Overall Rating**
Ideal Best Practice Score	90	90	90	90	90	**90**
Desired target	80	70	60	70	60	**70**
Score 2007	70	40	40	50	40	**50**
Score 2002	50	40	30	50	40	**40**
Gap (2007 - 2011)	10	30	20	20	20	20

3. Asset Accounting

	Valuations	Operations and Maintenance Costs	Renewal Liabilities and Risks	Historical Cost Data	**Overall Rating**
Ideal Best Practice Score	90	90	90	90	**90**
Desired target	90	70	70	60	**75**
Score 2007	80	60	40	50	**60**
Score 2002	70	60	30	50	**50**
Gap (2007 - 2011)	10	10	30	10	15

4. Strategic Planning

	Failure Mode Prediction	Risk Management	Optimised Renewal Decision Making	Life Cycle Planning	AMP Production	Customer Review	Business Goal Linkages	**Overall Rating**
Ideal Best Practice Score	90	80	80	90	90	90	80	**85**
Desired target	80	80	30	60	60	70	70	**60**
Score 2007	60	50	10	40	30	50	70	**45**
Score 2002	60	30	10	10	10	30	30	**25**
Gap (2007 - 2011)	20	30	20	20	30	20	0	15

Processes (cont'd)

5. Asset Creation/Disposal

	Project Identification	Project Management	Construction & Contract Administration/Su	Asset Handover	Asset Rationalisation	Asset Disposal	**Overall Rating**
Ideal Best Practice Score	80	80	80	80	80	80	**80**
Desired target	70	70	80	80	70	70	**75**
Score 2007	40	60	70	60	30	30	**50**
Score 2002	30	60	70	60	30	30	**45**
Gap (2007 - 2011)	30	10	10	20	40	40	25

6. Asset Operations

	Operating procedures	SCADA systems	Operations manuals	Emergency response Plans	**Overall Rating**
Ideal Best Practice Score	90	80	80	90	**85**
Desired target	80	80	50	80	**75**
Score 2007	40	60	30	60	**50**
Score 2002	40	60	30	30	**40**
Gap (2007 - 2011)	40	20	20	20	25

7. Asset Maintenance

	Policy Strategy	Planning	Scheduling, Job Execution & Control (feed	Maintenance Manuals	Review / Analysis	**Overall Rating**
Ideal Best Practice Score	80	80	80	90	80	**80**
Desired target	80	80	70	80	60	**75**
Score 2007	30	30	40	30	10	**30**
Score 2002	30	30	40	30	10	**30**
Gap (2007 - 2011)	50	50	30	50	50	45

8. Res Mgt

	Resource Planning	Inventory Controls	**Overall Rating**
Ideal Best Practice Score	70	70	**70**
Desired target	50	30	**40**
Score 2007	30	30	**30**
Score 2002	30	30	**30**
Gap (2007 - 2011)	20	0	10

9. Review and Audit

	Implemented Improvement Programme	Cost Reduction Opportunities Identified	Independent AM Review / audit	Internal QA	AM Quality Manuals	**Overall Rating**
Ideal Best Practice Score	80	80	80	80	80	**80**
Desired target	80	60	80	60	60	**70**
Score 2007	60	50	80	50	40	**55**
Score 2002	10	30	10	10	10	**15**
Gap (2007 - 2011)	20	10	0	10	20	15

2002 Practice

2007 Practice

WW Gap Analysis

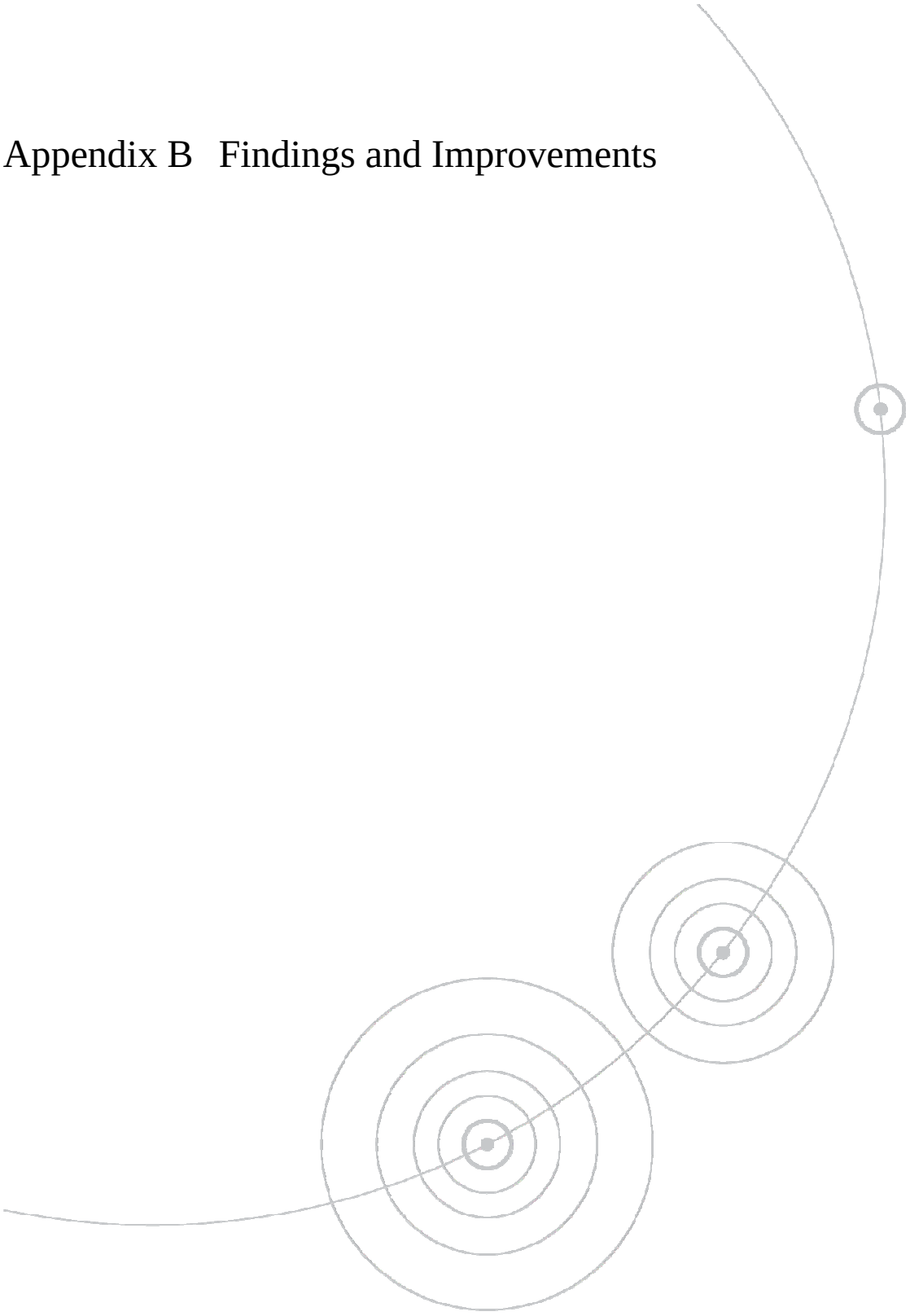
INFORMATION SYSTEMS | **DATA** | **COMM. TACTICS** | **ORG. ISSUES**

Attribute	Score	Information Systems																				Data & Information										Commercial Tactics					Organisation/People					
		10. Primary Applications								11. Sec. Apps				12. Tertiary Apps.				13. General		14. Data & Information										15. Commercial Tactics					16. Organisation/People					
		Finance	Asset Register	Plans and Records	Spatial Systems	Maintenance Management Systems	Ops. Manuals & Emergency Response Pla	Inventory / Spares / Purchasing	**Overall Rating**	Condition Assessment and Record System	Predictive Models (Decay and Cost)	Capacity / Utilisation Models	**Overall Rating**	Risk Assessment	Optimised Renewal Decision Making	Maintenance Analysis (RCM/FMECA)	**Overall Rating**	System Integration	**Overall Rating**	Asset Categorisation / Hierarchy	Location	Physical Attributes (Basic data)	Condition Data	Maintenance Data	Risk Assessment	Cost Histories	Optimised Renewal Decision Making (OR	**Overall Rating**	Core / Non Core Activities Identified	Packaging of Contracts	Information & Data Available	Contract Supervision / Performance Monit	**Overall Rating**	Corporate Sponsorship and Commitment	AM Roles and Responsibilities	Asset Management Steering Committee	Skill and Age Profiles	Training Programmes	**Overall Rating**
Excellence	100																																								
	95																																								
	90			**Ideal Best Practice**																																						
	85																																								
	80																															**Ideal Best Practice**										
	75																																								
	70																																								
Competence	65			Desired Target																																						
	60																																								
	55																																								
	50																																								
	45																																								
	40																																								
	35																																								
	30																																								
Systematic Approach	25																																								
	20																																								
Awareness	15																																								
	10																																								
Innocence	5																																								
	0																																								
Ideal Best Practice Score		90	90	90	90	90	80	80	**85**	80	80	90	**80**	80	80	70	**75**	80	**80**	90	90	90	90	80	80	80	70	**85**	80	80	80	80	**80**	80	80	80	80	80	**80**
Desired target		90	90	70	60	80	70	80	**75**	80	50	90	**75**	70	10	10	**35**	70	**70**	80	70	90	80	80	80	70	10	**70**	70	70	70	70	**70**	70	80	60	60	80	**70**
Score 2007		80	70	40	10	50	50	70	**55**	40	30	70	**50**	40	10	10	**20**	30	**30**	60	60	50	30	40	30	60	10	**45**	60	70	30	70	**60**	30	40	30	30	50	**40**
Score 2002		80	70	40	10	30	30	70	**45**	20	10	70	**35**	10	10	10	**10**	30	**30**	60	60	50	30	40	30	60	10	**45**	60	70	30	70	**55**	30	30	30	30	10	**25**
Gap (2007 - 2011)		10	20	30	50	30	20	10	20	40	20	20	25	30	0	0	15	40	40	20	10	40	50	40	50	10	0	25	10	0	40	0	10	40	40	30	30	30	45

2002 Practice

2007 Practice

Appendix B Findings and Improvements



Westernport Water AM Review 2007 - REVIEW OF ASSET MANAGEMENT (AM) PROCESSES

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
1 Demand Analysis	1.1 Historical Records	40	60	20	Historical records of demand and utilisation available for all key network components for at least 5 previous years	Good information available for water system through formal capture but access to such information by others is difficult. Minimal information available for sewer network. No formal data capture process.	• Need to establish accessible consolidated database for historical trend information. • Continue collection of information and expand for sewer system. • Document data capture processes.	No Change	• Need to establish accessible consolidated database for historical trend information. • Continue collection of information and expand for sewer system. • Document data capture processes.
	1.2 Element Breakup	50	60	10	Demand forecasts based on knowledge of all components that make up demand (i.e. population changes, customer types, infiltration/asset condition) at zone or catchment level	Understanding of elements that make up demand is reasonable for water. Modelling at zone or catchment level is carried out. Modelling for sewer system is not available.	• Refine models based on improved information.	Sewer modeling developed for rising mains and gravity mains.	• Refine models based on improved information.
	1.3 Customer Survey	70	80	10	Future demand projections are based on defined levels of service. These are based on customer and stakeholder consultation resulting in overall agreement with customers.	Levels of service are historical except for new service areas where alternate LOS can be offered and agreed.	• Formalise and document service levels.	Customer consultation completed and analysed Levels of service formalised in customer charter and ESC water quality audits. Review levels reflect current operating practices	• Link demand projections with defined levels of service.
	1.4 Trend Prediction	60	70	10	Demand forecasts include changing trends such as: • Changes in consumption and production • Changes in service standards/customer expectations/environmental expectations	Impact factors are included in demand forecasts. Processes adopted for planning purposes. Demand prediction undertaken on needs basis rather than for full planning functions.	• Further calibrate existing models for water network. • Develop sewer model and understand capacity of sewer trunk main.	Calibration for water mains undertaken for dry weather conditions. Sewer modeling developed for rising mains and gravity mains. Demographic profile report completed in 2006	• Overlaying GIS information with other factors such as demographic changes in demand would enable WW to undertake sophisticated analysis and make management decisions related to infrastructure with greater certainty. • Develop flexible modeling to predict the impact of changing demand.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
2 Knowledge of Assets	2.1 Hierarchical level	70	80	10	Processes in place to populate asset register with defined hierarchy, components broken down to maintenance managed item (MMI) level, and aggregate up to reflect asset, facility and system information	Asset register is in financial system and hierarchy not consistently applied. Processes informal and subject to requirements of individual personnel.	• Adopt processes to consolidate asset hierarchy for all assets e.g. water reticulation, water supply, treatment plant, sewer reticulation, sewer outfall and treatment.	Asset register and hierarchy recorded in AssetLife separate from SAP financial system. Processes informal and subject to data entry by individual personnel. Hierarchy established based on financial needs.	• Review the existing asset hierarchy to reflect asset management structure and needs. Modify AssetLife to reflect asset management hierarchy. • Adopt processes to maintain integrity of defined hierarchy components and awareness across organization.
	2.2 Physical data	40	70	30	Processes in place to ensure asset register contains basic physical asset attributes such as size, location, material.	Processes to update asset register based on needs of individuals. Concerted effort undertaken across organisation but not consolidated across departments.	• Develop data and information framework policy. • Consolidate data management processes across organisation.	Asset register data transferred from AssetPro to AssetLife. Concerted effort undertaken across organisation but not consolidated across departments. Management Information System (MIS) currently being implemented is intended to improve knowledge management.	• Develop data and information framework policy. • Consolidate data management processes across organisation. • Adopt processes to review quality of data capture for AssetLife asset register and link to high level SAP financial asset register.
	2.3 Condition	40	60	20	Processes are in place to record asset condition information and report on this information.	CCTV work for sewers undertaken on a project basis. Other condition assessment not documented although some regular condition assessment done as part of maintenance inspections. Little reporting and difficult to assemble.	• Document condition assessment processes and capture condition data to asset register.	Condition data is available for the sewer assets as per MWH report. However it is not undertaken on a regular basis nor has there been a review of performance, maintenance and CCTV data collected to complete the condition of sewer mains.	• Document condition assessment processes and capture condition data to asset register on a regular basis. • Adopt process to capture the attributes associated with the assets to ensure condition and performance is recorded to improve the confidence in data and support future renewals.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	2.4 Performance	50	70	20	Processes in place to record asset performance information and report on this information.	Asset performance information e.g. water quality formally reported. Telemetry available for plant and p/s. Processes not documented.	• Document processes to record performance data and reporting arrangements.	The performance of the water assets is based on age, material, hydraulic modeling and used in conjunction with a criticality matrix for generating renewal programs. Fault information is now recorded in Merit with work orders recorded in AssetLife. Sewer and water modeling is undertaken to monitor system needs and hydraulic performance. Watercat software used for hydraulic modeling of the water network, Infoworks is used to model the sewer network. SCADA has been installed to record and monitor asset performance. Pipeline bursts are recorded and reported monthly.	• Document processes to record performance data and reporting arrangements. • The business system is in development mode and with time will be able to report the asset performance to a high level of certainty. Sound implementation and training will be required to ensure the analysis and subsequent decision making is appropriate and effective.
	2.5 Capacity/ Utilisation	40	60	20	Processes in place to measure and report on asset utilisation e.g. capacity and future utilisation	Information collected to be able to report utilisation for select assets. Telemetry available. Processes not documented.	• Document processes to record utilisation and report on requirements.	No Change	• Document processes to record utilisation and report on requirements.
3 Asset Accounting and Costing	3.1 Valuations	80	90	10	Organisation undertakes regular valuations as per required standards, based on a complete asset register accurate replacement values, effective lives and depreciation regimes.	Valuations at prescribed intervals. Based on available asset information.	• Complete asset valuations using complete register when available. Undertake valuations with revised asset information e.g. condition and performance.	Asset revaluations undertaken in 2005 however it did not incorporate condition-based depreciation.	• Undertake valuations with revised asset information e.g. condition and performance.
	3.2 Operations and Maintenance costs	60	70	10	Processes exist which enable the organisation to assess costs of operating and maintaining individual assets and facilities, and analyse the costs in terms of energy, repairs, chemicals, labour, asset maintenance etc.	Assessment of operating and maintenance costs interrogated through the General Ledger. Treatment plants as departments with labour, materials etc. Pump stations use separate operating numbers. Reticulation uses activity numbers not referenced to assets.	• Adopt processes to capture maintenance costs against maintenance managed items and individual assets.	No Change.	• Adopt processes to capture maintenance costs against maintenance managed items and individual assets. • Completion of asset management plans will assist in understanding the level of maintenance, extent of operations, investment with respect to assets and frequency of renewals.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	3.3 Renewal liabilities and risk	40	70	30	Processes in place, which enable future renewal costs of assets to be predicted, based on asset condition, performance and business risk. Renewal profiles are developed from condition decay curves, system capacity modeling and utilisation data, and economic failure predictions and historical costs data.	Limited development of renewal profiles.	• Develop renewal profiles based on available data. Review as necessary. Feed into renewal projections for long term planning.	MWH sewerage pipeline 2004 report provided a 20 year renewal program. Water assets rely on age and material data in conjunction with a criticality matrix for generating renewal programs. Asset lives for different pipe materials have been developed to determine renewal programs. The report includes risk and criticality. The risk management system "IRIS" is being implemented to record business and infrastructure risks and ensure actions are taken to minimise the risks. Capital works project submissions recognise the requirements required to justify the project e.g. risk, criticality, public health, environment, water quality, EPA compliance, service levels, OH&S and industry assistance.	• Improvements could be developed with respect to asset renewal and the use of additional information such as asset performance to develop renewal programs. This is equally applicable for mechanical and electrical assets in addition to pipes. • Asset risk is yet to be recorded in AssetLife. • MWH process needs to be implemented and repeatable on a defined frequency to update renewal projections. • Use the MWH model as the basis for extending renewal planning across all other assets
	3.4 Historical cost data	50	60	10	Processes in place to capture historical costs of operating, maintaining, and renewing assets. Ability to analyse this data at asset level to make management decisions	No processes to capture historical costs except in general ledger	• Assemble historical costs and carryout analysis at asset level.	Operations are recording time and maintenance costs within separate data capture system.	• Formal process will assist in the capture of data and promote cross organisational availability and consistency.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
4 Strategic Planning	4.1 Failure mode prediction (capacity, reliability, mortality, cost)	60	80	20	Processes are in place to monitor current asset capacity, predict future demand and asset requirements at asset level. Processes are in place to monitor asset reliability and predict when assets will failure due to reliability. A formal condition monitoring policy and process in place for all asset types, deterioration models available. Outcomes of this activity reflected in AM plan. Life cycle cost monitoring and modeling undertaken for all asset groups and used to predict replacement.	Telemetry system monitors utilisation. Telemetry monitoring of pump hours at P/S No formal policy on condition monitoring. CCTV monitoring for sewer lines is undertaken. No deterioration models. Other assets monitored as part of inspections. No life cycle costing models used but have been developed on an as needs basis for project evaluation. Failure records recorded in hardcopy and electronic format for water and sewer network but not widely available.	• Document process to monitor utilisation. • Refine capacity and utilization models with improved data to predict replacement or augmentation timing. • Produce condition assessment manual. Prepare a condition assessment policy. • Instruct staff on use of condition assessment methodology. • Document the process and develop life cycle cost models for all asset groups. • Make failure records widely available.	Process in place for replacement of existing telemetry system commenced. Cowes pumps station uses automated system. Failure records collected from field but inconsistent responses means information received is difficult to interpret.	• Document process to monitor utilisation. • Refine capacity and utilization models with improved data to predict replacement or augmentation timing. • Produce condition assessment manual. Prepare a condition assessment policy. • Instruct staff on use of condition assessment and failure reporting methodology. • Document the process and develop life cycle cost models for all asset groups. • Make failure records widely available.
	4.2 Risk Management	50	80	30	An organisation-wide risk management policy in place and clearly one of the key principles by which businesses is managed. Policy supported by a documented risk management process at business unit level. Risks quantified for both tangible and intangible risks. Ability to compare risks for different activities based on explicit risk quantification guidelines. Risk register in place for all assets.	Business risk assessments have been carried out on an informal basis for all defined corporate risks but not for all assets. Assets managed through risk awareness rather than formal process of risk recognition.	• Develop corporate risk management policy according to AS 4360. Apply risk evaluation to assets and define the most critical. • Establish a risk register for assets and record results in Asset Register. • Develop risk costs and apply this information to options evaluation.	Risk management policy developed. Risks are yet to be identified for assets. Assets managed through risk awareness rather than formal process of risk recognition.	• Apply risk evaluation to assets and define the most critical. • Establish a risk register for assets and record results in Asset Register. • Develop risk costs and apply this information to options evaluation and prioritisation.
	4.3 Optimised renewal decision making	10	30	20	Documented processes/guidelines in place to enable derivation of optimal renewal programmes. Decision making processes include consideration of alternative solutions, consideration of all failure modes and total life cycle cost analysis.	Project evaluation undertaken accommodating the consequences of not undertaking project. No specific linkages to impacts on future asset expenditure e.g. maintenance costs, life extension etc.	• Document processes for determining optimal renewal programmes. • Decision making to account for failure modes, risk reduction, life cycle analysis and non-asset solutions.	No Change.	• Document processes for determining optimal renewal programmes. • Decision making to account for failure modes, risk reduction, life cycle analysis and non-asset solutions.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	4.4 Life cycle planning	40	60	20	Life Cycle monitoring and modeling undertaken for all asset groups and used to predict replacement. Documented processes for developing business cases for capital investment. Capital investment decision making process reflects life cycle costs, cost of capital through NPV analysis. Processes in place to prioritise projects (preferably based on NPV costs/NPV benefits) incorporating direct & indirect benefits. Application of predictive modelling, risk assessment, ORDM to achieve most appropriate capital investment programme.	Life Cycle modelling generally not undertaken. Limited forward projection of capital investment (5 years). Based on experience. Little support documentation. Simplified process for prioritising future projects. Renewal programmes not established. Limited forward look. Evaluation of options considers engineering solutions with some life cycle analysis.	• Develop life cycle models for all asset groups. • Establish 20 year forward look capital investment programmes using all strategic tools. • Develop and implement a capital investment decision making process. Feed results into asset management plans.	No Change. 30yr strategic plan developed for ESC audit. No Change.	• Development and implementation of Asset management plans will use the outputs of systems to document the long term financial forecasts and infrastructure management strategies. • Incorporate performance and condition analysis in long term CAPEX. • Develop and implement a capital investment decision making process. Feed results into asset management plans.
	4.5 AMP production	30	60	30	AM plan production process and responsibilities clearly documented. AM plan production a key activity of the organisation. Expect regulatory requirement in future.	No AM plans produced.	• Develop process for AM plan production	Training undertaken and the development of wastewater AM plan initiated.	• Complete and adopt process for AM plan implementation and ongoing production. • Once Wastewater AM plan completed promote its existence across WW and brief staff on its contents. • Complete and implement Water AM Plan
	4.6 Customer review	50	70	240	Key stakeholders (shareholders and customers) actively reviewing and providing feedback into AM plans. Overall stakeholder agreement with AM plan.	Customer surveys undertaken but not specifically addressing issues related to asset planning.	• Document processes for customer acceptance of asset management plans.	Communication undertaken between customer services, Assets Planning and Delivery Unit and Operations to ensure customer feedback is provided and fault histories documented for the assets. Customer consultation undertaken and results analysed.	• Document processes to initiate customer acceptance of asset management plans.
	4.7 Business goal linkages	70	70	0	All AM decisions are clearly linked to the business objectives.	Informal acknowledgement of business objectives.	• Ensure AM plans include linkage and reference to business objectives and drivers.	Links to water plan clarify future activity.	• Ensure AM plans include linkage and reference to business objectives and drivers.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
5 Asset Creation / Disposal	5.1 Project identification	40	70	30	Project identification procedures and processes in place.	No formal procedures for project identification. Undertaken on an adhoc basis.	• Develop and document project identification processes.	Capital Works Project Submission Form developed and utilized. 3 to 5 year CAPEX program developed Triple Bottom Line evaluation is applied to the capital investment approval process. All strategic studies require triple bottom line considerations to be addressed as part of determining a preferred outcome or option.	• Develop and document project identification processes. • Formalise infrastructure project prioritisation
	5.2 Project management	60	70	10	Project management and quality procedures clearly documented which cover: Scope management, time management, cost management, quality management,	Project management well defined process. Documentation for land development projects available, other projects not documented.	• Document project management processes for capital projects. Review as required.	Workflow documentation for water and sewer currently being documented. Formal project management processes are yet to be documented.	• Document project management processes for capital projects. Review as required.
	5.3 Construction and contract supervision.	70	80	10	Documented construction standards exist for assets. Processes exist for ensuring organisation achieves specified quality.	Standards and quality process available.	• Review currency of these standards.	No Change.	• Review currency of standards.
	5.4 Asset handover	60	80	20	Clear procedures and documentation exists for asset handover including capitalisation (write-on and write-off), operations and maintenance procedures, as-builts and transfer into information systems for all projects	Documentation exists for handover of land development projects. Developers on major projects required to deliver appropriate handover of data, manuals, etc.	• Document handover procedures for capital projects.	No Change.	• Document handover procedures for capital projects.
	5.5 Asset rationalisation	30	70	40	Processes exist for reviewing asset portfolio identifying assets for disposal	No formal process	• Develop, implement and document processes for identifying assets for disposal.	No Change.	• Develop, implement and document processes for identifying assets for disposal.
	5.6 Asset disposal	30	70	40	Clear procedures and documentation exists for asset disposal, decommissioning, sale or transfer	No documentation of process	• Document processes of disposal.	No Change.	• Document processes of disposal.
6 Asset Operations	6.1 Operating procedures	40	80	40	Operating procedures completed and available to all users	Operations manuals for treatment plants (could be out of date). No manuals for operations of networks.	• Develop network operations manuals to capture knowledge and review procedures in all existing manuals. Consider how these might be managed (Document management system)	No Change.	• Develop electronic network operations manuals to capture knowledge and review procedures in all existing manuals. Consider how these might be managed (Document management system)
	6.2 SCADA systems	60	80	20	SCADA systems available and documented to support operations, modelling and monitoring of assets	Telemetry system used to manage network systems and p/s, and collect performance information on plants.	• Document telemetry processes	No Change.	• Document telemetry processes

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	6.3 Operating manuals	30	50	20	Policies and procedures exist for the development of operations manuals based on risk of assets.	Some operations manuals available. No formal procedure for capture or update of such information	• Develop operations manuals • Use risk as basis for identifying operations manuals priority production.	No Change.	• Develop operations manuals • Use risk as basis for identifying operations manuals priority production.
	6.4 Emergency response plans	60	80	20	Processes, framework and guidelines in place for determining need and development of emergency response plans, contingency plans and failure management plans	Contingency and emergency response plans available for major assets.	• Develop ERPs for all major assets	Draft ERP developed • Evaluate check list complete • Phone threat check list. Others: Business Continuity Plan Crisis Management team	• Develop ERPs for all major assets
7 Asset Maintenance	7.1 Policy/Strategy	30	80	50	Documented maintenance policies for assets that outline overall maintenance objectives and strategies.	No such documentation. Maintenance policies set by staff responsible for maintenance.	• Prepare maintenance policy document	No change.	• Prepare maintenance policy document
	7.2 Planning	30	80	50	Individual maintenance plans are developed and documented to outline maintenance tactics for asset groups.	Only maintenance plans are those advised by manufacturers of mechanical equipment.	• Prepare maintenance plans for all facilities then network assets as part of implementing an asset management/maintenance management system	No Change.	• Prepare maintenance plans for all facilities then network assets as part of implementing a management system
	7.3 Scheduling, Job Execution and Control	40	70	30	Maintenance activities are planned, scheduled and prioritised and documented. Documented processes in place to manage maintenance activities.	Scheduling for plant and equipment is based on experience. Little routine maintenance for networks. Mainly reactive maintenance by business.	• Document maintenance in manuals and plans.	No Change.	• Document maintenance in manuals and plans. • Migrate towards a preventative maintenance regime
	7.4 Maintenance Manuals	30	80	50	Maintenance manuals available for all assets in appropriate form.	No maintenance manuals available	• Complete maintenance manuals for critical assets	No Change.	• Complete maintenance manuals for critical assets
	7.5 Maintenance Review/Analysis	10	60	50	Maintenance analysis requirements documented. FMECA and RCM considered.	No risk based approach to maintenance.	• Future need to review maintenance activities.	No Change.	• Future need to review maintenance activities.
8 Resource Management	8.1 Resource planning	50	50	0	Documented procedures for resource management available	Informal resource planning undertaken on a daily basis.		No Change.	
	8.2 Inventory controls	30	30	0	Documented procedures for inventory control available	Inventory managed under financial system. Procedures for control available. No linkage to usage.	• Improve inventory control processes.	Stored in Sap and orders processed via AssetLife.	• Not critical at this time.
9 Review and Audit	9.1 Implemented improvement plan	60	80	20	Demonstrated uptake of improvements	Not documented yet.	• Adopt, document and monitor improvement strategy.	No Change.	• Adopt, document and monitor improvement strategy.

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	9.2 Cost reduction opportunities	50	60	10	Processes to identify cost reduction opportunities available and tested.	No formal process	• Consider cost reduction opportunities as a business objective and formalise.	Undertaken at senior management level - An audit team is used to review improvements and monitor progress. Informally undertaken at operational level.	• Develop formal process to evaluate and implement potential areas of cost reduction.
	9.3 Independent audit	80	80	0	Continued audit review of AM changes as part of QA.	Expected in future	• Carryout future reviews of progress of improvement strategy.	Undertaken through ESC.	• Auditing of activities such as asset management can be simplified with documentation of processes as partial evidence of compliance with standards or practices.
	9.4 Internal QA	50	60	10	Processes for QA on AM of an appropriate standard.	This project will generate basis for QA	• Develop document and implement quality assurance process for AM improvement and actions.	Asset steering group in place.	• Develop document and implement quality assurance process for AM improvement and actions.
	9.5 AM quality manuals	40	60	20	Quality manual available to demonstrate compliance and achievement with intended practices	No manual adopted	• Adopt IIMM as basis for AM and implement training programme.	Documentation in development.	• Develop and implement Quality manual based on IIMM principles and implement training programme.

Westernport Water AM Review 2007 - REVIEW OF INFORMATION SYSTEMS

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Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
10 Primary Apps	10.1 Finance	80	90	10	Financial reporting relating to assets available in required format.	The Fujitsu 2000Plus manages the financial aspects including the costing of capital projects, and the procurement and tracking of materials and equipment. AssetPro is utilised as the fixed asset register but is not linked to the General Ledger. AssetPro provides the base data on the assets for financial purposes. Financial costing at project level is undertaken within the general ledger. Ideally this should be undertaken as part of a works management system.	• Review chart of accounts in line with asset management hierarchy and corporate requirements for asset management reporting. Review for summary level reporting only. • Define the asset hierarchy to be adopted within the financial system. • Project level costing to be undertaken within a works management system.	SAP installed as new financial system with fixed asset register. There is potential to include a maintenance planning and works orders module.	• Develop reports suitable for project and financial reporting requirements
	10.2 Asset Register	70	90	20	Asset register with appropriate data suitable for asset reporting available and accessible. Linkages to other business systems available.	AssetPro is used as the fixed asset register. The level of detail of the assets varies with each asset group. Pipelines are stored down to pipe lengths whereas other assets are single line items. AssetPro is one module in a suite of modules designed by the supplier. These modules include: • Asset Maintenance • Asset Tracking and bar coding • Capital Budgeting & Forecasting Pseudo asset registers exist in the form of the FastCad files. These files store technical information on the assets. Other sources of asset data relate to various spreadsheets used by operations staff. The quality of the data stored and the level of detail provided varies across the applications.	• Consolidate the data between the General Ledger and the GIS. • Remove the 90,000 assets from the General Ledger • Rationalise the information in the many databases and spreadsheets • Define the reporting requirements of the business and translate into data needs • Develop an asset management data framework to establish the actual corporate data requirements for asset management • Develop a data management strategy and incorporate with the data framework • Define the interoperation requirements between this register and other systems	AssetLife Modules (Asset Register, Maintenance Management) used primarily for the production of WO. Data quality to be monitored and collection process yet to be developed. Assets consolidated in financial ledger within SAP.	• Define the reporting requirements of the business and translate into data needs • Develop an asset management data framework to establish the actual corporate data requirements for asset management • Develop a data management strategy and incorporate with the data framework • Define the interoperation requirements between this register and other systems

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	10.3 Plans and records	40	70	30	Plans and records in a suitable form available, accessible and current.	Older plans from the various Water Boards are stored in hardcopy format in the central office while the newer plans for subdivisions and capital works projects are being provided in digital format. Water and sewer plans are provided in electronic format in FastCad. These plans store the water and sewer reticulation information. The software links the attributes to the elements.	• Identify the plans and records requirements of field staff • Enhance the current process to ensure that field staff have their plans and records updated on a regular basis • Incorporate plans and records in an appropriate quality management system (Document management functionality could form part of this system)	Autocad utilized to prepare new plans, unlike Fastcad the package offers no links to attributes.	• Identify the plans and records requirements of field staff • Enhance the current process to ensure that field staff have their plans and records updated on a regular basis • Incorporate plans and records in an appropriate quality management system (Document management functionality could form part of this system)
	10.4 Spatial Systems	10	60	50	GIS accessible and linked to asset register data	Spatial information is recorded in the FastCad software as identified above.	• Identify the Corporate wide needs of the GIS. • Define initial Corporate use of the GIS.	Historical spatial information stored in AssetLife.	• Identify the Corporate wide needs of the GIS. • Define GIS requirements and procurement. • Review the relationship between AssetLife and the GIS • Review AssetLife functions with view to enhanced relationships with other corporate systems
	10.5 Maintenance management	50	80	50	System available to manage work orders, capture cost and resources including contractors and materials. Linked to asset register to capture appropriate data.	Maintenance records are recorded by the operations staff in hardcopy format. Failure records are stored in electronic format.	• A system providing maintenance management functionality should be implemented to record all maintenance activities. This system should be accessible to all staff who have a need for this data.	Maintenance work orders recorded within AssetLife. Failure records stored electronically within informal system by operations staff.	• Address the issues identified by the maintenance crews.

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Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	10.6 Ops manuals and emergency response plans	50	70	20	Electronic manuals and plans available and accessible.	The operations manuals are being developed and will address aspects of the environmental management plan. These manuals are being produced in hardcopy and electronic format. Based on staff feedback this process has been a low priority. High-level emergency response plans e.g. Drought Response Plan exist and stored in the central office. Operations manuals exist in hardcopy format for some facilities e.g. San Remo-Pioneer Bay Pump Stations.	• Complete the operations manuals for the Treatment Plants and expand for the water reticulation and sewerage network. • Provide access across the business on an intranet.	Informal operation manuals exist for major treatment plants. Development of approved corporate operational manuals is ongoing and will address aspects of the environmental management plan. These manuals are being produced in hardcopy and electronic format. Based on staff feedback this process has been a low priority. Draft ERP developed • Evaluation check list complete • Phone threat check list. Others: Business Continuity Plan Crisis Management team Operations manuals in the form of specification manuals exist in hardcopy format for some facilities e.g. San Remo-Pioneer Bay Pump Stations.	• Complete the operations manuals for the Treatment Plants and expand for the water reticulation and sewerage network. • Provide access across the business through the intranet currently under development.
	10.7 Inventory /spares	70	80	10	System available to manage stores and ordering.	Inventory and spares are recorded daily in hardcopy format against the jobs. This information is then sent to the central office to be input into the Fujitsu stock control system. An issue has been raised whereby if a job number is not allocated the item slips through the system.	• Not critical at this time.	Inventory and spares recorded in SAP.	• Not critical at this time. • Develop strategy to align SAP with AssetLife.
11 Secondary Apps (supporting)	11.1 Condition Assessment and Record system	40	80	40	Database available to assess and capture condition information for all assets consistently.	No formal condition assessment criterion exists. Condition is monitored on an ongoing informal basis by the recording of faults.	• Condition data should be stored in a centralized database to be accessed by all staff that need this information. Therefore consolidate all condition data into a centrally located register.	No Change.	• Condition data should be stored in a centralized database to be accessed by all staff that need this information. Therefore consolidate all condition data in AssetLife.
	11.2 Predictive models (decay and cost)	30	50	20	Models developed and available to predict failure timing for assets. Linked to data sources such as costs, condition and historical data. Outputs stored in asset register	Predictive models do not exist for the various asset groups.	• Not critical at this time.	No Change	• Commence the formal development of renewal profiles for all asset classes.
	11.3 Capacity /utilisation models	70	90	20	Models available to determine timing failure with respect to capacity or utilisation. Outputs stored in asset register	WaterCad is used for the modelling of the water network. A similar model does not exist for the sewer assets.	• Expand modelling to incorporate sewer modelling e.g. SewerCad	No Change	• Expand modelling to incorporate sewer modelling capacity.

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Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
12 Tertiary Apps (advanced)	12.1 Risk Assessment	40	70	20	Risk assessment model allows risk cost determination, risks ranking and total business risk assessment. Store outputs in asset register	A risk management system is currently not available.	• An asset based risk management system should be implemented as a precursor to the corporate risk process. This will allow works to be identified and included on the capital projects process. It will also allow asset risk to be quantified and analysed across the business	IRIS risk management system in operation. A process is being developed to record business and infrastructure risks and ensure actions are taken to minimise the risks.	• Develop infrastructure risk register to allow works to be identified and included on the capital projects process. It will also allow asset risk to be quantified and analysed across the business
	12.2 Optimised Renewal Decision Making	10	10	0	ORDM model used to determine preferred treatment options. Store outputs in asset register.	An ORDM model is currently unavailable. NPV analysis on specific projects is undertaken on spreadsheets.	• Not critical at this time. This is a long-term objective and should be programmed accordingly.	No Change.	• Not critical at this time. This is a long-term objective and should be programmed accordingly.
	12.3 Maintenance analysis	10	10	0	Information systems should be capable of analysis of maintenance data and consider FMECA and RCM techniques	A maintenance analysis system is currently unavailable.	• Not critical at this time. This is a long-term objective and should be programmed accordingly.	No Change.	• Not critical at this time. This is a long-term objective and should be programmed accordingly.
13 IS General	13.1 System integration	30	70	40	AM systems need to be linked with each other and with other business systems eg GIS, finance	System integration is restricted to the main corporate systems being Fujitsu 2000Plus, ITRON Meter reading system, SmartTrack Customer Request Management system, SOX phone system and the Trim Records Management System The system integration is limited to essential data transfer at this time.	• An interoperation review of all corporate systems is required to identify the needs for system integration. This would define the functionality required. • The interoperation benefits and development programme would form part of this exercise	System integration still under development to link SAP, MIS, AssetLife, Trims and Merit. Introduction of the GIS will further complicate current system development	• An interoperation review of all corporate systems is required to identify the needs for system integration. This would define the functionality required. • The interoperation benefits and development programme would form part of this exercise

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Westernport Water AM Review 2007 - REVIEW OF DATA QUALITY

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
14 Data and Information	14.1 Asset categorisation/ Hierarchial level	60	80	**20**	Categorisation of assets suitable for effective AM reporting and analysis. Hierarchical level to suit AM.	Categorisation is appropriate for asset management reporting. Hierarchy level data not available for all assets.	• As part of asset register implementation take hierarchy to appropriate maintenance management levels.	No Change	• As part of AssetLife implementation take hierarchy to appropriate maintenance management levels. • Review current asset hierarchy and make adjustments within AssetLife to improve reporting capability.
	14.2 Location	60	70	10	Locational information that sufficiently identifies specific assets	Adequate locational information. Spatial data available for network assets but not as yet for assets within facilities e.g. treatment plant.	• Expand spatial capture to assets within facilities.	Spatial data not currently captured for all assets to a level of detail required for future analysis.	• Expand spatial capture to assets within facilities. • Develop process to capture data for all assets.
	14.3 Physical attributes basic data	50	90	40	Sufficient attribute data to identify the assets and activities associated with them e.g. maintenance plans	Data exists but not in an accessible form. No feedback to operators on data collected (purpose, value, etc) Limited understanding of total organisation needs.	• Review data needs with input from operators. Undertake knowledge management strategy. • Raise awareness of available data. • Make data available across organisation.	Data exists and is available to those needing to access it however operational staff have expressed difficulty in obtaining and entering data. Limited understanding of total organisation needs.	• Review data needs with input from operators. Undertake knowledge management strategy. • Raise awareness of available data. • Make data available across organisation.
	14.4 Condition data	30	80	50	Appropriate level and quality of data for prediction of condition based failure	Limited condition data. Some CCTV for sewers. Other assets assessed on an ad hoc basis. Data stored in various databases/spreadsheets.	• Collect condition data for all assets according to assessment manual. Input condition data into asset register.	Condition data included in MWH report. .	• Collect condition data for all assets according to assessment manual. Input condition data into asset register.
	14.5 Maintenance data	40	80	40	Appropriate data for analysis of maintenance performance, cost of maintenance, etc.	Maintenance data collected to spreadsheet for reactive actions related to water and sewer assets. Not generally available across organisation.	• Transfer data into an appropriate database accessible for review and reporting across the organisation.	Maintenance data collected to spreadsheet for reactive actions related to water and sewer assets. Not generally available across organisation.	• Develop accurate and consistent reports using AssetLife. • Ensure reports are accessible for review and reporting across the organisation.
	14.6 Risk assessment	30	80	50	Risk ratings for all assets stored in appropriate database and reviewed regularly.	Risk ratings not collected.	• Develop and store risk ratings in asset register	No change	• Develop and store risk ratings in AssetLife
	14.7 Cost histories	60	70	10	Capture all historical cost data to appropriate database	Difficult to collect and assign cost data to assets	• Review and implement the collection of cost data to appropriate asset level.	No change	• Review and implement the collection of cost data to appropriate asset level.

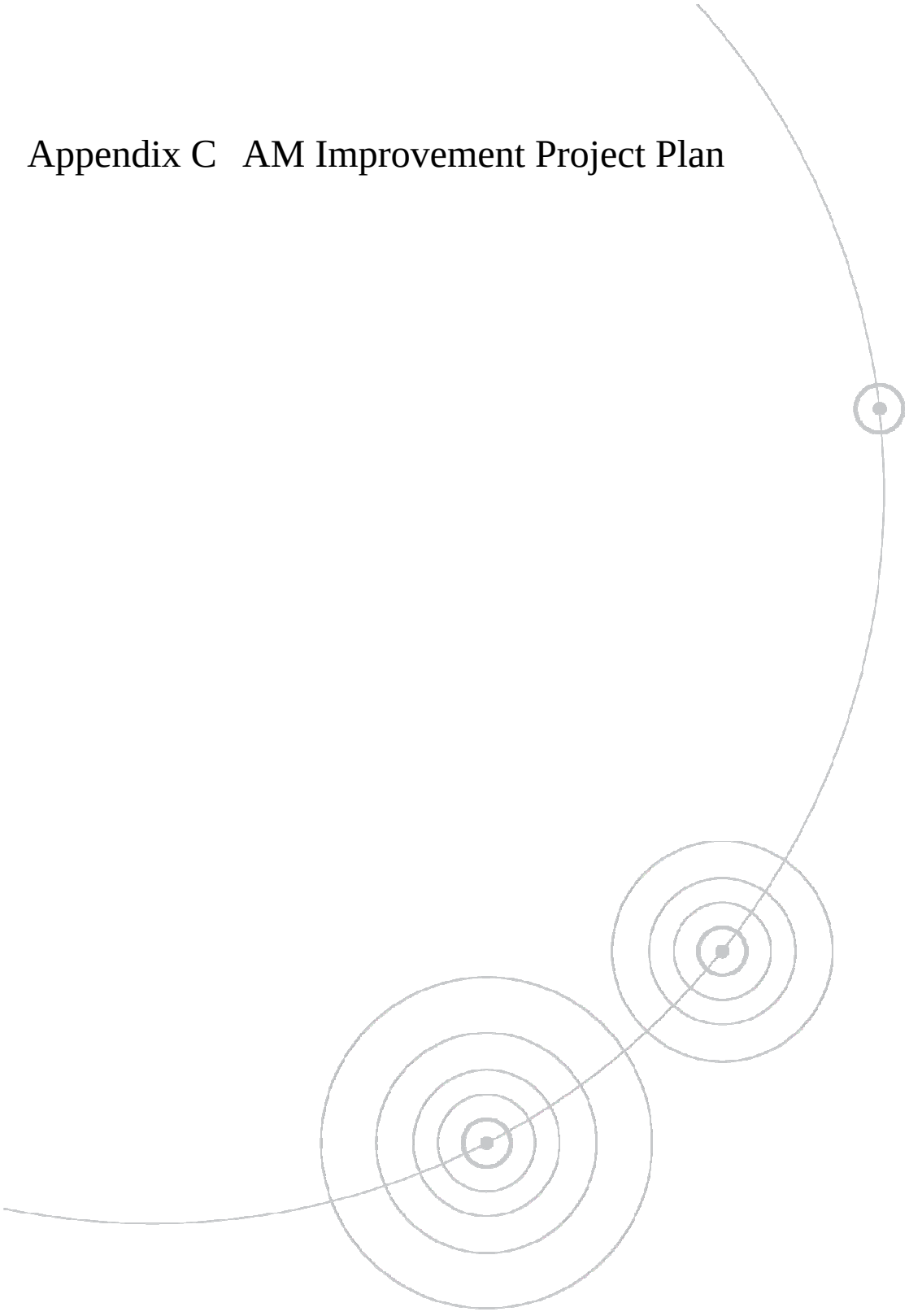
Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	14.8 Optimised renewal decision making	10	10	0	ORDM used to establish preferred option. Cost/benefit evaluation considers risk cost reduction. Capture preferred options to asset register linked database	Data is not available at this time.	• Not critical at this time.	No Change	• Not critical at this time.

Westernport Water AM Review 2007 - REVIEW OF COMMERCIAL AND ORGANISATIONAL ISSUES.

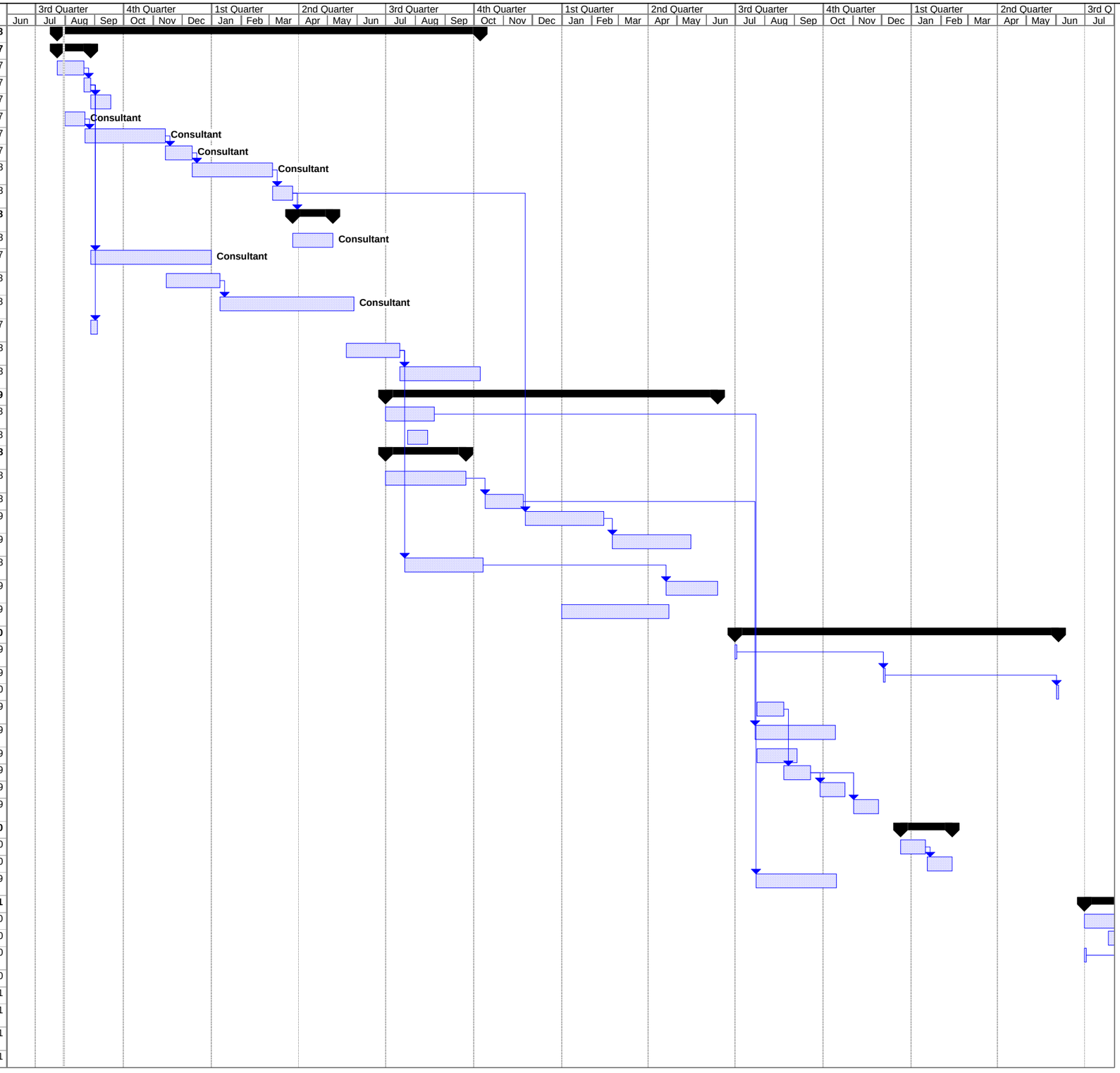
Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
15 Commercial Tactics	15.1 Core/non core activities Identified	**60**	**70**	**10**	Business identifies core/non-core activities and focuses on core actions by business only. Other activities delivered by service providers.	Core actions identified. Non-core activities delivered by service providers.	• Continue to identify opportunities to use service providers as required.	No Change	• Continue to identify opportunities to use service providers as required. • Review project scope for consultants to maximise return to WW
	15.2 Packaging of Contracts	70	70	0	Contracts to be sophisticated and reflect commercial arrangements. Service providers to be contestably developed.	Contracts use Australian standards.	• Continue current approaches	No Change	• Continue current approaches
	15.3 Information and Data available	30	70	40	Ensure accessibility to data is appropriate for commercial operations	Data availability limited. Multiple databases but document /data management is poor. Remote access to data is poor. No feedback to operators on data collected (purpose, value, etc)	• Ensure all those requiring access to data have such access. • Identify data needs.	No change.	• Ensure all those requiring access to data have such access. • Identify data needs.
	15.4 Contract supervision	70	70	0	Levels of supervision and performance measures used for contracts are best practice	Contract management appears appropriate.	• Continue approach	No change.	• Continue approach
16 Organisation /people issues	16.1 Corporate sponsorship and commitment	30	70	40	Clearly allocate responsibility for AM at corporate levels.	Asset management sponsored by Management Group with corporate recognition. Not evident at employee level.	• Steering group to manage improvement process and projects.	Informal Steering group comprises Executive Team.	• Prepare charter including vision, responsibilities, frequency and reporting methods. • Adopt formal process of reporting to Steering group to manage improvement process and projects.
	16.2 AM roles and responsibilities	40	80	30	Ensure AM responsibilities clearly defined within the business.	Responsibilities for AM not well defined.	• Define AM roles and responsibilities and provide awareness raising of AM to ensure work teams have an asset management focus and project managers understand asset management objectives.	Responsibilities for asset management activities are centred within two business units; Assets Planning and Delivery; and Services.. Roles and responsibilities for asset management are documented in the position description of the Manager of Assets Planning and Delivery Unit with responsibilities for specific asset management activities documented in the unit's staff position descriptions.	• Define and document AM roles and responsibilities and provide awareness raising of AM to ensure work teams have an asset management focus and project managers understand asset management objectives within Services unit.
	16.3 AM steering committee	30	60	30	Effectively manage improvement programme and application of AM.	Steering Group as yet available to manage improvement process.	• Use steering group to manage improvement process	No Change.	• Use steering group to manage improvement process

Category	Element	June 2007	Desired Target	Gap	Description of Best Practice	2002 Review Findings	Actions to Reach 2005 Target Level	2007 Review Findings	Actions to Reach Target Level
	16.4 Skill and age profile	30	60	30	Demonstrate succession planning aimed at long term AM	No evidence of succession planning. Age profile suggests experienced, mature operators	• Need to identify areas where the business is vulnerable to loss of knowledge and develop programme to capture that knowledge.	No Change	• Need to identify areas where the business is vulnerable to loss of knowledge and implement programme to capture that knowledge.
	16.5 Training programme	50	80	30	Training in asset management evidenced by appropriate programmes to develop and enhance skills with respect to AM	No formal training arrangements for asset management	• Enhance understanding of asset management across business. • Develop training programme focussed on asset management. • Ensure change is managed.	A training program in place incorporating asset management plan development, asset management system implementation and process implementation. Training based on staff needs.	• Continue to enhance understanding of asset management across business through ongoing professional development and mentoring. • Continue to develop training programme focussed on asset management. • Ensure change is managed.

Appendix C AM Improvement Project Plan



ID	Task Name	Duration	Start	Finish
1	**Year 1 Deliverables**	**316 days**	**Tue 24/07/07**	**Tue 7/10/08**
2	**1. Formalise AM Steering Committee:**	**25 days**	**Tue 24/07/07**	**Mon 27/08/07**
3	• Develop project charter; and	20 days	Tue 24/07/07	Mon 20/08/07
4	• Confirm first 12 month activities.	5 days	Tue 21/08/07	Mon 27/08/07
5	2. Publish and promote AM Strategy.	15 days	Tue 28/08/07	Mon 17/09/07
6	3. Complete Wastewater AM Plan.	15 days	Wed 1/08/07	Tue 21/08/07
7	4. Complete Water AM Plan.	60 days	Wed 22/08/07	Tue 13/11/07
8	5. Document condition manual across all assets.	20 days	Wed 14/11/07	Tue 11/12/07
9	6. Undertake a formal condition assessment of all above ground infrastructure and develop a renewal profile.	60 days	Wed 12/12/07	Tue 4/03/08
10	7. Develop a formal criticality assessment and identify critical infrastructure.	15 days	Wed 5/03/08	Tue 25/03/08
11	**8. Review and improve the data structure in AssetLife**	**30 days**	**Wed 26/03/08**	**Tue 6/05/08**
12	• Quantify the data quality and monitor	30 days	Wed 26/03/08	Tue 6/05/08
13	9. Develop and document a GIS strategy by identifying the needs of users.	90 days	Tue 28/08/07	Mon 31/12/07
14	12. Work with maintenance staff to identify their needs and apply to AssetLife.	40 days	Thu 15/11/07	Wed 9/01/08
15	10. Document GIS specification and undertake procurement process.	100 days	Thu 10/01/08	Wed 28/05/08
16	11. Adopt KPI's within this strategy for measuring asset management performance.	5 days	Tue 28/08/07	Mon 3/09/07
17	13. Review the relationship between AssetLife and other Corporate systems with the view to developing or formalising processes and	40 days	Wed 21/05/08	Tue 15/07/08
18	14. Define the infrastructure reporting requirements and identify the source of reports e.g. AssetLife, SAP, GIS and MIS etc.	60 days	Wed 16/07/08	Tue 7/10/08
19	**Year 2 Deliverables**	**249 days**	**Tue 1/07/08**	**Fri 12/06/09**
20	1. Investigate the use of hand held devices for maintenance personnel.	37 days	Tue 1/07/08	Wed 20/08/08
21	2. Implement an internal audit and review process.	15 days	Thu 24/07/08	Wed 13/08/08
22	**3. Identify and implement an interface between AssetLife and the newly acquired GIS**	**60 days**	**Tue 1/07/08**	**Mon 22/09/08**
23	• Identify and define the processes to support the use of spatial data.	60 days	Tue 1/07/08	Mon 22/09/08
24	4. Establish processes to acquire spatial data for assets.	30 days	Mon 13/10/08	Fri 21/11/08
25	5. Implement infrastructure risk by establishing the framework and identifying risks and populating an infrastructure risk register.	60 days	Mon 24/11/08	Fri 13/02/09
26	6. Improve the capital evaluation framework by incorporating risk and triple bottom line.	60 days	Mon 23/02/09	Fri 15/05/09
27	7. Establish program to improve the use of AssetLife across WRWC by incorporating functions such as risk, condition etc into the	60 days	Mon 21/07/08	Fri 10/10/08
28	8. Implement a formal audit and review process on the Asset Management improvements.	40 days	Mon 20/04/09	Fri 12/06/09
29	9. Establish and implement a preventative maintenance program for infrastructure.	80 days	Thu 1/01/09	Wed 22/04/09
30	**Year 3 Deliverables**	**242 days**	**Wed 1/07/09**	**Thu 3/06/10**
31	1. Deliver an ongoing AM training program. Annual frequency and duration to be determined.	2 days	Wed 1/07/09	Thu 2/07/09
32		2 days	Thu 3/12/09	Fri 4/12/09
33		2 days	Wed 2/06/10	Thu 3/06/10
34	2. Document a formal AM responsibility and accountability matrix.	20 days	Fri 24/07/09	Thu 20/08/09
35	3. Expand on the use of GIS across the infrastructure by identifying and implementing spatial reporting.	60 days	Wed 22/07/09	Tue 13/10/09
36	4. Review the use of MIS for infrastructure reporting.	30 days	Fri 24/07/09	Thu 3/09/09
37	5. Develop skills matrix and identify knowledge gaps.	20 days	Fri 21/08/09	Thu 17/09/09
38	6. Implement a mentoring program for AM.	20 days	Mon 28/09/09	Fri 23/10/09
39	7. Implement AM professional development for new and existing staff.	20 days	Mon 2/11/09	Fri 27/11/09
40	**8. Review Water and Wastewater AM Plans.**	**40 days**	**Mon 21/12/09**	**Fri 12/02/10**
41	Wastewater	20 days	Mon 21/12/09	Fri 15/01/10
42	Water	20 days	Mon 18/01/10	Fri 12/02/10
43	9. Implement hand-held devices for maintenance personnel.	60 days	Thu 23/07/09	Wed 14/10/09
44	**Year 4 and 5 Deliverables**	**277 days**	**Thu 1/07/10**	**Fri 22/07/11**
45	1. Monitor and documents AM improvements and benefits.	90 days	Thu 1/07/10	Wed 3/11/10
46	2. Expand the use of systems for interrogation of data.	60 days	Mon 26/07/10	Fri 15/10/10
47	3. Continue to deliver ongoing AM training. Annual frequency and duration to be determined.	2 days	Thu 1/07/10	Fri 2/07/10
48		2 days	Fri 3/12/10	Mon 6/12/10
49		2 days	Thu 2/06/11	Fri 3/06/11
50	4. Review and re-define AM accountabilities in key managerial and operational roles.	30 days	Mon 20/12/10	Fri 28/01/11
51	5. Continue to document AM processes and incorporate an the intranet.	30 days	Mon 21/02/11	Fri 1/04/11
52	6. Review the AM Strategy Year 5.	60 days	Mon 2/05/11	Fri 22/07/11



Project: SAMP 5 Year Program ver2
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Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

ID	Task Name	Duration	Start	Finish
1	**Year 1 Deliverables**	**316 days**	**Tue 24/07/07**	**Tue 7/10/08**
2	**1. Formalise AM Steering Committee:**	**25 days**	**Tue 24/07/07**	**Mon 27/08/07**
3	• Develop project charter; and	20 days	Tue 24/07/07	Mon 20/08/07
4	• Confirm first 12 month activities.	5 days	Tue 21/08/07	Mon 27/08/07
5	2. Publish and promote AM Strategy.	15 days	Tue 28/08/07	Mon 17/09/07
6	3. Complete Wastewater AM Plan.	15 days	Wed 1/08/07	Tue 21/08/07
7	4. Complete Water AM Plan.	60 days	Wed 22/08/07	Tue 13/11/07
8	5. Document condition manual across all assets.	20 days	Wed 14/11/07	Tue 11/12/07
9	6. Undertake a formal condition assessment of all above ground infrastructure and develop a renewal profile.	60 days	Wed 12/12/07	Tue 4/03/08
10	7. Develop a formal criticality assessment and identify critical infrastructure.	15 days	Wed 5/03/08	Tue 25/03/08
11	**8. Review and improve the data structure in AssetLife**	**30 days**	**Wed 26/03/08**	**Tue 6/05/08**
12	• Quantify the data quality and monitor	30 days	Wed 26/03/08	Tue 6/05/08
13	9. Develop and document a GIS strategy by identifying the needs of users.	90 days	Tue 28/08/07	Mon 31/12/07
14	12. Work with maintenance staff to identify their needs and apply to AssetLife.	40 days	Thu 15/11/07	Wed 9/01/08
15	10. Document GIS specification and undertake procurement process.	100 days	Thu 10/01/08	Wed 28/05/08
16	11. Adopt KPI's within this strategy for measuring asset management performance.	5 days	Tue 28/08/07	Mon 3/09/07
17	13. Review the relationship between AssetLife and other Corporate systems with the view to developing or formalising processes and	40 days	Wed 21/05/08	Tue 15/07/08
18	14. Define the infrastructure reporting requirements and identify the source of reports e.g. AssetLife, SAP, GIS and MIS etc.	60 days	Wed 16/07/08	Tue 7/10/08
19	**Year 2 Deliverables**	**249 days**	**Tue 1/07/08**	**Fri 12/06/09**
20	1. Investigate the use of hand held devices for maintenance personnel.	37 days	Tue 1/07/08	Wed 20/08/08
21	2. Implement an internal audit and review process.	15 days	Thu 24/07/08	Wed 13/08/08
22	**3. Identify and implement an interface between AssetLife and the newly acquired GIS**	**60 days**	**Tue 1/07/08**	**Mon 22/09/08**
23	• Identify and define the processes to support the use of spatial data.	60 days	Tue 1/07/08	Mon 22/09/08
24	4. Establish processes to acquire spatial data for assets.	30 days	Mon 13/10/08	Fri 21/11/08
25	5. Implement infrastructure risk by establishing the framework and identifying risks and populating an infrastructure risk register.	60 days	Mon 24/11/08	Fri 13/02/09
26	6. Improve the capital evaluation framework by incorporating risk and triple bottom line.	60 days	Mon 23/02/09	Fri 15/05/09
27	7. Establish program to improve the use of AssetLife across WRWC by incorporating functions such as risk, condition etc into the	60 days	Mon 21/07/08	Fri 10/10/08
28	8. Implement a formal audit and review process on the Asset Management improvements.	40 days	Mon 20/04/09	Fri 12/06/09
29	9. Establish and implement a preventative maintenance program for infrastructure.	80 days	Thu 1/01/09	Wed 22/04/09
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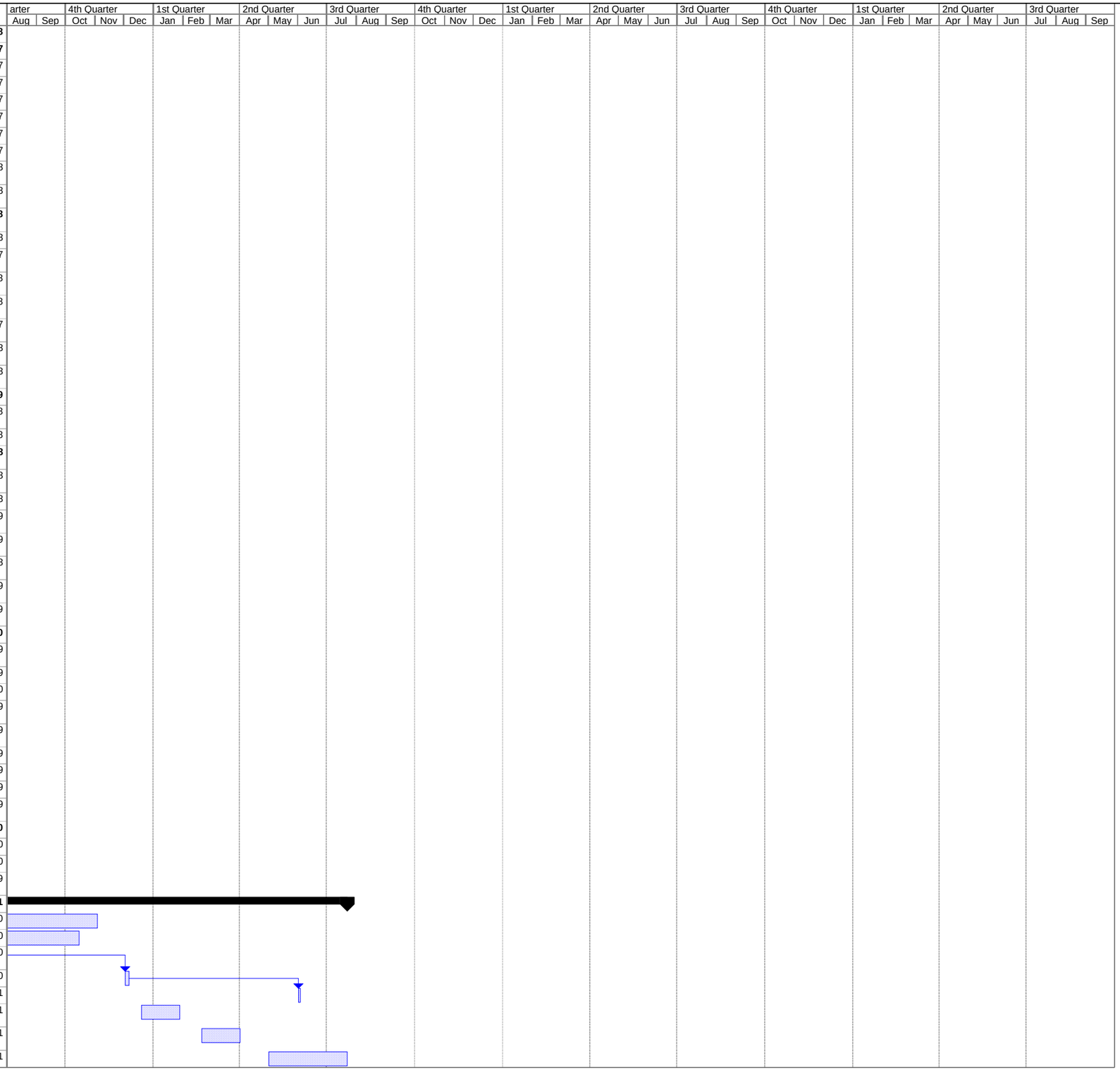

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